SECTION C

WASTE CHARACTERISTICS

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SECTION C

WASTE CHARACTERISTICS

This section describes the chemical and physical nature of the hazardous or non-hazardous wastes received and managed at the Facility and provides the Facility's Waste Analysis Plan (WAP). This information is provided in accordance with 40 CFR 270.14(b)(2) and (3) and ADEM Administrative Code Rules 335-14-8-.02(5)(b) 2 and 3.

C-1 Chemical and Physical Properties

The Facility receives and manages virtually every type of hazardous waste identified and listed in 40 CFR Part 261 and ADEM Administrative Code Chapter 335-14-2. However, for certain waste codes the Facility intends to receive only the treatment residues, yet the Facility has listed those codes within this Application because such treatment residuals carry the listed code of the original waste generated regardless of the concentration of the hazardous constituent in the waste or treatment residue in accordance with the EPA "derived from" rule.

The specific Waste Codes for waste streams managed within the hazardous waste management units at the Facility are provided in Table C-1-1 and Table C-1-2. As additional waste streams and waste codes are identified and added to 40 CFR Part 261 and ADEM Administrative Code Chapter 335-14-2, the Facility will update the information listed in these two tables to include new waste codes, utilizing proper permit modification procedures. The Facility also receives and manages other industrial wastes (e.g., PCB wastes) and site clean-up wastes that are not currently identified or listed in 40 CFR Part 261 and ADEM Administrative Code Chapter 335-14-2. The only wastes that are not currently accepted by the Facility are the following types:

- infectious wastes;
- radioactive wastes;
- putrescible wastes; unless prior approval is granted from the Department (Approval for the disposal of putrescible wastes will be reviewed and determined on a case-by-case basis); and
- wastes that the Facility deems to be extremely dangerous (e.g., shock-sensitive and explosive wastes)

The criteria for identification of the characteristics of hazardous waste and for the listing of hazardous wastes is as defined in 40 CFR 261.10 and 261.11, respectively, and ADEM Administrative Code Rules 335-14-2-.02(1) and 335-14-2-.02(2), respectively.

C-2 Waste Analysis Plan

In accordance with the regulatory requirements set forth in 40 CFR 264.13(b) and ADEM Administrative Code Rule 335-14-5-.02(4)(b), the Facility has developed this WAP to ensure a detailed chemical and physical analysis of a representative sample of the waste. After performing the analyses and procedures identified in this WAP or by applying knowledge of the waste, the Facility will have all appropriate information to treat, store and dispose of the waste in accordance with the applicable requirements of 40 CFR 264 and ADEM 335-14-5. An up-to-date copy of the WAP will be available at the Facility at all times.

C-2-1 Introduction

The purpose of this WAP is to identify and document the necessary sampling methodologies, analytical techniques, and overall procedures that are undertaken for all hazardous wastes that either: 1) enter this Facility for treatment, storage, and disposal, or 2) are generated by this Facility and are treated or disposed of on-site. Specifically, the WAP delineates the following:

- **Sampling Methodology** that will be used to obtain samples in order to perform any appropriate analyses to identify a waste material;
- **Analytical Parameters, Techniques, and Rationale** that the Facility will utilize to determine or identify waste properties (key parameters) to ensure proper management of the waste;
- **Acceptance Procedures** to determine the acceptability of a particular waste stream pursuant to Facility permit conditions and operating capabilities prior to management of that waste at the Facility;
- **Incoming Waste Shipment Procedures** to establish that the delivered waste load matches the accompanying manifest, and waste profile and the conditions of the Facility permit;
- **Process Operations Procedures** to maintain safe and appropriate methods of treatment, storage, or movement of wastes within the Facility; and
- **Quality Control Policy** utilized by the Facility laboratory to achieve high quality analytical results and data dependability.

The forms shown within this WAP are typical forms currently used by the Facility. These forms are dynamic forms that may be updated to suit changes in regulations, customer needs, or Facility operations. However, the core information required on the forms, pursuant to this WAP, will remain the same.

C-2-2 Sampling Methodology

Sampling may be performed at the Facility to identify waste shipments and to confirm that the waste conforms to the shipping paper. Specific sampling procedures are dependent on both the nature of the material and the type of containment. When possible, the Facility will follow EPA's SW-846 publication titled "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" and American Society for Testing and Materials (ASTM) methods for the collection of all samples. All sampling is performed in a manner that ensures samples are as representative as possible under the conditions of the sampling event.

As part of this WAP, all or part of the chemical and physical analysis can also be obtained from existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes. This additional data is known as "acceptable knowledge" and is further explained in Subsection C-2-4.

C-2-2a Equipment and Procedures

The sampling equipment and procedures described in this WAP represent the Facility's recommended sampling protocol for general types of waste materials and containments. Due to the varying nature and types of waste and the containers that the Facility receives, discussion on the specific types of equipment and procedures is limited in this subsection. The general sampling methods and the equipment utilized for waste materials are presented in Table C-2-1. If the physical state of the waste material precludes using the sampling methods listed in Table C-2-1, a sample will be collected using other acceptable industry sampling guidance means if possible and documented on the receipt control form.

As specified in Table C-2-1, the sampling equipment will vary depending on the physical characteristics of the waste, the chemical parameters being analyzed, and the type of container that the waste is stored in. All sampling equipment will be non-reactive and compatible with the wastes being sampled. In general, the methodologies utilized for specific materials correspond to those referenced in 40 CFR 261, Appendix I and ADEM Administrative Code Chapter 335-14-2, Appendix I. With the exception to revisions to SW-846 or ASTM methods, any changes to the sampling equipment and procedures described in this WAP will be made only with ADEM concurrence.

C-2-3 Analytical Parameters Rationale

Analyses are conducted by the Facility or by a Facility-approved commercial laboratory that is capable of performing the specified analyses outlined in this WAP. Laboratory analyses may be performed to augment or verify generator supplied information and to identify incoming waste shipments. A waste characterization is provided to the Facility by the waste generator on the Waste Profile Sheet (WPS) as shown in Figure C-2-1. Additional laboratory reports will be requested, if necessary. The generator and/or the Facility will provide all the information required

by 40 CFR 264.13(a)(1) [as outlined in 40 CFR 264.13(a)(2) and comment] and ADEM Administrative Code Rule 335-14-5-.02(4)(a) 1 and 2 (see Subsection C-2-4 for a discussion regarding the information and/or data to be supplied by the generator).

Analytical methods are classified as Basic Mandatory Analyses, Process-Specific Mandatory Analyses, and Supplemental Analyses. This arrangement allows a tiered approach to waste management, enabling the Facility to structure analyses to adequately identify the waste or to define operational parameters for the various treatment processes.

As a minimum, all waste samples are subjected to the Basic Mandatory Analyses and the Process-Specific Mandatory Analyses for that targeted process (see Subsection C-2-6 for when Process-Specific Mandatory Analyses are required). Supplemental Analyses are performed at the direction of Facility Management. The unexpected presence or absence of the screening parameters may warrant Supplemental Analyses, which are used to further identify a waste or to further ensure the appropriate management technique. Facility Management may select these additional Supplemental Analyses to augment the mandatory screening or to provide additional operational control.

The analytical methods the Facility utilizes in the tiered analytical approach are identified in Appendix C-1. With the exception of revisions to published standards, any deviation from the analytical methods listed in Appendix C-1 will be made only with ADEM concurrence. Analyses are not necessarily repeated for sequential activities or movement of the same waste within the Facility unless required by changes in the waste's character.

C-2-3a Basic Mandatory Analyses

The Basic Mandatory Analyses includes key screening procedures that ensure the waste received for treatment, storage, or disposal matches the waste profiled for management at the facility.

- **Physical Description** is used to determine the general characteristics of the waste. This facilitates subjective comparison of the sampled waste with prior waste descriptions or samples. It is also used to identify the presence or absence of free liquid. The paint filter test may be used as a confirmation of the presence of free liquids in solids and semi-solids;
- **pH Screening** is undertaken to indicate the corrosive nature of the waste. The pH must fall within the range provided on the WPS or within plus or minus 1 pH unit if a single value is listed on the WPS;
- **Water Compatibility** is used to determine whether the waste has a potential to vigorously react with water to form gases or other products or whether it generates significant heat;

- **Ignitability/Flammability Screening** is used to indicate the fire-producing potential of the waste. This screening procedure provides a mechanism for assigning a waste compatibility code to the container(s). This test can be applied to all waste liquids, semi-solids, or solids;
- **Cyanide Screening** is used to indicate whether the waste produces hydrogen cyanide upon acidification. It is not required if the pH of the waste is less than 6.0. A positive screen would warrant a total cyanide analysis and subsequent reactive cyanide analysis if the total concentration exceeds 250 mg/L;
- **Sulfide Screening** is used to indicate whether the waste produces hydrogen sulfide upon acidification. Reactive sulfide analysis is required for wastes that do not list sulfides in the chemical composition or if the pH is greater than 6.0.
- **PCB Analysis,** using a screening method contained in this WAP, will be conducted on initial receipt of all oil-bearing waste steams profiled as non-TSCA, that contain free liquids and annually thereafter. For third-party oil-bearing waste streams (i.e., brokers, TSFs) profiled as non-TSCA, that contain free liquid, PCB analysis will be performed upon initial receipt and for the next three shipments on an annual basis.
- **Radioactivity Screening** is used to screen all wastes for beta and gamma radioactivity to ensure that wastes containing beta and gamma levels that are above background are not accepted without approval by the State Health Department, Office of Radiation Control and ADEM. If the screening is positive, the sample/container is isolated, and a radioactivity survey is conducted on the container to dictate isolation distances if warranted; and
- **Indicator Parameter** will be chosen for each waste stream as a tracking parameter to determine if the waste shipment matches the shipping papers (e.g., physical description could be an indicator parameter for contaminated soil; specific gravity could be an indicator parameter for a clear liquid).

C-2-3b Additional Analyses: Process-Specific Mandatory Analyses and Supplemental Analyses

As a result of the numerous process operations at the Facility, Process-Specific Mandatory Analyses are described in each of the process operation sections of Subsection C-2-6b. These analyses are performed to maintain process control and to ensure that process residues can go to the next step of treatment or disposal. Supplemental Analyses are conducted when the Basic Mandatory and/or the Process-Specific Mandatory Analyses indicate that additional information is necessary to treat, store, or dispose of the waste.

C-2-4 Acceptance Procedures

The Facility has developed a series of control procedures to determine the acceptability of specific wastes for management at the Facility (see Figure C-2-2). These acceptance control procedures dictate what information a generator must provide to enable the Facility to determine the acceptability of the waste for treatment, storage, and disposal in accordance with ADEM Administrative Code Rules 335-14-5 and 335-14-9. Prior to receipt of waste at the facility, enough information to properly store the waste will be obtained. This information includes sufficient analytical data, generator knowledge, waste profile information, and/or Safety Data Sheets (SDS) to assign a proper compatibility class for the safe handling and storage of waste. The generator will supply the Facility with all the information required by 40 CFR 264.13(a)(1) [as outlined in 40 CFR 264.13(a)(2) and related comment] and ADEM Administrative Code Rules 335-14-5-.02(4)(a) 1 and 2.

Acceptance procedures are used for deciding to reject or accept a particular type of waste prior to its receipt at the Facility based upon the conditions or limitations of existing permits and its compatibility with other wastes being treated, stored, or disposed at the Facility. The acceptance procedures for this Facility may be carried out at this or another facility (prior to acceptance of the initial incoming shipment of the waste).

Before the Facility can treat and/or dispose of any hazardous waste, it will obtain a laboratory analysis of the hazardous constituents and/or characteristics of the waste causing it to be hazardous, therefore carrying a hazardous waste code. The Facility will obtain data developed under ADEM Administrative Code Rule 335-14-2 and existing published or documented data on the hazardous waste, or on hazardous waste generated from similar processes. For discarded commercial chemical products, off–specification species, container residues, and spills residues thereof (P and U waste codes), the single hazardous constituent will be assumed present and no laboratory analysis, for that constituent, will be done (e.g., a spill residue consisting of F, K, P and U wastes will only require analyses for the F and K constituents).

The Facility utilizes a waste analysis strategy in general accordance with the April 2015 EPA guidance document titled “Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste – A Guidance Manual.” Therefore, whenever feasible, the preferred method of the Facility to meet waste analysis requirements is to conduct sampling and laboratory analysis because it is typically more accurate and defensible than other options. However, acceptable knowledge, as defined by Section 1.2.2 of the April 2015 EPA guidance document, will also be used in specific circumstances to meet waste analysis requirements. As such, the Facility will periodically review the waste analysis and waste characterization information to determine if documentation used for acceptable knowledge remains accurate and defensible.

The Facility is aware that the burden is on the TSDF to demonstrate compliance with all applicable regulations. Hence, where appropriate, the Facility will require that laboratory analytical data be provided by the generator, or such lab analysis will be conducted by the Facility. However, some waste streams (e.g., off spec chemical products, electroplating wastewater treatment sludge, sand blast grit) lend themselves to waste characterization by obtaining specific process information.

The generator and/or Facility will provide the following:

- a Waste Profile Sheet (WPS) shown as Figure C-2-1 or an alternate form, which details pertinent chemical and physical data;
- a representative sample, if required (A representative sample may not be required by the Facility if management determines that the acceptance documentation supplied by the generator give sufficient information to maintain compliance with permit and operational constraints and that submittal of a sample would not aid in the waste management decision process. Where management determines a sample is necessary, this sample may be obtained by the Facility upon receipt of the initial shipment of the waste prior to acceptance);
- a Land Disposal Restriction (LDR) Notification/Certification Information and/or analytical data, if the waste is subject to a LDR (40 CRF Part 268 and ADEM Administrative Code Chapter 335-14-9.); and
- other supporting documentation, including any information such as SDS and product ingredients.

The Facility will review the WPS data, the information and/or data supplied by the generator to classify the waste, and perform the requisite analysis (if required). After comparing the data and information supplied by the generator and any obtained by analyses, the Facility will determine the acceptability of the waste based on:

- the permit conditions for the Facility; and
- the availability of the proper waste management techniques.

The Facility maintains, as part of its acceptance information, generator-supplied and Facility-developed information. This information is stored electronically and/or via hard copy at the Facility. In accordance with Permit Condition II.O.1.b.vi. and ADEM Administrative Code 335-14-5-.05, the Facility will submit copies of complete manifests to the transporter, generator, and EPA. Copies of the signed and dated manifests must be sent to the generator and EPA within 30 days after

delivery of waste to the Facility. Submittal of complete manifests to EPA may be submitted electronically via EPA's electronic manifest system or in hard copy form. All manifest discrepancies will be handled as indicated below in Subsection C-2-5 and in accordance with ADEM Administrative Code 335-14-5-.05(3).

C-2-4a Re-evaluation Process

A waste stream re-evaluation will be conducted periodically to ensure that the waste analysis procedures employed by the Facility are accurate and up to date. At a minimum, the analysis or acceptable knowledge must be repeated or verified:

- when the Facility is notified, or has reason to believe that the process or operation generating the hazardous wastes, or non-hazardous wastes if applicable under 335-14-5-.07(4)(d), has changed; and
- when the results of the inspection or analysis as described in this WAP indicate that the hazardous waste received at the facility does not match the waste as described on the accompanying manifest or shipping paper; or
- every two years.

The re-evaluation process typically involves comparing the current waste profile to the available results of routine inspection, sampling, and analysis obtained upon receipt of an incoming load of the waste stream. If existing analytical data is not sufficient, the generator may be asked to review the current waste profile and any additional data, to supply a new profile, and/or to submit a sample for analysis. The Facility may also obtain a sample from a shipment of the waste. The generator will be required to certify that the raw materials and the process generating the waste have not changed since the last certification at least every two years. The generator is required to sign a certification statement which is provided by the Facility. The re-evaluation process for received wastes that do not match the manifest is described in Subsection C-2-5b.

C-2-5 Incoming Load Procedures

Upon arrival at the Facility and prior to acceptance, each shipment of waste will be inspected, sampled, and analyzed as defined herein. These pre-acceptance procedures allow a comparison between the actual waste shipped with what is described on the Waste Profile Sheet (WPS) and listed on the waste manifest. It also ensures the proper characterization of the waste for on-site treatment, storage, or disposal. Waste shipments that arrive at the Facility are considered to be in the receiving process until such time that Facility Management makes a final decision regarding waste acceptability. Once the manifest is coded with the handling code(s), the waste is considered accepted. The process/handling code will be an alpha, numeric, or alphanumeric label placed on the containers which will dictate the treatment method (if applicable) to be utilized by the facility. The label is also color coded based on the compatibility grouping of the waste.

All wastes prohibited under the Land Disposal Restrictions of 40 CFR Part 268 and ADEM Administrative Code Chapter 335-14-9 that have been treated, exempted, or given a variance (or meet the appropriate standard or prohibition without treatment) must be accompanied by a form from the generator or treater, certifying or notifying as appropriate, that the treated, exempted, or variance waste meets the appropriate treatment standard, prohibition, exemption or variance (or that the waste naturally meets the treatment standard or prohibition). This form must include the applicable analytical data, in accordance with 40 CFR Part 268 and ADEM Administrative Code Chapter 335-14-9. If the waste requires treatment, it must be accompanied by a form from the generator notifying the TSDF facility of the appropriate treatment standards and/or all applicable prohibitions which must be met, and including any applicable data or reference to such data or documentation (in accordance with 40 CFR Part 268 and ADEM Administrative Code Chapter 335-14-9).

For containerized waste intended for landfilling where biodegradable sorbents have been added by the generator or treater to adsorb free liquids, the Facility will request confirmation from the generator or treater that no biodegradable sorbents (as described in 40 CFR Part 264.314 (f) and ADEM Administrative Code 335-14-5.14(15)(e)) are included in the waste in accordance with 40 CFR Part 264.13(c)(3) and ADEM Administrative Code 335-14-5-.02(4)(c)4.

