

ATTACHMENT II-1

WASTE ANALYSIS PLAN

I. GENERAL PROVISIONS AND REQUIREMENTS

1. This document is the Waste Analysis Plan (WAP) required by Utah Admin. Code R315-8-2.4. All conditions cited herein pertain to the WAP unless specifically noted.
2. For each waste stream received at the Facility from an off-site generator (off-site waste), the Permittee shall evaluate the associated Waste Profile Record (WPR) to ensure the waste is acceptable for management prior to signing a hazardous waste manifest for that waste stream. WPR requirements are outlined in Condition II.
3. Each shipment shall be inspected in accordance with Condition IV.
4. Each waste stream shall be sampled and analyzed in accordance with Condition V.
5. If a waste shipment contains both a liquid and solid phase, each phase shall be sampled and analyzed individually in accordance with this WAP.
6. Shipment Receipt and Manifest Requirements
 - a. The manifest or shipping papers shall be reviewed by the Permittee for discrepancies on the date a shipment of waste arrives at the Facility.
 - i. “Arrival” is defined in Condition I.L. of Module I, *Standard Conditions*.
 - ii. The manifest shall be signed and a copy of the manifest shall be provided to the transporter.
 - iii. Manifest discrepancies are described in Condition III.1.a.
 - b. The Permittee’s Tracking Number shall be recorded on the manifest.
 - c. Any manifest discrepancies observed at the time of arrival at the Facility shall be noted on the manifest.
 - d. Signed manifests (or copies of same) shall be kept on file at the Facility for at least three years from the date of delivery and a copy sent to the generator within 30 calendar days of signing the manifest.

7. Following any holding period and upon receipt into storage, treatment or disposal management, the shipment shall be tracked in accordance with Attachment III-2, *Waste Identification and Tracking Plan*.
8. Documentation related to sample collection or to on-site analysis shall be kept in the Operating Record for a period of three years. Off-site analytical laboratory results shall be kept in the Operating Record for a period of five years.
9. The applicable treatment standards for F001-F005 wastes and wastes subject to the Universal Treatment Standards shall be defined as those constituents identified as applicable by the generator. The generator may use acceptable knowledge or analytical testing to identify the applicable constituents. Analytical results shall be provided to verify that the applicable treatment standards of Utah Admin. Code R315-13-1 have been met or that treatment is required prior to disposal.
10. When a shipment of off-site waste or treatment residue arrives without an accompanying LDR notice or certification, the Permittee shall either obtain a certification for that shipment and note in the Operating Record that the certification did not arrive with the shipment, or the Permittee shall analyze a sample of each waste stream from the shipment prior to land disposal to ensure that the applicable treatment standards of Utah Admin. Code R315-13-1 have been met for each uncertified waste stream.
11. If a waste sample is collected and it is determined at a later time that the sample does not meet the requirements outlined in this WAP (e.g., if a sample is subjected to an extreme heat source or if holding time expires), a replacement sample shall be obtained for analysis in its place. This replacement sample is only required for LDR certification parameters prior to disposal of waste.
12. If a waste sample is analyzed and it is determined that the sample results do not match the WPR, two or more additional samples may be collected and analyzed for those parameters that were not met. If the additional sample results confirm the first analysis, the procedures for resolving discrepancies outlined in Conditions V.7. and V.8. shall be followed. If the additional sample results do not confirm the results of the first analysis, the original result shall be viewed as an anomaly and the waste shall be managed in accordance with this WAP.
13. Errors and omissions (e.g., transcription errors, typographical errors, errors in calculations) shall be corrected as information becomes available.
 - a. The Permittee shall receive written confirmation from the generator for all changes made.
 - i. The Permittee shall document this confirmation by placing it with the shipping paperwork in the Operating Record.