C-2-5a Receiving Procedures

Incoming load verification begins upon arrival of the waste at the Facility. The inspection, sampling, and analysis of the incoming waste will be performed in accordance with the parameters/methods described in Subsections C-2-2 and C-2-3.

Bulk waste delivered will be sampled and analyzed, except as identified in Subsection C-2-5a (1). In addition, where large volumes (> 500 tons) of a single waste material are received from a single source, all shipments will be visually inspected; and at least 10 percent of such loads will be randomly sampled and analyzed after ten consecutive shipments have been sampled and analyzed to show that the waste received matches the WPS. Loads that match the initial characterization other than due to the presence of rainwater collected during transportation may be considered as matching for the purpose of reducing sampling frequency. If a shipment does not conform to the WPS, the non-conformance will be managed in accordance with Subsection C-2-5b, and the next shipment will be sampled and analyzed.

Facility personnel also perform fingerprint sampling and analysis of large volume single waste stream loads (e.g., incoming loads from lagoons, impoundments, and waste piles). The required analyses will be performed in accordance with the parameters in Subsection C-2-3 and the frequencies described in this section. This process will be utilized only when Facility personnel have sampling oversight.

In the case of a shipment of containers, at least 10 percent of the containers from the initial shipment of each waste stream (or WPS) will be selected for sampling, except as identified in Subsections C-2-5 and C-2-5a(1). If the samples are found to conform to WPS, then samples from subsequent shipments of the same waste will be composited prior to analysis. If any of the samples on the initial shipment or any subsequent shipments are found to be non-conforming, then the samples will not be composited. Prior to processing, all remaining containers will be opened and visually inspected. All containers of waste profiled as a solid and found to contain unexpected free-standing liquids will be sampled.

As a means of ensuring that free liquids are not frozen in a container designated for landfill, the Facility will consider the local temperature and the location and transportation route of the shipment of waste when inspecting containers.

Samples from incoming waste shipments will be subjected to the Basic Mandatory Analyses identified in Subsection C-2-3a. All such samples will be retained by the Facility's laboratory until they are no longer of use to the laboratory, at which time the samples will be stored, or treated and disposed of on-site or at an authorized off-site facility.

Certain Miscellaneous Special Wastes are exempted from the above sampling and analysis. Subsection C-2-5a (1) below identifies the specific procedures for managing each.

C-2-5a(1) Miscellaneous Special Wastes

Exceptions to the foregoing incoming sampling and analysis requirements include the following Miscellaneous Special Wastes:

- Lab packs – All lab packs will be opened and visually inspected to ensure that sufficient packing material is present, (i.e., greater than 90% full) and that it is a lab pack. In addition, ten percent of the lab packs (per profile and shipment) will be selected for comparison. From each of these comparison lab packs no less than three of the containers packed inside will be compared against the incoming drum inventory;
- Empty containers – A visual inspection of 100 percent of the empty containers will be performed to ensure compliance with 40 CFR 261.7 and ADEM administrative Code Rule 335-14-2-.01(7);
- Asbestos waste – Containers of asbestos wastes will be visually inspected. The exteriors of these containers will be visually inspected to verify the containers' integrity. In the case of bulk shipments of asbestos materials, these materials will be covered immediately upon placement in the landfill;

- Waste materials regulated solely by 40 CFR 761.
- Debris – A visual inspection of 100% of debris loads will be performed to ensure the waste is as profiled and conforms to the definition of debris. For the purpose of defining debris in the case of mixtures (debris/non-debris), USEPA has provided guidance as to visual inspection. If the content of the container consists of primarily debris by volume, then the contents will be subject to the regulation as debris. Additionally, an intact container of over 50% debris – which consists of friable asbestos, paint filters, paint/solvent rags, or mercaptan – with less than 10% void space may be macro-encapsulated. Deviation from this condition would require ADEM approval;
- Intact Batteries;
- Debris/Industrial Equipment;
- Discarded commercial chemical products or manufacturing chemical intermediates in original packaging;
- Controlled substances regulated by the Federal Government including illegal drugs and/or materials in containers that cannot be sampled due to contractual restrictions with the Federal Government; and
- Site generated waste: Wastes generated on site can generally be characterized adequately by knowledge of the process generating or source of the waste.

The sampling and analysis of previously listed Miscellaneous Special Waste and the sampling and analysis of any waste identified to present extraordinary health and safety hazards, impractical sampling, or wastes of such a nature that their contents are known in sufficient chemical and physical detail, will not be conducted. At a minimum, a visual inspection of all containers and bulk loads will be conducted.

C-2-5b Incoming Shipment Decision Evaluation Logic

The general logic utilized by Facility personnel in deciding whether to accept or reject a particular waste load is depicted in Figure C-2-3.

Additional testing will be required if the receiving fingerprint data is discrepant with the WPS. The key fingerprint parameters that must match the WPS information for a waste to be considered in profile or non-discrepant are: physical state, cyanide screen, sulfide screen, radiation screen, pH, flammability screen of liquids, water reactive screen, and indicator parameter (Note: In some instances, the indicator parameter may be one of the other fingerprint parameters).

Facility management will classify the waste as non-conforming if the above fingerprint parameters do not match the WPS, or the receipt analyses are discrepant with the information on the manifest (see Figure C-2-4).

Wastes found to be in non-conformance may be 1) rejected and returned to the generator or re-manifested to an alternate TSDF facility per generator instructions; or 2) re-evaluated for possible acceptance by the Facility despite the non-conformance. The re-evaluation will be based on the following criteria:

- permit authorization;
- discussion with or information from the generator;
- facility conditions; and/or
- the results of any additional Supplemental Analyses.

Pursuant to 40 CFR Part 264.72 and ADEM Administrative Code Rule 335-14-5-.05(3), the Facility personnel must discuss and attempt to resolve with the generator any discrepancies between the actual waste and that shown on the manifest. Figure C-2-5 summarizes the discrepancy resolution process.

C-2-6 Process Operations Procedures

The primary process operations of the Facility are storage, treatment, and disposal. Specific details regarding the analytical procedures of these operations are presented below. Many of the analyses needed for proper storage, treatment, or disposal of waste are performed during incoming load verification. These analyses are not repeated unless it is known or believed that the waste characteristics have changed during storage or processing, and those changes are not expected or allowed for, under normal operating conditions.

C-2-6a Storage

Waste may be placed into tank or container storage units prior to treatment on-site, disposal on-site, or transshipment off-site. Before any wastes are placed in a storage unit, Facility Management will assess the compatibility of the waste with the storage unit and its contents using information collected during the incoming load verification process.

Liquid wastes which are transferred from drums, portable tanks or tank trucks may be placed in tankers or bulk storage tanks prior to further treatment. Stored containerized liquid wastes are segregated with respect to reactivity, corrosivity, and compatibility.

The general analytical sequence for storage in tanks or containers is provided as Figure C-2-6. All wastes are stored in accordance with the following compatibility color coding system, which may be modified as necessary:

Compatibility Type	Group # (DOT)	Color Coding Marker
Flammables	1	Red
Flammables	2	Red
Inorganic Acid	3	Yellow
Organic Acid	4	White
Bases	5	Blue
Reactives (Chemical)	6	Black
Reactives (H_2O)	7	Orange
Non-Hazardous	8	Green
Oxidizer	9	Spotted Yellow

In accordance with 40 CFR 268.50(b), storage for RCRA LDR hazardous wastes will not exceed one year following receipt of the waste at the facility, unless it is for the purpose of accumulating waste for proper recovery, treatment, or disposal, as allowed by 40 CFR 268.50(c). Prior to the end of the one-year period or when the facility has accumulated the proper volume for recovery, treatment, or disposal, the facility will begin the treatment process or trans-ship the waste to another permitted RCRA facility. Similarly, storage of TSCA regulated PCB wastes or PCB items with concentrations of 50 ppm or greater at the facility will not exceed a one-year timeframe from the date the waste was removed from service for disposal in accordance with 40 CFR 761.65(a)(1).

C-2-6b Treatment

The treatment of a particular waste necessitates appropriate sampling and analysis during selected phases of the operation. The results of this analytical program serve to determine safety constraints, confirm treatment method selection, and identify the process parameters. The treatment sampling/analysis program is normally divided into three segments, each with a specific purpose:

- Pre-treatment Analyses confirm that the waste is within the selected process design parameters and allow the refinement of the process operational conditions for optimum treatment;
- In-process Analyses are performed to control the process and/or to monitor progress; and

- Post-treatment Analyses confirm that the treatment was successful and that the characteristics of the process effluent are such that it can be sent to the next step (disposal or further treatment) based upon permit, regulatory, or process constraints. Any residues or waste sent off-site for disposal or further treatment will have the appropriate notification and/or certification form (in accordance with 40 CFR Part 268 and ADEM Administrative Code Chapter 335-14-9).

C-2-6b(1) Stabilization

Stabilization can be used to treat (i.e., immobilize or reduce the toxicity of) certain inorganic compounds, including some LDR inorganic compounds. In this process, the wastes are mixed with a stabilizing agent and/or other suitable reagents that cause a chemical reaction producing a treated mixture suitable for land disposal.

An overview of Stabilization is shown in Figure C-2-7. As outlined in the Land Disposal Restriction Stabilization Evaluation Test found in Appendix C-1, a sample of the waste may be stabilized and then analyzed to establish the mix ratio of reagent (s) to waste to be used to treat the waste. If the LDR Stabilization Evaluation (SE) is not performed on a sample of the waste prior to receipt, it will be performed after treatment of the waste, with a previously developed and established mix ratio. The Facility may use experience and historical supporting analytical data to assig a predetermined mix ratio in lieu of a pre-acceptance sample.

The Facility may, for operating efficiency and to utilize maximum processing capacity, combine several wastes or shipments from various generators. Batch treatment of multiple waste streams will be based on waste compatibility, hazardous waste codes, and treatment standards. In all cases, these consolidated wastes will be tested after treatment in order to confirm that the waste meets the appropriate treatment standards.

An untreated sample of the initial load to be treated by stabilization will be analyzed for the inorganic TCLP constituent(s) to establish an untreated base line value. The base line value of the untreated waste constituent(s) will be checked randomly on 2% of the shipments from a single waste stream. If the constituent(s) concentration(s) is greater than one (1) order of magnitude above the base line value (i.e., the range for a 10 ppm TCLP–Pb stream would be from 1 to 100 ppm TCLP-Pb), the treated load of the waste stream will be held for post-treatment TCLP analysis to determine whether the treatment standards were achieved.

Post-treatment evaluation will confirm that the mix ratio used to stabilize the shipment of waste has achieved the appropriate treatment standard. Post-treatment testing for all applicable inorganic LDR constituents being treated will be performed on the first load processed of each waste stream and on the first load received after twelve months from the previous post treatment analysis done on that waste stream. If the treated load does not pass LDR standards, it will be retreated and retested until it passes the applicable LDR standards.

All waste streams must be stabilized within the stabilization unit, which is maintained to deliver reagent(s) within 95% of the selected mix ratio. Stabilization loads not meeting this criterion may be held for post-treatment analysis.

C-2-6b(2) Solidification of Wastes Containing Free Liquids

In this process, wastes are treated solely to solidify free liquids. An overview of the process is shown in Figure C-2-8. Post treatment analyses will consist of the paint filter test, which will ensure that no free liquids are present.

C-2-6b(3) Decanting

In this process, the contents of containers or tanks may be separated into fractions and segregated prior to processing. Wastes will not be processed in this manner to circumvent the LDRs via dilution.

The analyses performed on wastes to be decanted include those appropriate to the ultimate target unit for that waste and compatibility evaluation. Incoming loads of these wastes undergo the Basic Mandatory Analyses. The following Process-Specific Mandatory Analyses are performed prior to processing:

- commingled waste compatibility test;
- container or tank compatibility evaluation; and
- sorbent compatibility test, if material is being considered for land disposal.

After the liquid contents have been removed and the phases have been separated, in-process analyses are used to ensure proper management. Samples of the phases are collected from the separator tanks or other bulk liquid storage containers. Figure C-2-9 presents this sequence of analyses schematically.

C-2-6b(4) Fuels Blending

In this process, organic wastes are blended for reuse as fuel. The general analytical sequence for fuels blending is shown in Figure C-2-10. Incoming shipments of fuels for blending receive the Basic Mandatory Analyses. Pre-treatment analyses consist of the following Process-Specific Mandatory Analyses performed prior to processing:

- commingled waste compatibility test;
- container compatibility evaluation;
- heat value;

- halogen content; and
- specific gravity.

The following Supplemental Analyses may be performed prior to processing at the direction of Facility Management:

- GC scan;
- metals by AA or ICP;
- water content; and
- pH (by meter).

Post-treatment analyses are performed to determine the quality of the blended fuel and to evaluate the waste residues (tank bottoms and in some cases, a separated aqueous phase) for subsequent treatment, storage, or disposal. The blended fuel will be analyzed and evaluated for use at an appropriate fuels recovery outlet. These analyses may include heat value (BTU), halogen content, PCB's and water content.

C-2-6b(5) pH Adjustment

In this process, acidic and caustic wastes (e.g., wastes with a pH less than 4 or greater than 10) are mixed together or with reagents (acids/caustics) to adjust pH, thus minimizing the hazardous characteristics and allowing them to be placed in other storage tanks or treatment units at the Facility.

Pre-treatment analyses confirm the physical description of the waste and its amenability to pH adjustment. In-process analyses consist of pH and temperature monitoring at the treatment units, utilizing pH and temperature measuring devices.

Incoming loads intended for pH adjustment will be subjected to the Basic Mandatory Analyses. The following Process-Specific Mandatory Analyses are performed prior to processing:

- pH by meter;
- bench scale treatment evaluation; and
- container compatibility evaluation.

The following Supplemental Analyses may be performed prior to processing at the direction of Facility Management:

- percent acidity; or

- percent alkalinity.

Post-Treatment analyses will include:

- commingled waste compatibility test (appropriate for the unit to which liquids will be transferred); and
- solidification evaluation or stabilization evaluation test (performed on the liquids and semi-solids targeted for solidification or stabilization).

Figure C-2-11 presents this analysis sequence schematically.

C-2-6b(6) Treatment of Hazardous Debris

Hazardous debris requiring treatment must be treated prior to land disposal by either the Alternative Treatment Standards for Hazardous Debris, 40 CFR 268.45, Table 1 and ADEM Administrative Code Rule 335-14-9-.04, or the waste specific treatment standards for the waste contaminating the debris.

To render the hazardous debris acceptable for land disposal, one or more physical and or chemical treatment technologies may be employed. Physical treatment techniques such as size reduction, micro- or macroencapsulation, waste separation by components, blending and bulking, and leaching, etc. may be employed to render wastes acceptable for landfill disposal or more amenable to subsequent stabilization or management in containers or tanks.

Non-debris waste material segregated during the debris treatment process shall undergo further treatment depending on the associated contaminant or EPA Hazardous Waste Codes identified and listed in 40 CFR Part 261 and ADEM Administrative Code Chapter 335-14-2.
Debris treatment residuals requiring LDR stabilization will receive post-treatment testing to verify the treated waste is meeting the applicable treatment standard prior to landfill disposal.

Post-treatment analysis for treated debris consists of a visual inspection of the treated hazardous debris, performed to confirm that the hazardous debris treatment technology conducted has treated the waste to meet the designated performance and/or design and operating standards and any contaminant restrictions identified in ADEM Administrative Code Rule 335-14-9-.04(6) and 40 CFR 268.45. Figure C-2-12 presents a schematic the hazardous debris treatment process.

C-2-6b(7) Biological Treatment

The Facility operates a Leachate Treatment Plant which is located in Unit 2001 and is regulated under the Facility's NPDES Permit. Leachate treatment consists of a chemical and/or biological process with a pH adjustment. Unit 2001 does not treat offsite waste. Additionally, biological treatment may occur in Unit 1400 as part of a pre-treatment process for the treatment of leachate prior to being processed in Unit 2001.

C-2-6c Landfill Disposal

A sampling/analysis program is an integral part of this phase of operation. The results of this program serve to evaluate compliance with Facility permit constraints, confirm disposal method selection, and determine safety constraints. Landfill disposal operations generally require only pre-disposal analyses.

Landfilling of Corrective Action Management Unit (CAMU) eligible waste from off-site facilities as described at 40 CFR 264.555 and oil and gas exploration and production (E&P) wastes will be performed with approval from ADEM. All wastes for landfills, including each CAMU and E&P waste stream, will be profiled and submitted for the ADEM pre-approval program prior to disposal.

The incoming load analyses include:

- the Basic Mandatory Analyses; and
- a visual inspection by a sampler[1].

The physical description evaluation is an especially important aspect of the Basic Mandatory Analyses for landfill disposal since it will identify the presence of free liquid. When the physical description of wastes destined for direct landfill disposal provides information to suspect free liquids or sorbents are present, a paint filter test will be performed.

For LDR wastes the generator or treater of the waste will also supply to the Facility all the information necessary to demonstrate that either the treated waste meets the appropriate treatment standard or the exempted/variance-specific waste meets the appropriate exemption or variance. Upon receipt of the incoming shipment, if the waste conforms to the expected descriptions and properties as determined during acceptance review, then the information obtained from the generator can reasonably be used as a basis for managing the waste which arrives at the Facility for disposal, and the waste is accepted. More information on LDR waste analysis procedures carried out by the Facility is presented in Appendix C-2 of this section. Landfilling of non-CAMU wastes are described further in Attachment D-6-1-1 in Section D-6.

C-2-7 Quality Control Policy

The Facility has developed a program of quality control practices and procedures to ensure that precision and accuracy are maintained throughout all of its laboratories. Contract laboratories

[1] All materials will be inspected by a sampler and if are determined to have potential for wind dispersal (e.g., powders, dusty materials, fly ash, baghouse dusts), the sampler will so note on the receipt control form. This will cause wind dispersal control measures to be implemented by disposal personnel, if appropriate.

employed by the company must demonstrate quality control practices at least as stringent as the company's program.

Specific performance standards of quality control procedures for individual sampling and analysis techniques are at least as stringent as SW-846.

[End of Section C Text]

SECTION C

WASTE CHARACTERISTICS

TABLES

TABLE C-1-1
ABBREVIATED LISTING OF WASTE CODES MANAGED AT THE FACILITY

D001 through D043

F001 through F012, F019 through F028, F032, F034, F035, F037 through F039

K001 through K011, K013 through K052, K060 through K062, K069, K071, K073, K083 through K088, K093 through K118, K123 through K126, K131, K132, K136, K141 through K145, K147 through K151, K156 through K159, K161, K169 through K172, K174 through 178, and K181

P001 through P018, P020 through P024, P026 through P031, P033, P034, P036 through P051, P054, P056 through P060, P062 through P078, P081, P082, P084, P085, P087 through P089, P092 through P099, P101 through P106, P108 through P116, P118 through P123, P127, P128, P185, P188 through P192, P194, P196 through P199, and P201 through P205

U001 through U012, U014 through U039, U041 through U053, U055 through U064, U066 through U099, U101 through U103, U105 through U138, U140 through U174, U176 through U194, U196, U197, U200 through U211, U213 through U223, U225 through U228, U234 through U240, U243, U244, U246 through U249, U271, U278 through U280, U328, U353, U359, U364, U367, U372, U373, U387, U389, U394, U395, U404, U409, U410 and U411

Notes:

1) The list of Waste Codes provided in Table C-1-1 is intended to include all Waste Codes identified and listed in 40 CFR Part 261 and ADEM Administration Code Chapter 335-14-2.

2) Table C-1-2 provides the above Waste Codes accompanied by a description of the waste and the associated basis for listing as designated by Hazard Code.

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste by Characteristic	Hazard Code
D001	Ignitability	(I)
D002	Corrosivity	(C)
D003	Reactivity	(R)
D004	Arsenic	(E)
D005	Barium	(E)
D006	Cadmium	(E)
D007	Chromium	(E)
D008	Lead	(E)
D009	Mercury	(E)
D010	Selenium	(E)
D011	Silver	(E)
D012	Endrin	(E)
D013	Lindane	(E)
D014	Methoxychlor	(E)
D015	Toxaphene	(E)
D016	2,4 D	(E)
D017	2,4,5 TP (Silvex)	(E)
D018	Benzene	(E)
D019	Carbon tetrachloride	(E)
D020	Chlordane	(E)
D021	Chlorobenzene	(E)
D022	Chloroform	(E)
D023	o-Cresol	(E)
D024	m-Cresol	(E)
D025	p-Cresol	(E)
D026	Cresol	(E)
D027	1,4-Dichlorobenzene	(E)
D028	1,2 Dichloroethane	(E)
D029	1,1-Dichloroethylene	(E)
D030	2,4 Dinitrotoluene	(E)
D031	Heptachlor (and its epoxide)	(E)
D032	Hexachlorobenzene	(E)
D033	Hexachlorobutadiene	(E)
D034	Hexachloroethane	(E)
D035	Methyl ethyl ketone	(E)
D036	Nitrobenzene	(E)
D037	Pentachlorophenol	(E)
D038	Pyridine	(E)
D039	Tetrachloroethylene	(E)
D040	Trichloroethylene	(E)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste by Characteristic	Hazard Code
D041	2,4,5 Trichlorophenol	(E)
D042	2,4,6 Trichlorophenol	(E)
D043	Vinyl Chloride	(E)

Basis for Listing of Class or Type of Hazardous Waste by Hazard Code

(I) Ignitable Waste
(C) Corrosive Waste
(R) Reactive Waste
(E) Toxicity Characteristic Waste
(H) Acute Hazardous Waste
(T) Toxic Waste

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste from Non-Specific Sources	Hazard Code
Generic:		
F001	The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1 trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons;all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F002	The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1 trichloroethane, chloro benzene, 1,1,2 trichloro 1,2,2 trifluoro ethane, ortho dichlorobenzene, trichlorofluoromethane, and 1,1,2 trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F003	The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-utyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I)
F004	The following spent non halogenated solvents: Cresols and	(T)
F005	The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I,T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste from Non-Specific Sources	Hazard Code
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	(T)
F007	Spent cyanide plating bath solutions from electroplating operations.	(R,T)
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(R,T)
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(R,T)
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.	(R,T)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations	(R,T)
F012	Quenching waste water treatment sludges from metal heat treating operations where cyanides are used in the process	(T)
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process. Wastewater treatment sludges from the manufacturing of motor vehicles using a zinc phosphating process will not be subject to this listing at the point of generation if the wastes are not placed outside on the land prior to shipment to a landfill for disposal and are either: disposed in a Subtitle D municipal or industrial landfill unit that is equipped with a single clay liner and is permitted, licensed or otherwise authorized by the state; or disposed in a landfill unit subject to, or otherwise meeting, the landfill requirements in §258.40, §264.301 or §265.301. For the purposes of this listing, motor vehicle manufacturing is defined in paragraph (b)(4)(i) of this section and (b)(4)(ii) of this section describes the recordkeeping requirements for motor vehicle manufacturing facilities.	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste from Non-Specific Sources	Hazard Code
F020	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. (This listing does not include wastes from the production of hexachlorophene from highly purified 2, 4, 5-trichlorophenol.).	(H)
F021	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.	(H)
F022	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra , penta , or hexachlorobenzenes under alkaline conditions.	(H)
F023	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of Hexachlorophene from highly purified 2, 4, 5-trichlorophenol.).	(H)
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean out wastes, from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. [This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in 261.31 or 261.32.].	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste from Non-Specific Sources	Hazard Code
F025	Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging form one to and including five, with varying amounts and positions of chlorine substitution.	(T)
F026	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.	(H)
F027	Discarded unused formulations containing tri , tetra , or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing Hexachlorophene synthesized from prepurified 2, 4,5-trichlorophenol as the sole component.).	(H)
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and F027.	(T)
F032	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with 261.35 of this chapter or potentially cross-contaminated wastes that are otherwise currently regulated as hazardous wastes (i.e., F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste from Non-Specific Sources	Hazard Code
F034	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wood preserving processes that use creosote and/or pentachlorophenol.	(T)
F035	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.	(T)
F037	Petroleum refinery primary oil/water/solids separation sludge-- Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in 261.31 (b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing. This listing does include residuals generated from processing or recycling oil-bearing hazardous secondary materials excluded under §261.4(a)(12)(i), if those residuals are to be disposed of.	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste from Non-Specific Sources	Hazard Code
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge--Any sludge and/or float generated from the physical and/ or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in 261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing.	(T)
F039	Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under Subpart D of Part 261. (Leachate resulting from the disposal of one or more of the following EPA Hazardous Wastes and no other Hazardous Wastes retains its EPA Hazardous Waste Number(s): F020, F021, F022, F026, F027, and/or F028.	(T)

Basis for Listing of Class or Type of Hazardous Waste by Hazard Code

(I) Ignitable Waste
(C) Corrosive Waste
(R) Reactive Waste
(E) Toxicity Characteristic Waste
(H) Acute Hazardous Waste
(T) Toxic Waste

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
Wood Preservation:		
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.	(T)
Inorganic Pigments:		
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.	(T)
K003	Wastewater treatment sludge from the production of molybdate orange pigments.	(T)
K004	Wastewater treatment sludge from the production of zinc yellow pigments.	(T)
K005	Wastewater treatment sludge from the production of chrome green pigments.	(T)
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).	(T)
K007	Wastewater treatment sludge from the production of iron blue pigments.	(T)
K008	Oven residue from the production of chrome oxide green pigments.	(T)
Organic Chemicals:		
K009	Distillation bottoms from the production of acetaldehyde from ethylene.	(T)
K010	Distillation side cuts from the production of acetaldehyde from ethylene.	(T)
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.	(R,T)
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile.	(R,T)
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	(T)
K015	Still bottoms from the distillation of benzyl chloride.	(T)
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.	(T)
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.	(T)
K018	Heavy ends from the fractionation column in ethyl chloride production.	(T)
K019	Heavy ends from the fractionation column in ethyl chloride production.	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	(T)
K021	Aqueous spent antimony catalyst waste from fluoromethanes production.	(T)
K022	Distillation bottom tars from the production of phenol/acetone from cumene.	(T)
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.	(T)
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.	(T)
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.	(T)
K026	Stripping still tails from the production of methyl ethyl pyridines	(T)
K027	Centrifuge and distillation residues from toluene diisocyanate production.	(R,T)
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1 trichloroethane.	(T)
K029	Waste from the product steam stripper in the production of 1,1,1 trichloroethane.	(T)
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.	(T)
K083	Distillation bottoms from aniline production.	(T)
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes.	(T)
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene.	(T)
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene.	(T)
K095	Distillation bottoms from the production of 1,1,1 trichloroethane.	(T)
K096	Heavy ends from the heavy ends column from the production of 1,1,1 trichloroethane.	(T)
K103	Process residues from aniline extraction from the production of aniline.	(T)
K104	Combined wastewater streams generated from nitrobenzene/aniline production.	(T)
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
K107	Column bottoms from product separation from the production of 1,1 dimethyl hydrazine (UDMH) from carboxylic acid hydrazines.	(C,T)
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1 dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	(I,T)
K109	Spent filter cartridges from product purification from the production of 1,1 dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	(T)
K110	Condensed column overheads from intermediate separation from the production of 1,1 dimethyl hydrazine (UDMH) from carboxylic acid hydrazides.	(T)
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene.	(C,T)
K112	Reaction by product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K114	Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.	(T)
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene.	(T)
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(T)
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(T)
K149	Distillation bottoms from the production of alpha (or methyl) chlorinated toluenes, ring chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups. (This waste does not include still bottoms from the distillation of benzyl chloride.).	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha (or methyl) chlorinated toluenes, ring chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	(T)
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha (or methyl) chlorinated toluenes, ring chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	(T)
K156	Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)	(T)
K157	Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)	(T)
K158	Bag house dusts and filter/separation solids from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)	(T)
K159	Organics from the treatment of thiocarbamate wastes.	(T)
K161	Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts. (This listing does not include K125 or K126).	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
K174	Wastewater treatment sludges from the production of ethylene dichloride or vinyl chloride monomer (including sludges that result from commigled ethylene dichloride or vinyl chloride monomer wastewater and other wastewater), unless the sludges meet the following conditions: (i) they are disposed of in a subtitle C or non-hazardous landfill licensed or permitted by the state or federal government; (ii) they are not otherwise placed on the land prior to final disposal; and (iii) the generator maintains documentation demonstrating that the waste was either disposed of in an on-site landfill or consigned to a transporter or disposal facility that provided a written commitment to dispose of the wastein an off-site landfill. Respondents in any action brought to enforce the requirements of subtitle C must, upon a showing by the government that the respondent managed wastewater treatment sludges from the production of vinyl chloride monomer or ethylene dichloride, demonstrate that they meet the terms of the exclusion set forth above. In doing so, thye must provide appropriate documentation (e.g., contracts between the generator and the landfill owner/operator, invoices documenting delivery of waste to landfill, etc.) that the terms of the exclusion were met.	(T)
K175	Wastewater treatment sludges from the production of vinyl chloride monomer using mercuric chloride catalyst in an acetylene-based process.	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
K181	Nonwastewaters from the production of dyes and/or pigments (including nonwastewaters commingled at the point of generation with nonwastewaters from other processes) that, at the point of generation, contain mass loadings of any of the constituents identified in paragraph (c) of this section that are equal to or greater than the corresponding paragraph (c) levels, as determined on a calendar year basis. These wastes will not be hazardous if the nonwastewaters are: (i) disposed in a Subtitle D landfill unit subject to the design criteria in §258.40, (ii) disposed in a Subtitle C landfill unit subject to either §264.301 or §265.301, (iii) disposed in other Subtitle D landfill units that meet the design criteria in §258.40, §264.301, or §265.301, or (iv) treated in a combustion unit that is permitted under Subtitle C, or an onsite combustion unit that is permitted under the Clean Air Act. For the purposes of this listing, dyes and/or pigments production is defined in paragraph (b)(1) of this section. Paragraph (d) of this section describes the process for demonstrating that a facility's nonwastewaters are not K181. This listing does not apply to wastes that are otherwise identified as hazardous under §§261.21–261.24 and 261.31–261.33 at the point of generation. Also, the listing does not apply to wastes generated before any annual mass loading limit is met.	(T)
Inorganic Chemicals:		
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.	(T)
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.	(T)
K106	Wastewater treatment sludge from the mercury cell process in chlorine production.	(T)
K176	Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony metal or crude antimony oxide).	(T)
K177	Slag from the production of antimony oxide that is speculatively accumulated or disposed, including slag from the production of intermediates (e.g., antimony metal or crude antimony oxide).	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
K178	Residues from manufacturing and manufacturing-site storage of ferric chloride from acids formed during the production of titanium dioxide using the chloride-limenite process.	(T)
Pesticides:		
K031	By product salts generated in the production of MSMA and cacodylic acid.	(T)
K032	Wastewater treatment sludge from the production of chlordane.	(T)
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.	(T)
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.	(T)
K035	Wastewater treatment sludges generated in the production of creosote.	(T)
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton.	(T)
K037	Wastewater treatment sludges from the production of disulfoton.	(T)
K038	Wastewater from the washing and stripping of phorate production.	(T)
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.	(T)
K040	Wastewater treatment sludge from the production of phorate.	(T)
K041	Wastewater treatment sludge from the production of toxaphene.	(T)
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5 T.	(T)
K043	2,6 Dichlorophenol waste from the production of 2,4 D.	(T)
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.	(T)
K098	Untreated process wastewater from the production of toxaphene.	(T)
K099	Untreated wastewater from the production of 2,4 D.	(T)
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salt.	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
K124	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.	(C,T)
K125	Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.	(T)
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.	(T)
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide.	(C,T)
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide.	(T)
Explosives:		
K044	Wastewater treatment sludges from the manufacturing and processing of explosives.	(R)
K045	Spent carbon from the treatment of wastewater containing explosives.	(R)
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead based initiating compounds.	(T)
K047	Pink/red water from TNT operations.	(R)
Petroleum Refining:		
K048	Dissolved air flotation (DAF) float from the petroleum refining industry.	(T)
K049	Slop oil emulsion solids from the petroleum refining industry.	(T)
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.	(T)
K051	API separator sludge from the petroleum refining industry.	(T)
K052	Tank bottoms (leaded) from the petroleum refining industry.	(T)
K169	Crude oil storage tank sediment from petroleum refining operations	(T)
K170	Clarrified slurry oil storage tank sediment and/or in-line filter/separation solids from petroleum refining operations	(T)
K171	Spent hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic units (this listing does not include inert support media)	(T)
K172	Spent hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic units (this listing does not include inert support media)	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
Iron and Steel:		
K061	Emission control dust/sludge from the primary production of steel in electric furnaces.	(T)
K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332).	(C,T)
Primary Copper:		
Primary Lead:		
Primary Zinc:		
Primary Aluminum:		
K088	Spent potliners from primary aluminum reduction.	(T)
Ferroalloys:		
Secondary Lead:		
K069	Emission control dust/sludge from secondary lead smelting. (NOTE: This listing does not include sludge generated from secondary acid scrubber systems provided the primary air pollution control system is properly operated and maintained. Exempt sludge must be evaluated to determine if it exhibits a characteristic of a hazardous waste.	(T)
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.	(T)
Veterinary Pharmaceuticals:		
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo arsenic compounds.	(T)
K101	Distillation tar residues from the distillation of aniline based compounds in the production of veterinary pharmaceuticals from arsenic or organo arsenic compounds.	(T)
K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo arsenic compounds.	(T)
Ink Formulation:		
K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes from Specific Sources	Hazard Code
Coking:		
K060	Ammonia still lime sludge from coking operations.	(T)
K087	Decanter tank tar sludge from coking operations.	(T)
K141	Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke from coal or the recovery of coke by products produced from coal. This listing does not include K087 (decanter tank tar sludges from coking operations).	(T)
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke by products produced from coal.	(T)
K143	Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by products produced from coal.	(T)
K144	Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by products produced from coal.	(T)
K145	Residues from naphthalene collection and recovery operations from the recovery of coke by products produced from coal.	(T)
K147	Tar storage tank residues from coal tar refining.	(T)
K148	Residues from coal tar distillation, including but not limited to, still bottoms.	(T)

Basis for Listing of Class or Type of Hazardous Waste by Hazard Code

(I) Ignitable Waste
(C) Corrosive Waste
(R) Reactive Waste
(E) Toxicity Characteristic Waste
(H) Acute Hazardous Waste
(T) Toxic Waste