- b. Corrections to paper records shall be made by striking out the incorrect information and writing the correct information on the page as near the error as practicable, or updating information designated by the generator.
 - i. These corrections shall be initialed and dated by the person making the correction.
 - c. Electronic records shall not require correction as long as the generator confirmation described in Condition I.13.a. is kept with the record.
14. Waiver of Sampling or Analysis
- a. Some wastes do not lend themselves to sampling or to the analyses required by this WAP. (Examples of these wastes include lead bricks, tree stumps, wood, lead shielding, concrete, construction debris, building debris, other debris, bricks, sheet metal, discarded containers, metal, sheet rock, wire, plastic waste, wood pallets, glass, gloves, suits, boots, paper towels, pure product chemicals in their original packaging, etc.) The analyses of such waste may be waived by the Permittee.
 - b. For such waste, alternative sampling methods may be used to obtain samples for analysis at the discretion of the Permittee. Some samples may be analyzed for some parameters and waived for other parameters. Where reasonably possible, analyzable samples shall be obtained and run.
 - c. Sampling and analysis of non-debris material being treated by macroencapsulation may be waived by the Permittee.
 - d. Sampling waivers shall be documented in the Operating Record.
15. Should the Permittee transport treated or untreated wastes to another treatment, storage, disposal or recycling facility, the Permittee shall complete the applicable requirements of Utah Admin. Code R315-13-1.
16. For purposes of Conditions IV. and V., the Permittee may perform remote inspection or sampling of off-site wastes as follows:
- a. The Permittee shall provide the Director with at least 14 calendar days' notice of its intent to perform remote inspection or sampling of off-site wastes.
 - b. The Permittee's notice of intent to perform remote inspection or sampling shall be accompanied by a detailed remote inspection plan. This plan shall include at a minimum, the following information:

- i. Identity of personnel, who will perform the remote inspection or sampling,
 - ii. Documentation that personnel who will perform remote inspection or sampling have completed all applicable Permittee qualifications and training,
 - iii. A detailed description of remote inspection or sampling activities, including the purpose of the remote inspection or sampling,
 - iv. A description of the waste stream to be remote inspected or sampled,
 - v. If applicable, documentation that the method of Macroencapsulation to be used will meet the requirements of Attachment II-1-5, *Macroencapsulation Plan*,
 - vi. A description of the off-site treatment operating procedures, including procedures to fill voids, if applicable, and
 - vii. The generator's regulatory conditions governing treatment operations, if applicable.
- c. Remote inspection or sampling of off-site waste shall meet all incoming-shipment inspection or sampling requirements in Conditions IV and V.
- d. Off-site waste that has been remotely inspected or sampled and found to meet the requirements of this Permit shall have a tamper-evident seal applied and signed by the Permittee's representative.
- e. Upon receipt of remotely inspected or sampled waste, the following conditions apply:
- i. The Permittee shall confirm that the tamper-evident seal is present and uncompromised.
 - ii. If there is evidence that the tamper-evident seal has been broken, the Permittee shall:
 - A. reject the waste for disposal and return it to the generator;
or
 - B. meet the inspection and sampling requirements of this WAP; or

- C. with prior Director approval, accept the waste for management.
 - (1). A request to accept remote inspected waste which may have been tampered with shall include justification for waiving the inspection or sampling requirements of this WAP.
- iii. The Permittee shall perform all shipment documentation and non-intrusive receipt inspections required in Condition IV.
- iv. The sampling and analysis requirements of Condition V. are waived.

II. WASTE PROFILE RECORD REQUIREMENTS

The WPR shall provide the necessary information for management of a waste stream. The following information shall be provided in the WPR:

- 1. A description of the generator, including the generator's:
 - a. Name;
 - b. EPA identification number;
 - c. Generator number and waste stream number assigned by the Permittee;
 - d. Mailing address;
 - e. Business telephone number, a 24-hour emergency telephone number, or both; and
 - f. WPR contact person.
- 2. A description of the waste, including:
 - a. Applicable EPA waste numbers or codes;
 - b. Whether the waste includes liquids;
 - c. A general indication of the waste's density;
 - d. Any distinguishing color or odor;
 - e. Applicable LDR treatment standards or variances, exclusions, etc.;