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste/Constituent	Hazard Code
Discarded Commercial Chemical ProductsOff Specification Species, Container Residues and Spill Residues Thereof:		
P001	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts, when present at concentrations greater than 0.3%	(H)
P002	1-Acetyl-2-thiourea	(H)
P002	Acetamide, N-(aminothioxomethyl)-	(H)
P003	Acrolein	(H)
P003	2-Propenal	(H)
P004	Aldrin	(H)
P004	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa- chloro-1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-	(H)
P005	Allyl alcohol	(H)
P005	2-Propen-1-ol	(H)
P006	Aluminum phosphide	(R,T)
P007	5-(Aminomethyl) 3 isoxazolol	(H)
P007	3(2H)-Isoxazolone, 5-(aminomethyl)-	(H)
P008	4-Aminopyridine	(H)
P008	4-Pyridinamine	(H)
P009	Ammonium picrate	(R)
P009	Phenol, 2,4,6-trinitro-, ammonium salt	®
P010	Arsenic acid H_3AsO_4	(T)
P011	Arsenic oxide As_2O_5	(T)
P011	Arsenic pentoxide	(T)
P012	Arsenic oxide As_2O_3	(T)
P012	Arsenic trioxide	(T)
P013	Barium cyanide	(H)
P014	Benzenethiol	(T)
P014	Thiophenol	(T)
P015	Beryllium powder	(H)
P016	Methane, oxybis [chloro]	(H)
P016	Dichloromethyl ether	(H)
P017	Bromoacetone	(T)
P017	2-Propanone, 1-bromo	(T)
P018	Brucine	(H)
P018	Strychnidin-10-one, 2,3-dimethoxy-	(H)
P020	Dinoseb	(H)
P020	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	(H)
P021	Calcium cyanide	(H)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste/Constituent	Hazard Code
P022	Carbon disulfide	(T)
P023	Chloroacetaldehyde	(H)
P023	Acetaldehyde, chloro-	(H)
P024	p Chloroaniline	(H)
P024	Benzenamine, 4-chloro-	(H)
P026	1-(o-Chlorophenyl)thiourea	(H)
P026	Thiourea, (2-chlorophenyl)-	(H)
P027	3-Chloropropionitrile	(H)
P027	Propanenitrile, 3-chloro-	(H)
P028	Benzyl chloride	(H)
P028	Benzene, (chloromethyl)-	(H)
P029	Copper cyanide	(H)
P030	Cyanides (soluble cyanide salts) not otherwise specified	(T)
P031	Cyanogen	(H)
P031	Ethanedinitrile	(H)
P033	Cyanaogen chloride	(H)
P034	2-Cyclohexyl 4,6-dinitrophenol	(T)
P034	Phenol, 2-cyclohexyl-4,6-dinitro-	(T)
P036	Dichlorophenylarsine	(H)
P036	Arsonous dichloride, phenyl-	(H)
P037	Dieldrin	(H)
P037	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta, 7aalpha)-	(H)
P038	Diethylarsine	(T)
P038	Arsine, diethyl-	(T)
P039	Disulfoton	(T)
P039	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester	(T)
P040	O,O Diethyl O pyrazinyl phosphorothioate.	(H)
P040	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	(H)
P041	Diethyl p nitrophenyl phosphate	(H)
P041	Phosphoric acid, diethyl 4-nitrophenyl ester	(H)
P042	Epinephrine	(H)
P042	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-	(H)
P043	Diisopropylfluorophosphate (DFP)	(H)
P043	Phosphorofluoridic acid, bis(1-methylethyl) ester	(H)
P044	Dimethoate	(T)
P044	Phosphorodithioic acid, O,O-dimethyl S-[2-(methyl amino)-2-oxoethyl] ester	(T)
P045	Thiofanox	(H)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste/Constituent	Hazard Code
P045	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[(methylamino)carbonyl] oxime	(H)
P046	Benzeneethanamine, alpha, alpha dimethyl	(T)
P046	alpha,alpha-Dimethylphenethylamine	(T)
P047	4,6-Dinitro-o-cresol, and salts	(H)
P047	Phenol, 2-methyl-4,6-dinitro-, & salts	(H)
P048	2,4 Dinitrophenol	(H)
P048	Phenol, 2,4-dinitro-	(H)
P049	Dithiobiuret	(H)
P049	Thioimidodicarbonic diamide $[(H_2N)C(S)]_2NH$	(H)
P050	Endosulfan	(H)
P050	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	(H)
P051	Endrin	(H)
P051	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta, 7aalpha)-, & metabolites	(H)
P054	Aziridine	(H)
P054	Ethyleneimine	(H)
P056	Fluorine	(H)
P057	Fluoroacetamide	(H)
P057	Acetamide, 2-fluoro-	(H)
P058	Fluoroacetic acid, sodium salt	(H)
P059	Heptachlor	(H)
P059	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	(H)
P060	Isodrin	(H)
P060	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-	(H)
P062	Hexaethyl tetraphosphate	(H)
P062	Tetraphosphoric acid, hexaethyl ester	(H)
P063	Hydrogen cyanide	(H)
P063	Hydrocyanic acid	(H)
P064	Methyl isocyanate	(H)
P065	Mercury fulminate	(R,T)
P065	Fulminic acid, mercury(2+) salt	(R,T)
P066	Methomyl	(H)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste/Constituent	Hazard Code
P066	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester	(H)
P067	1,2 Propylenimine	(H)
P067	Aziridine, 2-methyl-	(H)
P068	Methyl hydrazine	(H)
P069	2 Methyllactonitrile	(H)
P069	Propanenitrile, 2-hydroxy-2-methyl-	(H)
P070	Aldicarb	(H)
P070	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	(H)
P071	Methyl parathion	(H)
P071	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester	(H)
P072	alpha Napthylthiourea	(H)
P072	Thiourea, 1-naphthalenyl-	(H)
P073	Nickel carbonyl	(H)
P074	Nickel cyanide	(H)
P075	Nicotine, and salts	(T)
P075	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts	(T)
P076	Nitric oxide	(T)
P077	p-Nitroaniline	(T)
P077	Benzenamine, 4-nitro-	(T)
P078	Nitrogen dioxide	(H)
P081	Nitroglycerine (R)	(R,T)
P081	1,2,3-Propanetriol, trinitrate (R)	(R,T)
P082	N-Nitrosodimethylamine	(H)
P082	Methanamine, -methyl-N-nitroso-	(H)
P084	N-Nitrosomethylvinylamine	(H)
P084	Vinylamine, -methyl-N-nitroso-	(H)
P085	Octamethylpyrophosphoramide	(H)
P085	Diphosphoramide, octamethyl-	(H)
P087	Osmium tetroxide	(H)
P088	Endothall	(H)
P088	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	(H)
P089	Parathion	(T)
P089	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	(T)
P092	Phenylmercury acetate	(H)
P092	Mercury, (acetato-O)phenyl-	(H)
P093	Phenylthiourea	(H)
P093	Thiourea, phenyl-	(H)
P094	Phorate	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste/Constituent	Hazard Code
P094	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	(T)
P095	Phosgene	(T)
P095	Carbonic dichloride	(T)
P096	Phosphine	(H)
P096	Hydrogen phosphide	(H)
P097	Famphur	(H)
P097	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester	(H)
P098	Potassium cyanide	(H)
P099	Potassium silver cyanide	(H)
P099	Argentate(1-), bis(cyano-C)-, potassium	(H)
P101	Propanenitrile	(H)
P101	Ethyl cyanide	(H)
P102	Propargyl alcohol	(H)
P102	2-Propyn-1-ol	(H)
P103	Selenourea	(H)
P104	Silver cyanide	(H)
P105	Sodium azide	(H)
P106	Sodium cyanide	(H)
P108	Strychnine and salts	(T)
P108	Strychnidin-10-one, & salts	(T)
P109	Tetraethyldithiopyrophosphate	(H)
P109	Thiodiphosphoric acid, tetraethyl ester	(H)
P110	Tetraethyl lead	(H)
P110	Plumbane, tetraethyl-	(H)
P111	Tetraethyl pyrophosphate	(H)
P111	Diphosphoric acid, tetraethyl ester	(H)
P112	Tetranitromethane	(R)
P112	Methane, tetranitro-	(R)
P113	Thallic oxide	(H)
P114	Tetraethyldithiopyrophosphate	(H)
P114	Selenious acid, dithallium(1+) salt	(H)
P115	Thiodiphosphoric acid, tetraethyl ester	(H)
P115	Plumbane, tetraethyl-	(H)
P116	Thiosemicarbazide	(H)
P116	Tetraethyl lead	(H)
P118	Trichloromethanethiol	(H)
P118	Methanethiol, trichloro-	(H)
P119	Vanadic acid, ammonium salt	(H)
P119	Ammonium vanadate	(H)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste/Constituent	Hazard Code
P120	Vanadium pentoxide	(H)
P121	Zinc cyanide	(H)
P122	Zinc phosphide Zn3P2 when present at concentrations greater than 10%	(R,T)
P123	Toxaphene	(H)
P127	Carbofuran	(H)
P127	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate	(H)
P128	Mexacarbate	(H)
P128	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)	(H)
P185	Tirpate	(H)
P185	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)-carbonyl]oxime	(H)
P188	Physostigmine salicylate	(H)
P188	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1)	(H)
P189	Carbosulfan	(H)
P189	Carbamic acid, [(dibutylamino)-thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester	(H)
P190	Metolcarb	(H)
P190	Carbamic acid, methyl-, 3-methylphenyl ester	(H)
P191	Dimetilan	(H)
P191	Carbamic acid, dimethyl-, 1-[(dimethyl-amino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester	(H)
P192	Isolan	(H)
P192	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester	(H)
P194	Oxamyl	(H)
P194	Ethanimidthioic acid, 2-(dimethylamino)-N-[[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester	(H)
P196	Manganese dimethyldithiocarbamate	(H)
P196	Manganese, bis(dimethylcarbamodithioato-S,S')-,	(H)
P197	Formparanate	(H)
P197	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[(methylamino)carbonyl]oxy]phenyl]-	(H)
P198	Formetanate hydrochloride	(H)
P198	Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino)-carbonyl]oxy]phenyl]-monohydrochloride	(H)
P199	Methiocarb	(H)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Waste/Constituent	Hazard Code
P199	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate	(H)
P201	Promecarb	(H)
P201	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate	(H)
P202	m-Cumenyl methylcarbamate	(H)
P202	3-Isopropylphenyl N-methylcarbamate	(H)
P203	Aldicarb sulfone	(H)
P203	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino)carbonyl] oxime	(H)
P204	Physostigmine	(H)
P204	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-	(H)
P205	Zinc, bis(dimethylcarbamodithioato-S,S')-,	(H)
P205	Ziram	(H)

Basis for Listing of Class or Type of Hazardous Waste by Hazard Code

(I) Ignitable Waste
(C) Corrosive Waste
(R) Reactive Waste
(E) Toxicity Characteristic Waste
(H) Acute Hazardous Waste
(T) Toxic Waste

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes/Constituents	Hazard Code
Commercial Chemical Products, Manufacturing Chemical Intermediates, or Off Specification Commercial Chemical Products:		
U001	Ethanol	(I)
U002	Acetone	(I)
U003	Acetonitrile	(I,T)
U004	Acetophenone	(T)
U005	2-Acetylaminofluorene	(T)
U006	Acetyl chloride	(C,R,T)
U007	Acrylamide	(T)
U008	Acrylic acid	(I)
U009	Acrylonitrile	(T)
U010	Mitomycin C	(T)
U011	Amitrole	(T)
U012	Aniline	(I,T)
U014	Auramine	(T)
U015	Azaserine	(T)
U016	Benz[c]acridine	(T)
U017	Benzal chloride	(T)
U018	Benz[a]anthracene	(T)
U019	Benzene	(I,T)
U020	Benzenesulfonyl chloride	(C,R)
U021	Benzidine	(T)
U022	Benzo[a]pyrene	(T)
U023	Benzotrichloride	(C,R,T)
U024	Dichloromethoxy ethane	(T)
U025	Dichloroethyl ether	(T)
U026	Chlornaphazin	(T)
U027	Dichloroisopropyl ether	(T)
U028	Diethylhexyl phthalate	(T)
U029	Methyl bromide	(T)
U030	Benzene, 1-bromo-4-phenoxy-	(T)
U031	n-Butyl alcohol	(I)
U032	Calcium chromate	(T)
U033	Carbon oxyfluoride	(R,T)
U034	Chloral	(T)
U035	Chlorambucil	(T)
U036	Chlordane, alpha & gamma isomers	(T)
U037	Chlorobenzene	(T)
U038	Chlorobenzilate	(T)
U039	p-Chloro-m-cresol	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes/Constituents	Hazard Code
U041	Epichlorohydrin	(T)
U042	2-Chloroethyl vinyl ether	(T)
U043	Vinyl chloride	(T)
U044	Chloroform	(T)
U045	Methyl chloride	(I,T)
U046	Chloromethyl methyl ether	(T)
U047	beta Chloronaphthalene	(T)
U048	o-Chlorophenol	(T)
U049	Benzenamine, 4-chloro-2-methyl-, hydrochloride	(T)
U050	Chrysene	(T)
U051	Creosote	(T)
U052	Cresol (Cresylic Acid)	(T)
U053	Crotonaldehyde	(T)
U055	Cumene	(I)
U056	Cyclohexane	(I)
U057	Cyclohexanone	(I)
U058	Chclophosphamide	(T)
U059	Daunomycin	(T)
U060	DDD	(T)
U061	DDT	(T)
U062	Diallate	(T)
U063	Dibenz[a,h]anthracene	(T)
U064	Dibenzo[a,i]pyrene	(T)
U066	1,2-Dibromo-3-chloropropane	(T)
U067	Ethylene dibromide	(T)
U068	Methylene bromide	(T)
U069	Dibutyl phthalate	(T)
U070	o-Dichlorobenzene	(T)
U071	m-Dichlorobenzene	(T)
U072	p-Dichlorobenzene	(T)
U073	3,3'-Dichlorobenzidine	(T)
U074	1,4-Dichloro-2-butene	(I,T)
U075	Dichlorodifluoromethane	(T)
U076	Ethylidene dichloride	(T)
U077	Ethylene dichloride	(T)
U078	1,1-Dichloroethylene	(T)
U079	1,2-Dichloroethylene	(T)
U080	Methylene chloride	(T)
U081	2,4-Dichlorophenol	(T)
U082	2,6-Dichlorophenol	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes/Constituents	Hazard Code
U083	Propylene dichloride	(T)
U084	1,3-Dichloropropene	(T)
U085	1,2,3,4-Diepoxybutane	(I,T)
U086	N,N-Diethylhydrazine	(T)
U087	O,O-Diethyl S-methyl dithiophosphate	(T)
U088	Diethyl phthalate	(T)
U089	Diethylstilbesterol	(T)
U090	Dihydrosafrole	(T)
U091	3,3'-Dimethoxybenzidine	(T)
U092	Dimethylamine	(I)
U093	p-Dimethylaminoazobenzene	(T)
U094	7,12-Dimethylbenz[a]anthracene	(T)
U095	3,3'-B121Dimethylbenzidine	(T)
U096	alpha, alpha-Dimethylbenzylhydroperoxide	(R)
U097	Dimethylcarbamoyl chloride	(T)
U098	1,1-Dimethylhydrazine	(T)
U099	1,2-Dimethylhydrazine	(T)
U101	2,4-Dimethylphenol	(T)
U102	Dimethyl phthalate	(T)
U103	Dimethyl sulfate	(T)
U105	2,4-Dinitrotoluene	(T)
U106	2,6-Dinitrotoluene	(T)
U107	Di-n-octyl phthalate	(T)
U108	1,4-Dioxane	(T)
U109	1,2-Diphenylhydrazine	(T)
U110	Dipropylamine	(I)
U111	Di-n-B135propylnitrosamine	(T)
U112	Ethyl acetate	(I)
U113	Ethyl acrylate	(I)
U114	Ethylenebisdithiocarbamic acid, salts & esters	(T)
U115	Ethylene oxide	(I,T)
U116	Ethylenethiourea	(T)
U117	Ethyl ether	(I)
U118	Ethyl methacrylate	(T)
U119	Ethyl methanseulfonate	(T)
U120	Fluoranthene	(T)
U121	Methane, trichlorofluoro	(T)
U122	Formaldehyde	(T)
U123	Formic acid	(C,T)
U124	Furan	(I)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes/Constituents	Hazard Code
U125	Furfural	(I)
U126	Glycidylaldehyde	(T)
U127	He+B151xachlorobenzene	(T)
U128	Hexachlorobutadiene	(T)
U129	Lindane	(T)
U130	Hexachlorocyclopentadiene	(T)
U131	Hexachloroethane	(T)
U132	Hexachlorophene	(T)
U133	Hydrazine	(R,T)
U134	Hydrogen fluoride	(C,T)
U135	Hydrogen sulfide	(T)
U136	Cacodylic acid	(T)
U137	Indeno[1,2,3 cd]pyrene	(T)
U138	Methyl iodide	(T)
U140	Isobutyl alcohol	(I,T)
U141	Isosafrole	(T)
U142	Kepone	(T)
U143	Lasiocarpine	(T)
U144	Lead acetate	(T)
U145	Lead phosphate	(T)
U146	Lead subacetate	(T)
U147	Maleic anhydride	(T)
U148	Maleic hydrazide	(T)
U149	Malononitrile	(T)
U150	Melphalan	(T)
U151	Mercury	(T)
U152	Methacrylonitrile	(I,T)
U153	Methanethiol	(I,T)
U154	Methanol	(I)
U155	Methapyrilene	(T)
U156	Methyl chlorocarbonate	(I,T)
U157	3-Methylcholanthrene	(T)
U158	4,4'-Methylenebis (2-chloroaniline)	(T)
U159	Methyl ethyl ketone (MEK)	(I,T)
U160	Methyl ethyl ketone peroxide	(R,T)
U161	Methyl isobutyl ketone	(I)
U162	Methyl methacrylate	(I,T)
U163	MNNG	(T)
U164	Methylthiouracil	(T)
U165	Naphthalene	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes/Constituents	Hazard Code
U166	1,4-Naphthoquinone	(T)
U167	1-Naphthalenamine	(T)
U168	2-Naphthalenamine	(T)
U169	Nitrobenzene	(I,T)
U170	p-Nitrophenol	(T)
U171	2-Nitropropane	(I,T)
U172	N-Nitrosodi-n-butylamine	(T)
U173	N-Nitrosodiethanolamine	(T)
U174	N-Nitrosodiethylamine	(T)
U176	N-Nitroso-N-ethylurea	(T)
U177	N-Nitroso-N-methylurea	(T)
U178	N-Nitroso-N-methylurethane	(T)
U179	N-Nitrosopiperidine	(T)
U180	N-Nitrosopyrrolidine	(T)
U181	5-Nitro-o-toluidine	(T)
U182	Paraldehyde	(T)
U183	Pentachlorobenzene	(T)
U184	Pentachloroethane	(T)
U185	Pentachloronitrobenzene (PCNB)	(T)
U186	1,3 Pentadiene	(I)
U187	Phenacetin	(T)
U188	Phenol	(T)
U189	Phosphorous sulfide	(R)
U190	Phthalic anhydride	(T)
U191	Pyridine, 2-methyl-	(T)
U192	Pronamide	(T)
U193	1,3-Propane sultone	(T)
U194	1-Propanamine	(I,T)
U196	Pyridine	(T)
U197	p-Benzoquinone	(T)
U200	Reserpine	(T)
U201	Resorcinol	(T)
U202	Saccharin, and salts	(T)
U203	Safrole	(T)
U204	Selenium dioxide	(T)
U205	Selenium sulfide	(R,T)
U206	Streptozotocin	(T)
U207	1,2,4,5-Tetrachlorobenzene	(T)
U208	1,1,1,2-Tetrachloroethane	(T)
U209	1,1,2,2-Tetrachloroethane	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes/Constituents	Hazard Code
U210	Tetrachloroethylene	(T)
U211	Carbon tetrachloride	(T)
U213	Tetrahydrofuran	(I)
U214	Thallium (I) acetate	(T)
U215	Thallium (I) carbonate	(T)
U216	Thallium (I) chloride	(T)
U217	Thallium (I) nitrate	(T)
U218	Thioacetamide	(T)
U219	Thiourea	(T)
U220	Toluene	(T)
U221	Toluenediamine	(T)
U222	o-Toluidine hydrochloride	(T)
U223	Toluene diisocyanate	(R,T)
U225	Bromoform	(T)
U226	Methyl chloroform	(T)
U227	1,1,2-Trichloroethane	(T)
U228	Trichloroethylene	(T)
U234	1,3,5-Trinitrobenzene	(R,T)
U235	Tris (2,3-dibromopropyl) phosphate	(T)
U236	Trypan blue	(T)
U237	Uracil mustard	(T)
U238	Ethyl carbamate (urethane)	(T)
U239	Xylene	(I)
U240	2,4 D, salts and esters	(T)
U243	Hexachloropropene	(T)
U244	Thiram	(T)
U246	Cyanogen bromide (CN)Br	(T)
U247	Methoxychlor	(T)
U248	Warfarin, and salts, when present at concentrations of 0.3% or less	(T)
U249	Zinc phosphide,Zn3P2 when present at concentrations of 10% or less	(T)
U271	Benomyl	(T)
U278	Bendiocarb	(T)
U279	Carbaryl	(T)
U280	Barban	(T)
U328	o-Toluidine	(T)
U353	p-Toluidine	(T)
U359	Ethanol, 2-ethoxy-	(T)
U364	Bendiocarb phenol	(T)

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Industry and EPA Hazardous Waste No.	Hazardous Wastes/Constituents	Hazard Code
U367	Carbofuran phenol	(T)
U372	Carbendazim	(T)
U373	Propham	(T)
U387	Prosulfcarb	(T)
U389	Triallate	(T)
U394	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester	(T)
U395	Diethylene glycol, dicarbamate	(T)
U404	Triethylamine	(T)
U409	Thiophanate-methyl	(T)
U410	Thiodicarb	(T)
U411	Propoxur	(T)

Basis for Listing of Class or Type of Hazardous Waste by Hazard Code

(I) Ignitable Waste
(C) Corrosive Waste
(R) Reactive Waste
(E) Toxicity Characteristic Waste
(H) Acute Hazardous Waste
(T) Toxic Waste

TABLE C-1-2
EXPANDED LISTING OF WASTE CODES MANAGED AT THE FACILITY

Non-Hazardous Waste

The Facility is a commercial hazardous waste management facility that also receives and manages other wastes besides hazardous wastes (i.e., 40 CFR Part 261 and ADEM Administrative Code Chapter 335-14-2). Such wastes includes the following types:

non-hazardous waste;
special waste;
industrial waste;
asbestos waste;
PCB equipment and related materials;
TSCA regulated wastes;
discarded chemical products;
manufactured chemical intermediates;
delisted wastes;
solid wastes which are not hazardous (e.g., household hazardous waste);
site generated waste; and
other waste by the written approval of the Agency.

TABLE C-2-1
SAMPLING METHODS AND EQUIPMENT[a]

MATERIAL	METHOD	EQUIPMENT	SAMPLE CONTAINER
Extremely viscous liquid	ASTM D140[b] ASTM E300[b]	Tubing[c], thief or coliwasa	Plastic/Glass jar
Crushed or powdered material	ASTM D346[b] ASTM E300[b]	Tubing[c], trier, scoop, or shovel	Plastic/Glass jar
Soil material	ASTM D420[b] ASTM E300[b]	Tubing[c], trier, auger, scoop, or shovel	Plastic/Glass jar
Soil-like material	ASTM D1452[b] ASTM E300[b]	Tubing[c], trier, auger, scoop, or shovel	Plastic/Glass jar
Fly ash-like material	ASTM D2234[b] ASTM E300[b]	Tubing[c], trier, auger, scoop, or shovel	Plastic/Glass jar
Containerized liquids	SW-846[d] ASTM E300[b]	Coliwasa, tubing[c]	Plastic/Glass jar
Liquids in pits, ponds	SW-846[d] ASTM E300[b]	Pond sampler or weighted bottle	Plastic/Glass jar

Notes:

[a] Sampling method and equipment are determined utilizing the information submitted on the profile in addition to a visual assessment of the characteristics of each waste material.

[b] American Society for Testing Materials. Annual Book of ASTM Standards. Philadelphia, PA. 1994 or most recent edition.

[c] Personal Protection and Safety Training Manual (Cincinnati, OH: USEPA National Training and Operational Technology Center 1981), PP.3-1 and 3-4.

[d] U.S. Environmental Protection Agency, SW-846, Test Method for Evaluating Solid Waste, 2nd Edition 1982 and 3rd Edition 1986 or most recent edition, as clarified in 40 CFR 260.11.

SECTION C

WASTE CHARACTERISTICS

FIGURES

Chemical Waste Management, Inc.

AG 1182
Profile #

WASTE PROFILE

Figure C-2-1

☐ Check here if this is a Recertification LOCATION OF ORIGINAL _____

GENERAL INFORMATION

1. GENERATOR NAME: _____ Generator USEPA ID. _____
2. Generator Address: _____ Billing Address: ☐ Same _____
3. Technical Contact/Phone: _____
4. Alternate Contact/Phone: _____ Billing Contact/Phone _____

PROPERTIES AND COMPOSITION

5. Process Generating Waste: _____
6. Waste Name: _____
7A. Is this a USEPA hazardous waste (40 CFR Part 261)? Yes ☐ No ☐
8. Identify ALL USEPA listed and characteristic waste codes (D___, F___, U___): _____ State Waste Codes: _____
8. Physical State @ 70°F: A. Solid ☐ Liquid ☐ Bottom ☐ B. Single Layer ☐ Multilayer ☐ C. Free liquid range ____ to ____ %
9A. pH: Range ____ to ____ or ☐ Not Applicable B. Strong Odor ☐, describe _____
10. Liquid Flash Point: < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☐ ≥ 200°F ☐ N.A. ☐ Closed Cup ☐ Open Cup ☐
11. CHEMICAL COMPOSITION: ALL constituents (including halogenated organics) present in any concentration and forward available analyses

Constituents	Range	Units	Constituents	Range	Units

TOTAL COMPOSITION MUST EQUAL OR EXCEED 100%

12. OTHER: PCBs if yes, concentration ____ ppm, PCBs regulated by 40 CFR 761 ☐ Pyrophoric ☐ Explosive ☐ Radioactive ☐
Benzene if yes, concentration ____ ppm. Shock Sensitive ☐ Oxidizer ☐ Carcinogen ☐ Infectious ☐ Other _____
13. If the waste is subject to the land ban and meets the treatment standards, check here: ____ and supply analytical results where applicable.

SHIPPING INFORMATION

14. PACKAGING: Bulk Solid ☐ Bulk Liquid ☐ Drum ☐ Type/Size: _____ Other _____
15. ANTICIPATED ANNUAL VOLUME: _____ Units: _____ Shipping Frequency: _____

SAMPLING INFORMATION

16a. Sample source (drum, lagoon, pond, tank, vat, etc.) _____
Date Sampled: _____ Sampler's Name/Company: _____
16b. Generator's Agent Supervising Sampling: _____ 17. ☐ No sample required (See Instructions.)

GENERATOR'S CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste. Any sample submitted is representative as defined in 40 CFR 261 - Appendix I or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize CWM to obtain a sample from any waste shipment for purposes of recertification.

_____ Signature _____ Printed (or typed) name and title _____ Date

CWM Form 8000-C replaces and is equivalent to the following forms: CWM-51, CWM-8000, CWM 50-A-2 and CWM 50-B

FIGURE C-2-2

OVERVIEW OF THE ACCEPTANCE PROCESS

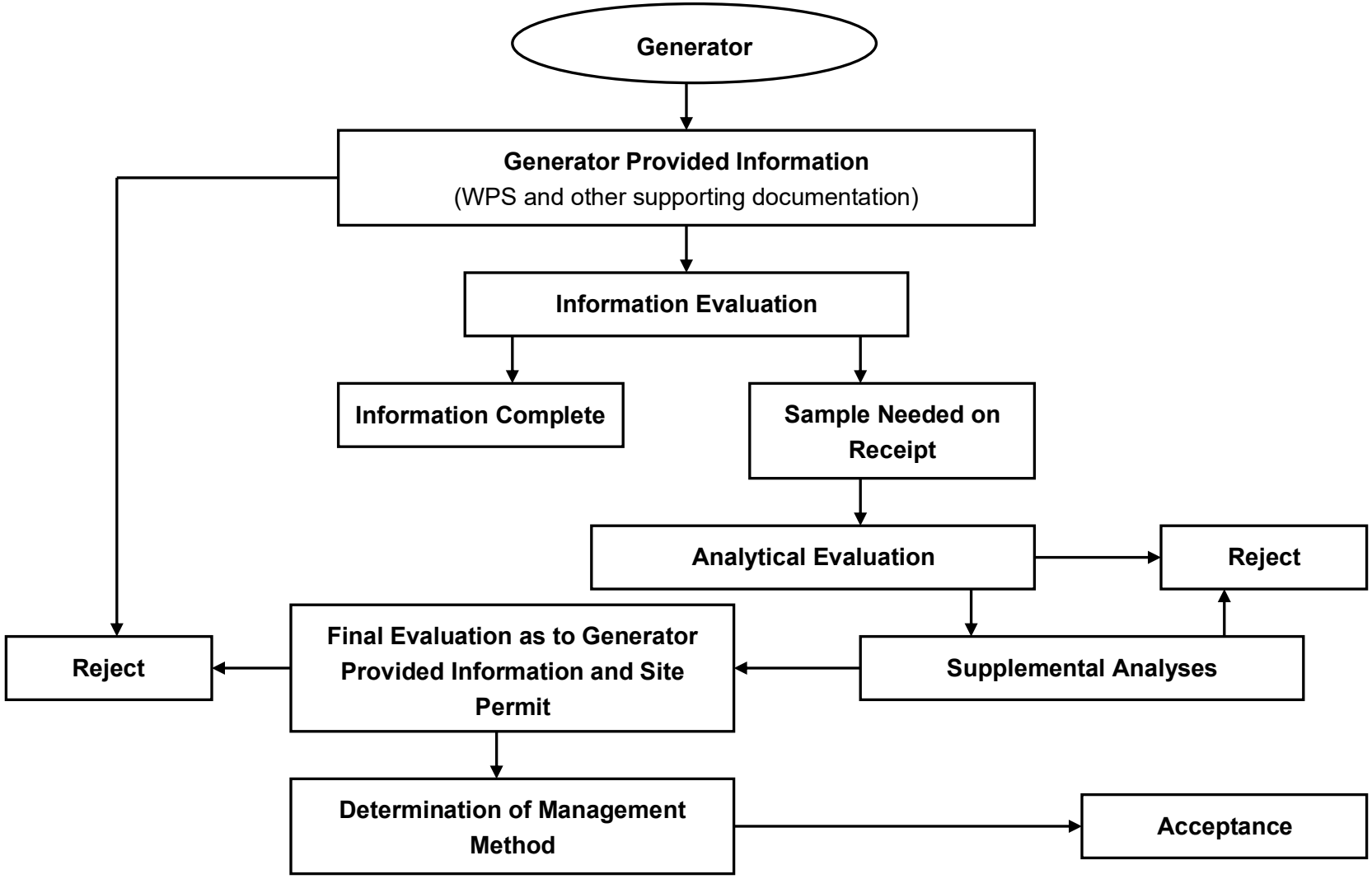


FIGURE C-2-3

INCOMING LOAD IDENTIFICATION DECISION LOGIC DIAGRAM

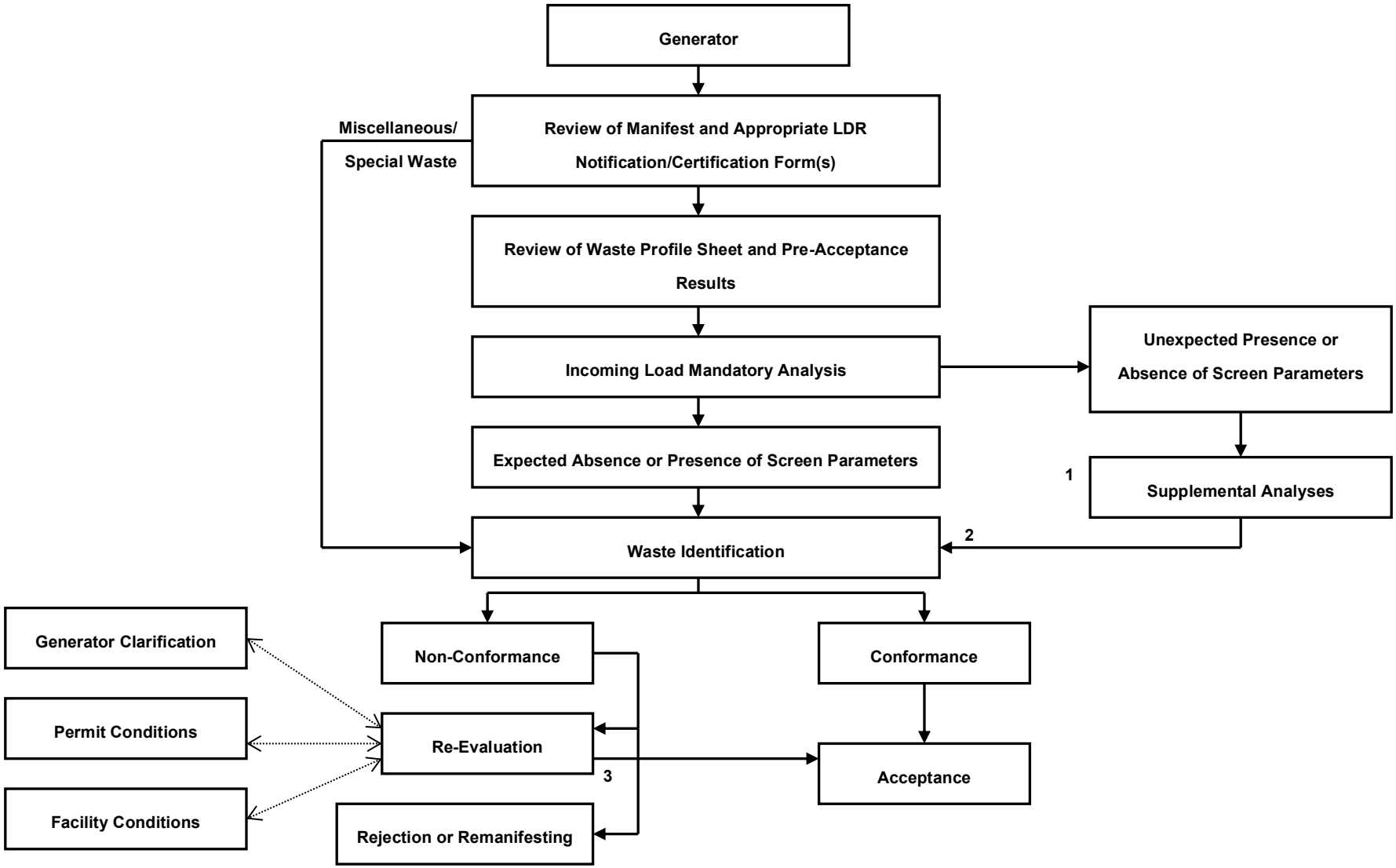


FIGURE C-2-4

NON-CONFORMANCE RESOLUTION

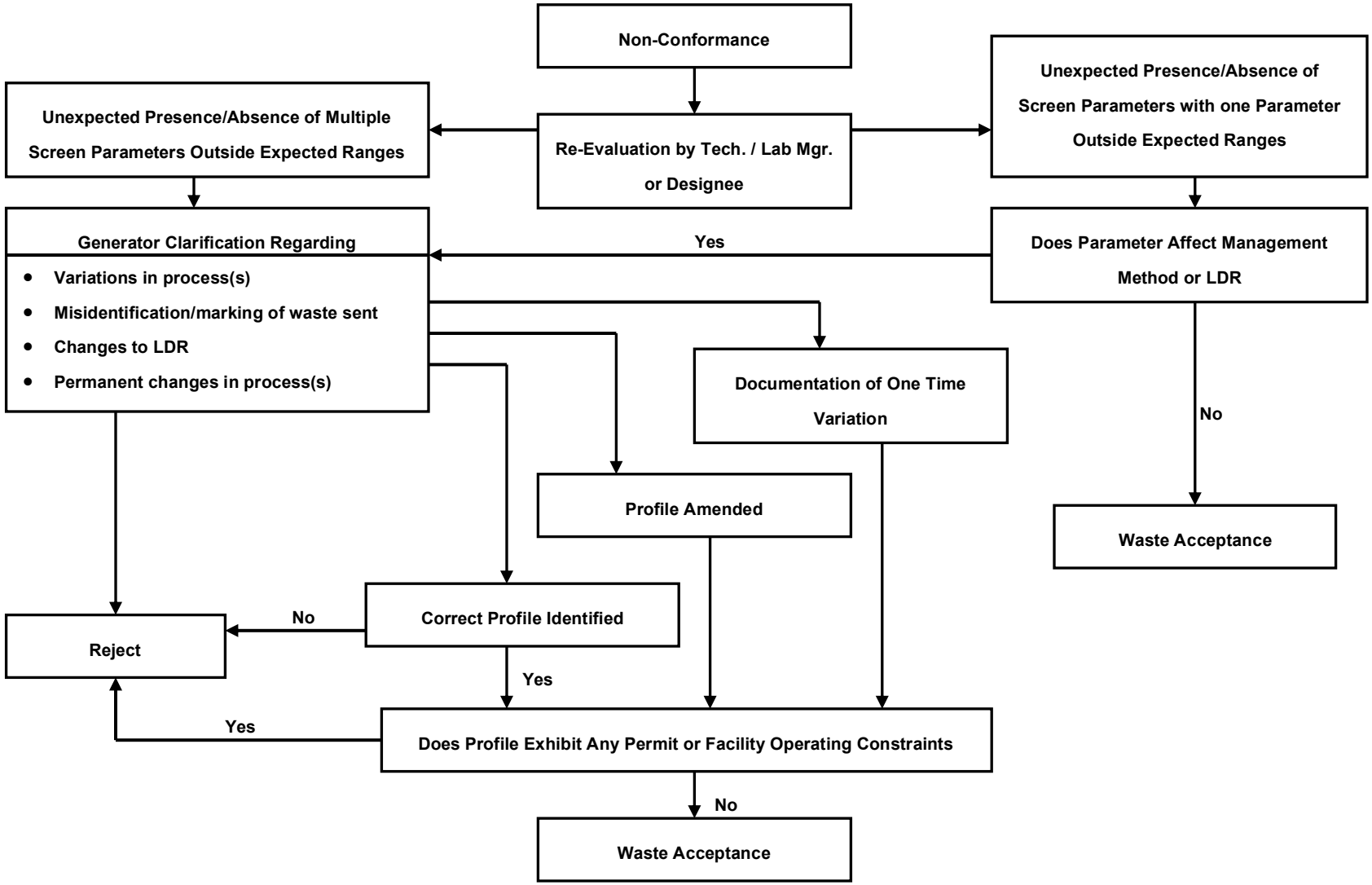


FIGURE C-2-5

DISCREPANCY PAPERWORK FLOW

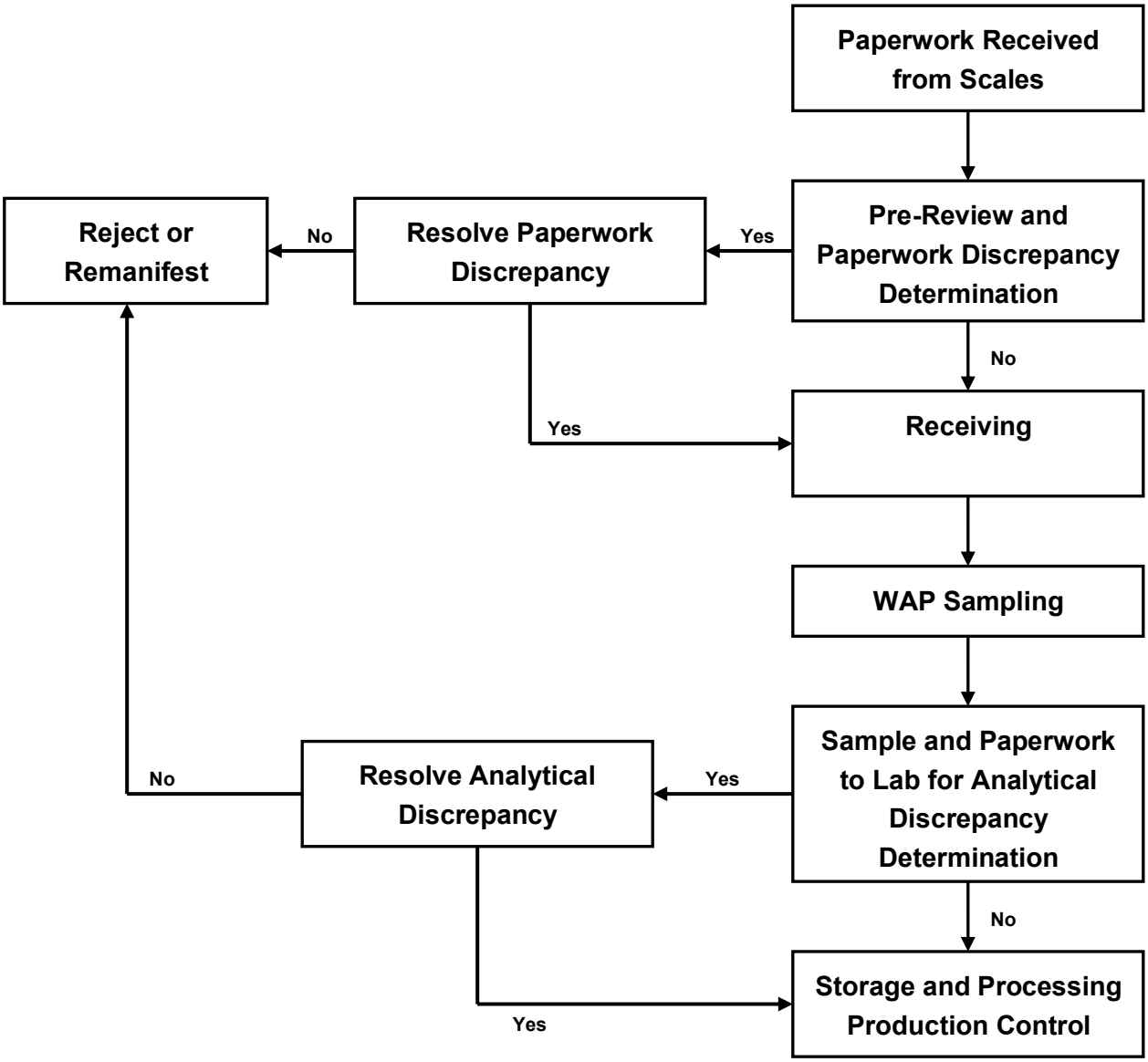


FIGURE C-2-6

STORAGE

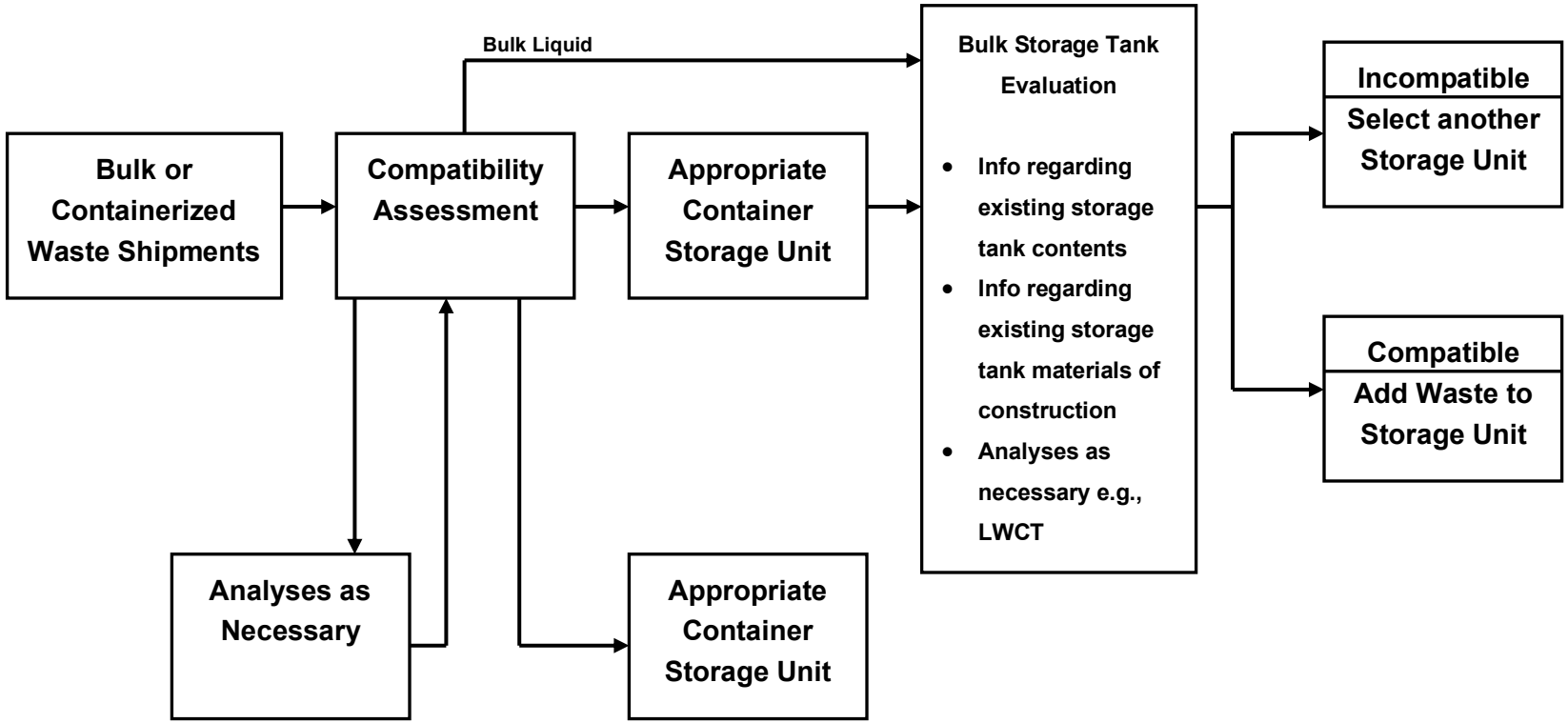


FIGURE C-2-7

STABILIZATION

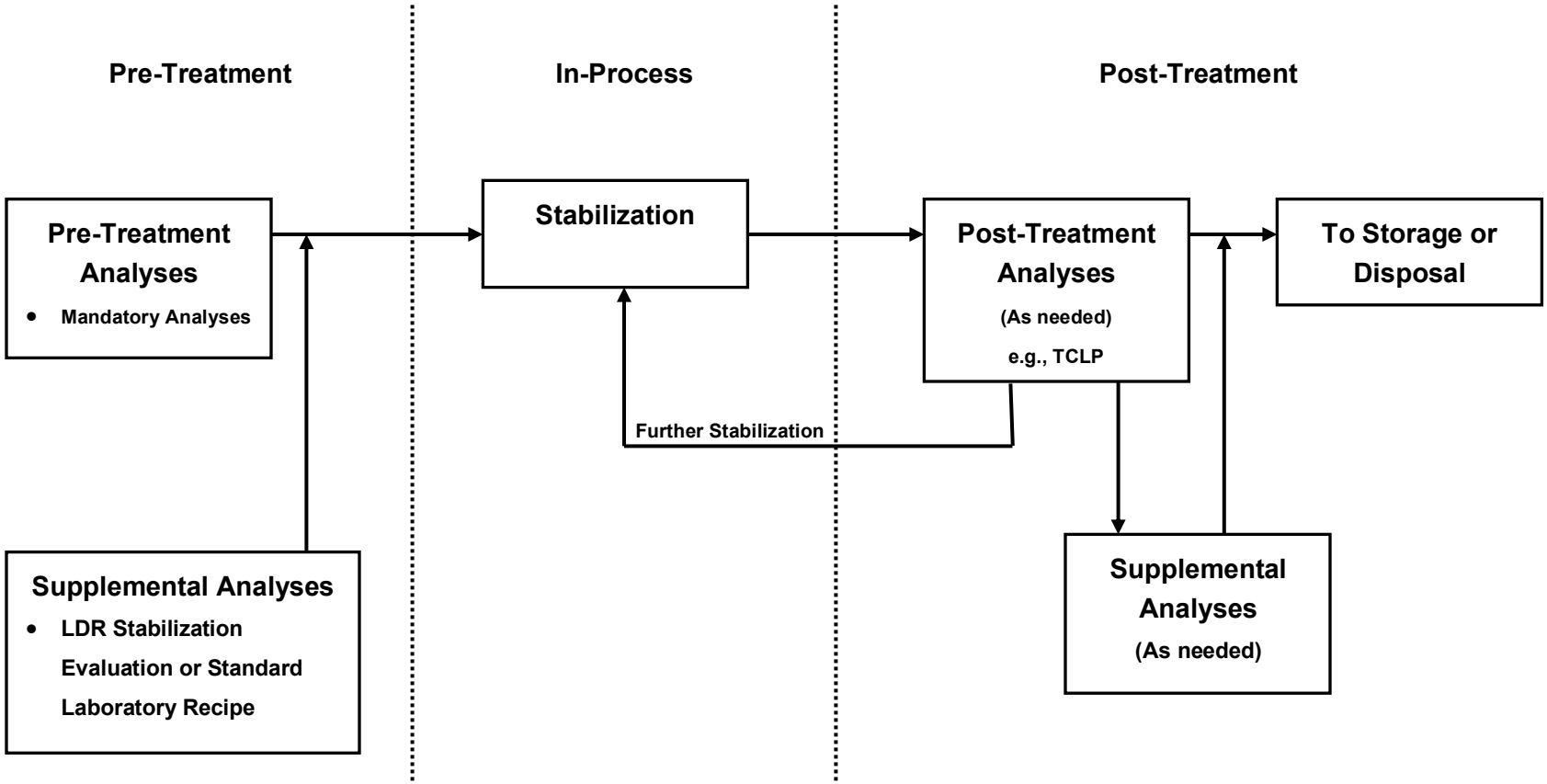


FIGURE C-2-8

SOLIDIFICATION

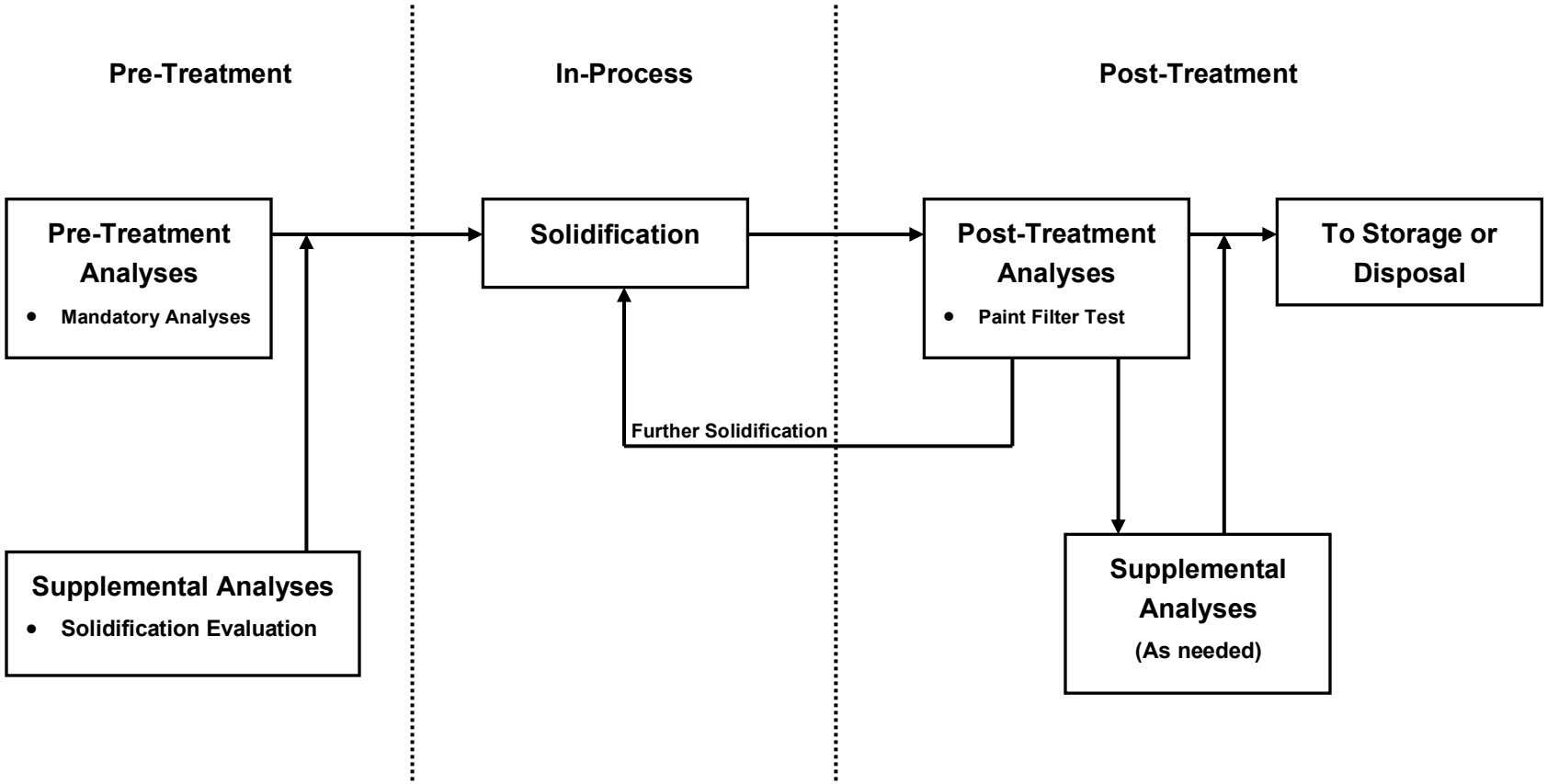


FIGURE C-2-9

DECANTING

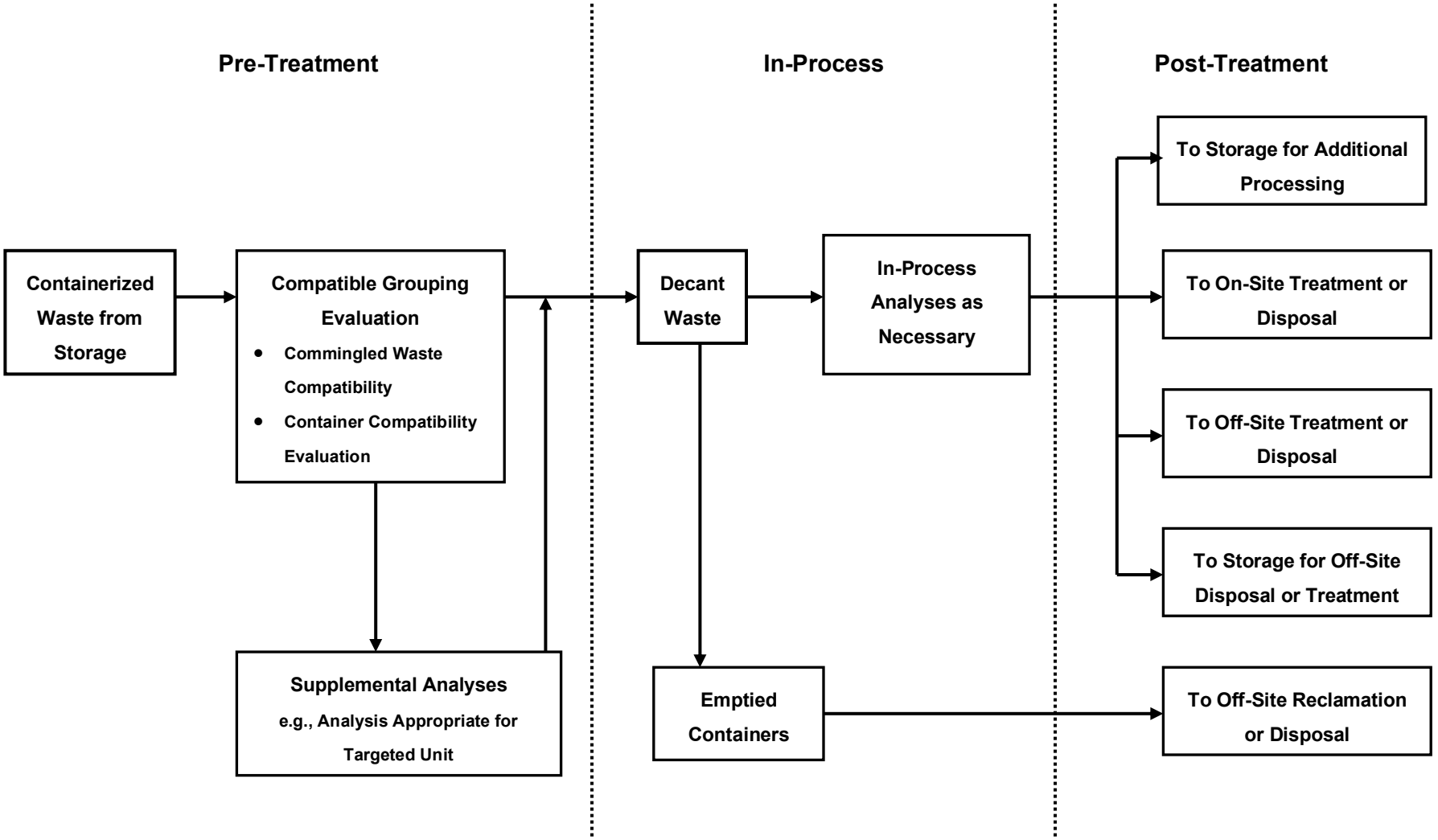


FIGURE C-2-10

FUELS BLENDING

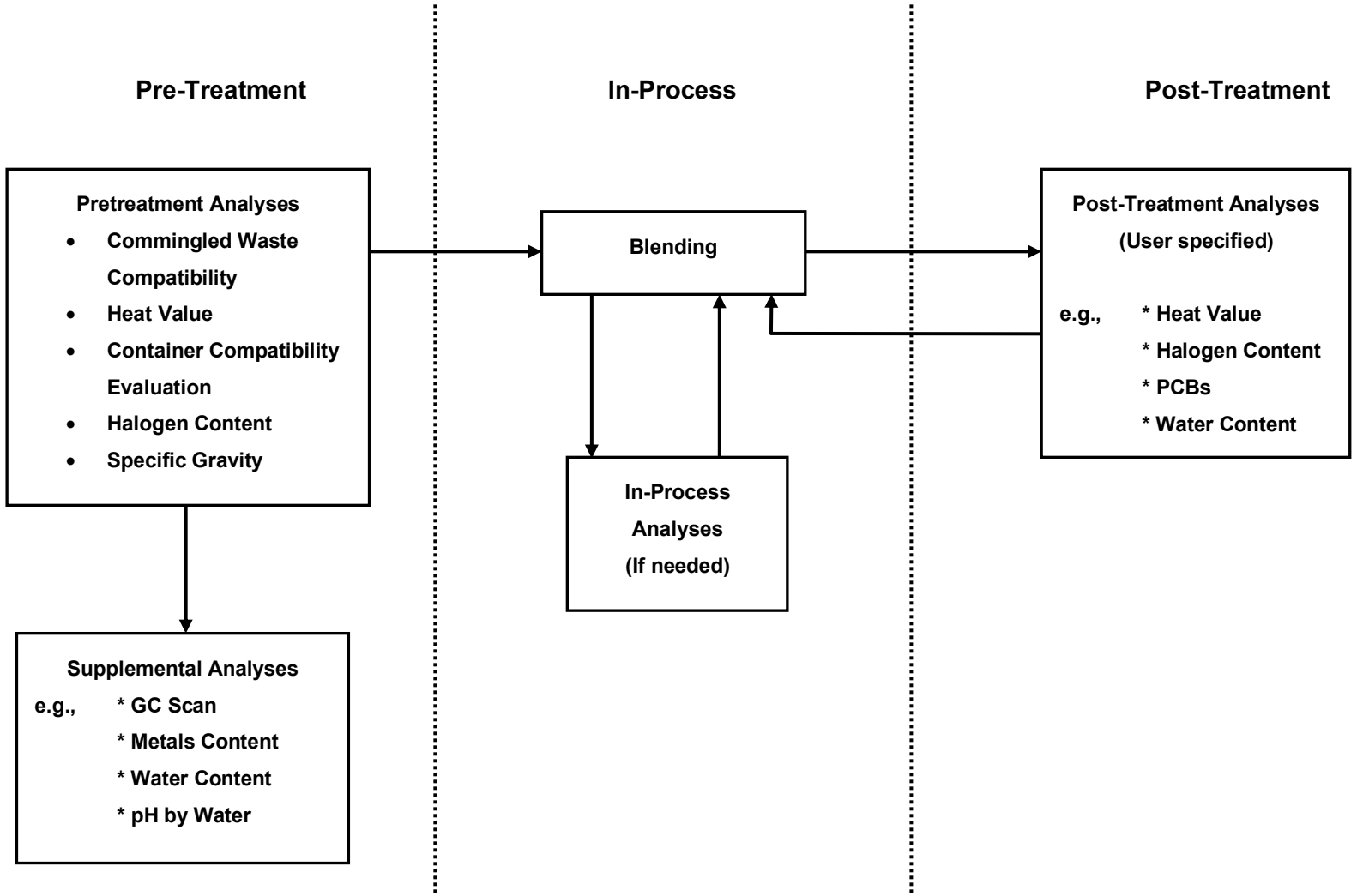


FIGURE C-2-11

pH ADJUSTMENT

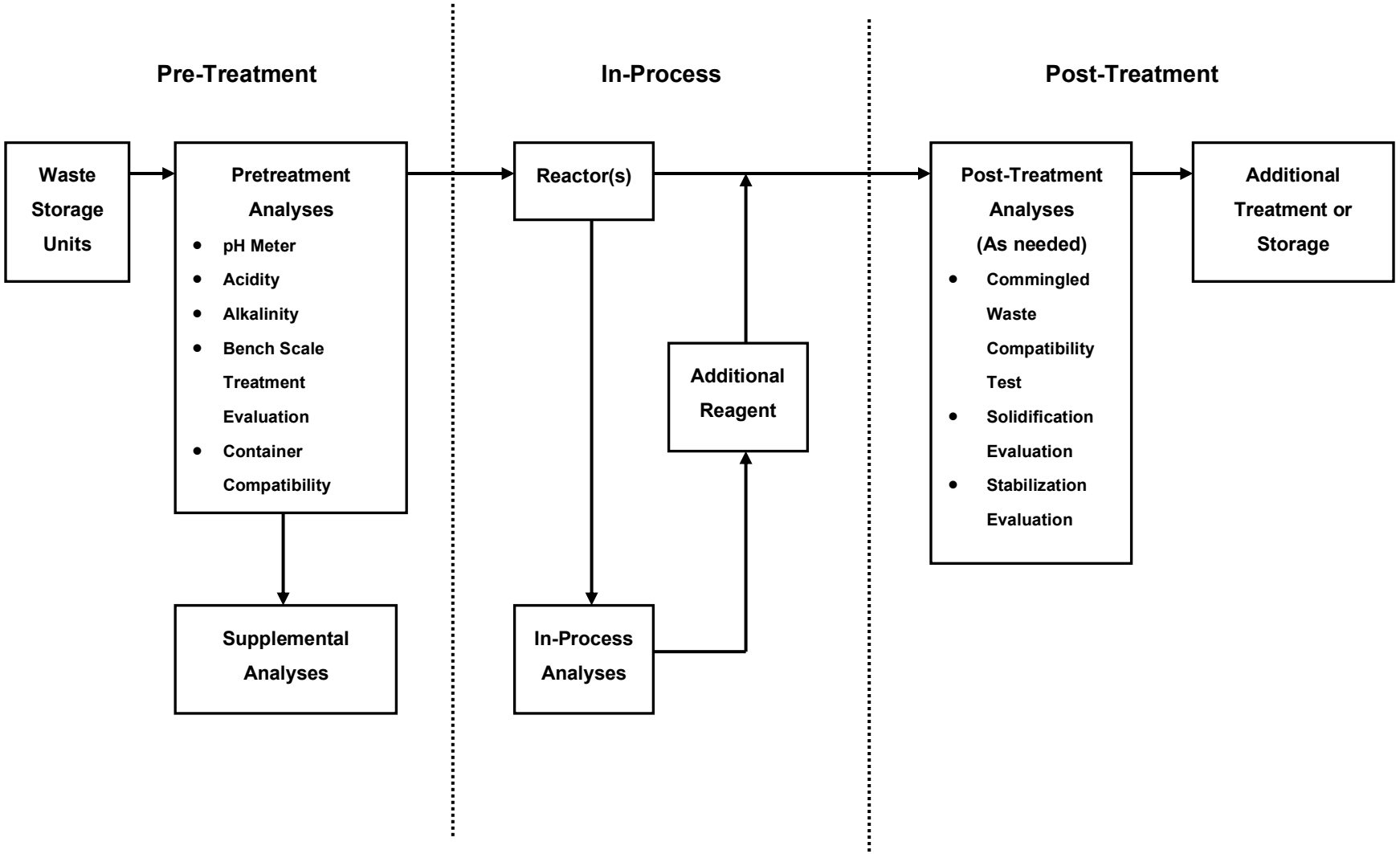
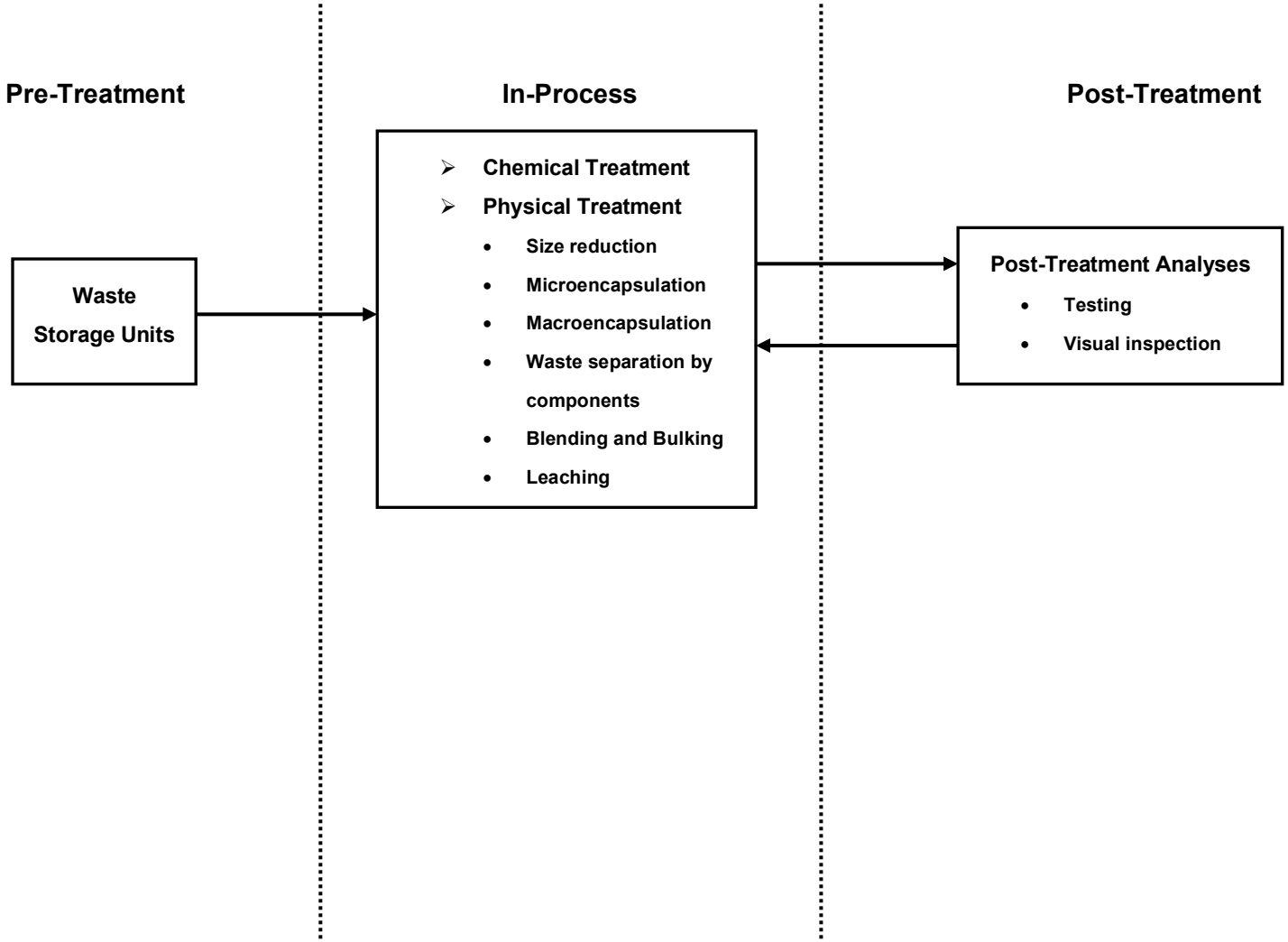


FIGURE C-2-12

HAZARDOUS DEBRIS



APPENDIX C-1

SECTION C

ANALYTICAL PROCEDURES

Revision No.
5.0

APPENDIX C-1

SECTION C

ANALYTICAL PROCEDURES

TABLE OF CONTENTS

APPENDIX C-1

SECTION C

ANALYTICAL PROCEDURES

The following analytical procedures are designed to identify or screen wastes. They are used by the Facility, based on its operating experience, as rapid, but effective means for arriving at key decisions pertinent to proper waste management. Certain test methods are discussed which may pertain to treatment or disposal processes that are excluded from the Facility for which the foregoing Waste Analysis Plan is presented. Analytical procedures, not listed below, may be added as necessary upon concurrence by ADEM and will be taken from the references listed at the end of this appendix or other recognized sources, (e.g., Association of Official Analytical Chemists (AOAC)), or will be developed by the Facility and meet Facility performance standards.

C-1-1 Unique Analytical Procedures

The following analytical procedures developed by the Facility, based upon its operating experience, have been found to provide important quantitative information pertinent to certain processes. In some cases, these tests provide information not available from Standard Analytical Procedures in Section II which follows. In other cases, these tests provide important operational information. Some of these analytical procedures are based on ASTM, "Standard Methods", and EPA methods.

Bench-Scale Treatment Evaluation - Samples of wastes are combined with samples of other wastes or reagents at predetermined ratios. Further testing may be required in order to confirm that the desired reaction has occurred.

Acid/Base Reactivity - To a 5-10 gram sample add a strong mineral acid (H_2S0_4) to change the pH to 1. Add to a separate 5-10 gram sample strong caustic (NaOH) to change the pH to >12. During the pH change note any changes in waste behavior with respect to production of solids, temperature changes, and gas evolution.

Solidification Evaluation - This procedure is to be used at the Facility to determine whether or not a waste containing free liquids is amenable to solidification and to establish the proper mix ratio of reagent to waste. Any incompatibilities between waste and reagent(s) are noted.

1. A series of mix ratios of reagent to waste will be prepared to determine the appropriate mix ratio to be used for solidifying the waste. This is done by taking a range of mix ratios, typically from 0.6 to 1.2, weight of reagent to weight of waste,

although this range may be varied depending upon the solid content of the waste to be solidified (e.g., for wastes with high solids content, a range of 0.1 to 0.6 may be appropriate).

2. Place approximately 100 grams of sample of the waste to be solidified into a suitable container, such as an eight ounce wide-mouth jar and record the temperature. (NOTE: If mix ratios of more than 1.2 are to be used, then a larger jar should be used.) Starting with the lowest ratio first, place the ratio of reagent into the jar and mix for at least 1 minute or until homogenous. Record any temperature change. If no further increase in temperature is found the paint filter test will be performed.

3. This procedure will be repeated for each mix ratio to be evaluated. The lowest mix ratio which passes the paint filter test is the mix ratio of reagent to waste which is to be used to solidify the incoming waste shipments. It may be necessary to evaluate additional ratios until the optimum ratio has been identified.

Land Disposal Restriction (LDR) Stabilization Evaluation Test - This procedure is to be performed to demonstrate whether or not a LDR waste can be stabilized to meet the appropriate treatment standard and to establish the mix ratio of reagent(s) to LDR waste that will achieve that standard. Any incompatibilities between waste and reagent(s) are noted.

1. A mix ratio of reagent(s) to waste will be prepared to determine the appropriate mix ratio to be used for stabilizing the LDR waste.

2. Place approximately 100 grams of pre-acceptance sample of the LDR waste to be stabilized into a suitable container, such as an 8-ounce wide-mouth jar. Starting with the lowest ratio first, place that ratio of reagent(s) into the jar and mix for at least 1 minute or until homogeneous. After mixing has been completed, an aliquot of the stabilized sample of the LDR waste will be analyzed using the appropriate procedure (e.g., TCLP, etc.) to demonstrate that the appropriate treatment standard and/or prohibition can be met.

3. It may be necessary to evaluate additional ratios until the optimum ratio has been identified. The lowest mix ratio which meets the required treatment standard is the mix ratio of reagent(s) to waste which is to be used to stabilize the incoming waste shipments.

Suspended Solids by Centrifuge - Place known volume of sample in a graduated centrifuge tube-centrifuge for approximately 2 minutes. Remove and record the amount of solids in bottom and determine percentage.

Microwave Aided Digestion - A portion of sample is weighed into an appropriate microwave digestion vessel and digested using an acid or acid mixture. The vessel is heated in a microwave oven. After cooling, the contents are diluted to volume, filtered and analyzed by an appropriate method.

Solvent Screen - Uses standard techniques tailored to the compound class being analyzed.

Peroxide Screen - Peroxide test strips are used to determine the presence of organic peroxides or other oxygen donors in solvent and aqueous wastes.

PCB Screen by Immunoassay - A portion of the waste sample is prepared for immunoassay by using appropriate procedures (e.g., solvent extraction, filtration, and/or thin layer chromatography). The sample extract is then mixed and incubated in a step-wise process inside the antibody-coated tubes. The mechanics of mixing, incubating and measuring takes about 30 minutes and results in a color change in each tube. The color development is inversely proportional to the concentration of PCBs.

Quick Leach Extraction - An amount of sample is mixed with the appropriate extraction fluid and stirred for a designated time period. After filtration, the pH and/or metals content are determined using the appropriate methods.

Radioactivity Screen - A sample of the material is passed by a geiger counter or survey meter. Beta and gamma radioactivity levels above background are noted, recorded and investigated.

Sorbent Compatibility - A sample of the waste is combined with a portion of the sorbent to be utilized in approximately equal portions. Any unfavorable reactions such as fuming or spattering are recorded.

Heat Value by Near Infrared Reflectance (NIR) Spectroscopy - Heat of combustion is determined by Near Infrared spectroscopy in a diffuse reflectance mode by placing a properly mixed sample in a diffuse reflectance cell. The instrument produces NIR absorbance spectrum which are converted to a heat of combustion value using a previously defined calibration curve. The method first screens for samples to extract qualitative spectroscopic features from the NIR spectra and then produces quantitative data for heat of combustion using multivariate calibrations.

Metals Screen by X-Ray Fluorescence (XRF) - Waste samples may be prepared, if necessary, by grinding to a specified mesh size. The prepared sample is placed in a sample holder and positioned for reading. Instrument output identifies the presence of several metals

for screening purposes. Semi-quantification of selected metals is then possible relative to matrix matched standards.

Organics Screen by Immunoassay - A portion of the waste sample is prepared for immunoassay by using appropriate separation procedures (e.g., extraction, filtration, and/or thin layer chromatography). The extract is then mixed and incubated in a step-wise process inside antibody-coated tubes. The mechanics of mixing, incubating and measuring takes about 30 minutes and results in a color change in each tube. The color development is inversely proportional to the concentration of the antibody-specific analyte(s) of interest, e.g., herbicides, pentachlorophenol (PCP), pesticides, polyaromatic hydrocarbons (PAHs), or total petroleum hydrocarbons (TPHs).

Heat Value - Standard analytical method ASTM D-240 has been modified for the use of automated equipment.

Percent Acidity - Percent acidity is determined by titration to a pH of 7 usually using 1N NaOH as a titrant. However, results are reported as a percent of the specific acidic species (e.g., H_2SO_4).

Percent Alkalinity - Percent alkalinity is determined using a back titration technique usually using 1N HCl as a titrant. However, the results are reported as a percent of the specific alkaline species (e.g., NaOH).

pH Adjustment - To a known amount of sample, a strong acid (e.g., HCl) or base (e.g., NaOH) is slowly added to the sample until the desired pH is reached. Amount of reagent used is noted as well as any changes in the sample such as gas evolution or solids formed. This test is a processing evaluation procedure.

C-1-2 Standard Analytical Procedures

Parameter	Method	Reference
Sample Work Up Technique:		
Inorganic Techniques	Acid digestion procedure for flame atomic absorption spectroscopy	1-3010A
	Acid digestion procedure for furnace absorption spectroscopy	1-3020A
	Acid (Parr) Bomb digestion	2-4500Cl^-

Parameter	Method	Reference
	Acid digestion for ICP	1-3005A
	Acid Digestion of Sediments, Sludge and Soils	1-3050C
Organic Techniques	Separatory funnel liquid-liquid extraction	1-3510C
	Continuous liquid-liquid extraction	1-3520C
	Acid-base clean-up extraction	1-3665A
	Soxhlet extraction	1-3540C
	Ultrasonic extraction	1-3550B/3550C
Inorganic Analytical Methods:		
Metals	Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP)	1-6010B
Antimony	Atomic absorption, direct aspiration method	1-7040; 4-204.1
	Atomic absorption, furnace method	1-7041; 4-204.2
Arsenic	Atomic absorption, furnace method	1-7060A; 4-206.2
	Atomic absorption, gaseous hydride method	1-7061A; 4-206.3
Barium	Atomic absorption, direct aspiration method	1-7080A; 4-208.1
	Atomic absorption, furnace method	1-7081; 4-208.2
Beryllium	Atomic absorption, direct aspiration method	1-7090; 4-210.1
	Atomic absorption, furnace method	1-7091; 4-210.2
Cadmium	Atomic absorption, direct aspiration method	1-7130; 4-213.1
	Atomic absorption, furnace method	1-7131A; 4-213.2
Calcium	Atomic absorption, direct aspiration method	1-7140; 4-215.1
	Atomic absorption, furnace method	4-215.2
Chromium	Atomic absorption, direct aspiration method	1-7190; 4-218.1
	Atomic absorption, furnace method	1-7191; 4-218.2
	Hexavalent chromium: Co-precipitation	1-7195

Parameter	Method	Reference
	Hexavalent chromium: Colorimetric	1-7196A; 2-3500CrD
	Hexavalent chromium: Chelation-extraction	1-7197; 4-218.4
Cobalt	Atomic absorption, direct aspiration method	1-7200
	Atomic absorption, furnace method	1-7201
Copper	Atomic absorption, direct aspiration method	1-7210; 4-220.1
	Atomic absorption, furnace method	1-7211; 4-220.2
Fluoride	--	4-300.0
Iron	Atomic absorption, direct aspiration method	1-7380; 4-236.1
	Atomic absorption, furnace method	4-236.2
	Phenanthroline method (ferrous)	2-3500FeD
Lead	Atomic absorption, direct aspiration method	1-7420; 4-239.1
	Atomic absorption, furnace method	1-7421; 4-239.2
Magnesium	Atomic absorption, direct aspiration method	1-7450; 4-242.1
Manganese	Atomic absorption, direct aspiration method	1-7460; 4-243.1
	Atomic absorption, furnace method	1-7461; 4-243.2
Mercury (manual cold-vapor technique)	In liquid waste	1-7470A
	In solid or semi-solid waste	1-7471A/7471B
Metals	--	1-6010C/4-201.7
Molybdenum	Atomic absorption, direct aspiration method	1-7480
	Atomic absorption, furnace method	1-7481
Nickel	Atomic absorption, direct aspiration method	1-7520; 4-249.1
	Atomic absorption, furnace method	1-7521; 4-249.2
Selenium	Atomic absorption, furnace method	1-7740; 4-270.2
	Atomic absorption, gaseous hydride method	1-7741A; 4-270.3

Parameter	Method	Reference
Silver	Atomic absorption, direct aspiration method	1-7760A; 4-272.1
	Atomic absorption, furnace method	1-7761; 4-272.2
Thallium	Atomic absorption, direct aspiration method	1-7840; 4-279.1
	Atomic absorption, furnace method	1-7841; 4-279.2
Vanadium	Atomic absorption, direct aspiration method	1-7910
	Atomic absorption, furnace method	1-7911
Zinc	Atomic absorption, direct aspiration method	1-7950; 4-289.1
	Atomic absorption, furnace method	1-7951; 4-289.2
Organic Analytical Methods:		
Alcohols	--	1-8015C
Gas Chromatographic Methods	Halogenated Volatile Organics and Aromatic Volatile Organics	1-8021B
	Non-halogenated Volatile Organics	1-8015B/8015C
	Acrolein	1-8031
	Acrylonitrile by GC	1-8031
	Acetonitrile	1-8033
	Phenols	1-8041
	Phthalate Esters	1-8061A
	Organochlorine Pesticides	1-8081A/8081B
	PCBs	1-8082/8082A
	Nitroaromatics and Cyclic Ketones	1-8091
	Polynuclear Aromatic Hydrocarbons	1-8100
	Chlorinated Hydrocarbons	1-8121
	Organophosphate Pesticides	1-8141A
	Chlorinated Herbicides	1-8151A/8141B
	GC Scans	3-E260
Gas Chromatographic/Mass Spectroscopy Methods	GC/MS Method for Volatile Organics	1-8260B; 5-624
	GC/MS Method for Semi-Volatile Organics	1-8270C/8270D; 5-625

Parameter	Method	Reference
Infrared Spectroscopy Methods	--	3-D2621, D4053
Pentachlorophenol	--	1-8321A
Total Organic Carbon	--	2-5310; 1-9060A
Screening Methods:		
Physical Description	--	3-D4979
Flammability Potential Screen	--	3-D4982
Water Compatibility	--	3-D5058C
pH Screen	--	3-D4980
Sulfide Screen	--	3-D4978
Cyanide Screen	--	3-D5049
Commingled Waste Compatibility	--	3-D5058A
Polymerization Potential	--	3-D5058B
Oxidizer Screen	--	3-D4981
Paint Filter Test	--	1-9095A
Bulk Density and Apparent Specific Gravity Screen	--	3-D5057
Miscellaneous Analytical Methods:		
Flash Point	Pensky-Martens closed-cup method	1-1010; 3-D93
	Setaflash closed-cup method	1-1020A; 3-D3278
	Cleveland open-cup	3-D92
Acidity	--	3-D1067 (CWM modified 97-68)
Alkalinity	--	3-D1067 (CWM modified 97-68)

Parameter	Method	Reference
Biological Oxygen Demand	--	2-5210B
pH Measurement	--	1-9040B, 9041A, 9045C; 3-E70, D4980; 4-150.1
Conductivity/Conductance	--	3-D1125; 4-120.1
Viscosity	--	3-D88, D446, D2983
Specific Gravity	--	3-D70, D891, D1217, D1429, D5057
Total and Amenable Cyanides	--	1-9010B, 9012A
Reactive Cyanide	--	1-7.3.3
Reactive Sulfide	--	1-7.3.4
Oxidation-Reduction (Redox) Potential (ORP)	--	3-D1498
Anions by Ion Chromatography	--	3-D4327; 4-300.0
Chlorides	--	2-4500Cl^-; 4-300.0, 325.3
Sulfates	--	1-9036 4-300.0, 375.3
Nitrates	--	2-4500NO_3^-; 4-300.0, 352.1, 353.2
Fluoride	--	2-4500F^-; 4-300.0, 340.2, 340.3
Bromides	--	2-4500Br^-; 4-300.0, 320.1
Phosphates	--	2-4110A; 4-300.0, 365.1
Ammonia	--	4-350.3
Heat Value	--	3-D240, D129, D808 (CWM modified 89-37)

Parameter	Method	Reference
Total Chlorine Content	--	3-D808, D4327
Water Content	--	3-D95, D3173, E203
Phenols	--	2-5530; 4-420.1
Sulfur	--	3-D129, D3177, D4327
Halogen Content	--	3-D808, D2361, D4327
Solids	Total (TS) at 103-105ºC	2-2540B
	Dissolved (TDS) at 180ºC	2-2540C
	Suspended, Total (TSS) at 103-105ºC	2-2540D
	Fixed and Volatile at 500ºC	2-2540E
	Ash Content	3-D482, D3174
	Oil and Grease	2-5520;
	Petroleum Hydrocarbons, Total Recoverable	2-5520F
Toxicity Characteristic Leaching Procedure (TCLP)	--	1-1311

The above-referenced procedures are described in the following publications. The first digit of the reference numbers above are keyed to the numbers shown below:

1- "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", SW-846, Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC, September 1986, as amended by Final Update IIIA, April 1998, or more recent edition, (available from Superintendent of Documents, Government Printing Office, Washington, DC 20402).

2- "Standard Methods for the Examination of Water and Wastewater", 18th Edition, American Public Health Association (1015 Fifteenth Street, NW, Washington, DC 20005), American Water Works Association, Water Environment Federation, 1992, or more recent edition or update.

3- "Annual Book of ASTM Standards", American Society for Testing and Materials (1916 Race Street, Philadelphia, PA 19013-1187), 1992, or more recent edition or revision.

4- "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory (Cincinnati, OH 45268), as revised March 1983, or more recent revision or technical edition.

5- "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", Appendix A of Title 40 Code of Federal Regulations Part 136, U. S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory-Cincinnati, as amended June 1986 or more recent revision.

Standard analytical procedures not listed here, which may be needed, will be taken from the above-referenced sources or other recognized sources (e.g., Association of Official Analytical Chemists (AOAC)).

[End of Appendix C-1]

APPENDIX C-2

SECTION C

LAND DISPOSAL RESTRICTION SAMPLING AND ANALYSIS

Revision No.
5.0

APPENDIX C-2

SECTION C

LAND DISPOSAL RESTRICTION SAMPLING AND ANALYSIS

The procedures described herein represent the sampling and analytical procedures established for use at the Facility for the treatment, storage and disposal of Land Disposal Restricted hazardous waste, see 40 CFR Part 268 and ADEM Administrative Code Chapter 335-14-9.

Corroborative testing will be conducted on waste streams which have been certified by the generator as meeting the treatment standards prior to receipt, both treated or naturally meeting, as specified in 40 CFR Part 268. If treated by the generator, information as to the treatment process will be provided to WM prior to receipt. Corroborative testing will not be performed on waste which has been certified by a WM hazardous waste management facility as meeting all treatment standards prior to receipt, unless the waste was certified by a WM hazardous waste management facility as meeting all standards using only generator knowledge.

Corroborative testing does not apply to any waste which is to be treated by the Facility as those wastes are subject to post treatment analytical testing as discussed in Subsection C-2-6b(1) of Section C-2. At a minimum, each LDR waste stream decisioned for landfill and not requiring treatment will be subject to testing of the first shipment, excluding those listed in Subsection C-2-5a(1) of Section C, and annually thereafter, to ensure the wastes meet LDR Standards. Each waste will be analyzed for those LDR constituents, or a subset of those constituents, contained in the listed and characteristic codes identified by the generator or treater, which cause the waste to be hazardous. If a subset of the treated constituents is chosen, then one or more of the most non-volatile hazardous constituents will be actually verified as meeting the treatment standard in order to verify that the waste in fact meets the treatment standards. The subset chosen will be based on the constituents known to be present in the waste.

The Land Disposal Restrictions, 40 CFR Part 268 and ADEM Administrative Code Chapter 335 14-9, have specified the use of grab sampling for most of the compliance demonstrations to the Land Disposal Restriction BDAT treatment standards. The Facility will obtain a multi-point grab sample for this purpose. This sample will consist of at least three single grab samples which will be composited to form a single sample for analysis.

[End of Appendix C-2]