- f. A statement that the sample used for characterization was representative of the waste; and
 - g. Other additional information necessary for determining appropriate management of the waste stream such as:
 - i. Chemical, physical, and general characteristics and properties (including MSDSs if applicable);
 - ii. Information relating to the waste’s generation and history;
 - iii. An indication of the possible presence of hazardous constituents such as herbicides, pesticides, infectious wastes, PCBs, etc.;
 - iv. A statement that the waste is not air reactive, water reactive, shock sensitive or pyrophoric;
 - v. Information indicating whether the waste exhibits the characteristics of ignitability, corrosivity, reactivity or toxicity as defined in Utah Admin. Code R315-2-9; and
 - vi. An indication of whether or not the waste meets the definition of “Mixed Waste” as defined in Condition I.L. of Module I, *Standard Conditions*.
3. Results of the following analyses:
- a. Paint Filter Liquids Test (PFLT; this test may be waived if the generator indicates that the waste is a solid or does not have free liquids based on process knowledge or visual observation);
 - b. pH (for liquids only);
 - c. Analytical results of the applicable concentration-based treatment standards;
 - d. Analytical results that show the waste is hazardous (e.g., TCLP Cr for D007) or a descriptive declaration that the waste is hazardous and the basis for that determination; and
 - e. Volatile organic and semi-volatile organic analyses. Each constituent listed in Appendix III of 40 CFR part 268 shall be reviewed and analyzed if necessary. Process knowledge may be used in place of analytical data for the Appendix III review.

(Note: For the purposes of this requirement, total results on a dry weight basis may be used to show that a waste is not toxic. The total results will be divided by a conversion factor of 15 (mg/kg)/(mg/L) in order to determine whether a TCLP limit has the possibility of being exceeded. For example, an analytical result of 75 mg/kg for Ag on a soil sample would demonstrate that the characteristic limit of 5 mg/L TCLP Ag would not be exceeded.)

4. The analytical data used by the generator for the WPR shall meet one of the following requirements:
 - a. Analytical results shall be accepted only from the laboratories as follows:
 - i. Laboratories that hold a current National Environmental Laboratory Accreditation Conference (NELAC) accreditation, or
 - ii. Laboratory certified by the Utah Department of Health (UDOH) insofar as official certifications are given, or
 - iii. Laboratories with reciprocity with the State of Utah for the parameter being analyzed, or
 - iv. Laboratories that are certified in a state that has been determined by the UDOH to have a laboratory certification program equal to or more stringent than Utah's, or
 - v. Laboratories providing the results to or through the U.S. Environmental Protection Agency, provided that the results are from a CLP laboratory.
 - b. If a laboratory certification other than those listed in Condition II.4.a.i.-v. is used, the Permittee shall require the generator to supply as part of pre-acceptance and analytical documentation, the most current QA/QC system and performance audit documents that pertain to the analytes of concern. Such data may be used for purposes of this WAP only if and when the accompanying documentation meets the following requirements:
 - i. Quality control samples shall include all those required by the most current edition of SW-846 or other methods approved by the U.S. EPA.
 - ii. Quality control samples shall be collected from the same run (set of samples) in which the sample was run.
 - iii. The results must include acceptable ranges and must clearly show that the data was in control.

5. The Permittee may provide information for a generator's WPR in coordination with the generator.
6. When the Permittee is notified by the generator that the process generating the waste has changed, the Permittee shall update the WPR. If, as a result of this notification the waste stream has any different EPA waste codes or treatment standards that require the waste to be managed in a different manner, the Permittee shall obtain a new WPR for that portion of the waste as a separate waste stream.
 - a. Waste being treated by thermal desorption does not require a sample if EPA waste codes are added to the WPR.
7. When one calendar year (no more than 365 calendar days) has passed since the arrival of the initial shipment of a waste stream at the Facility, the Permittee shall obtain an updated WPR or a letter of update from the generator. A letter of update means that the generator provides a written statement to the Permittee as to whether the existing WPR is still representative of the waste.
 - a. An annual update shall be required for waste streams that have on-going shipments. When the entire waste stream has been received, and no future shipments will arrive, an update is not required.
 - b. An annual update shall be required on waste streams that have been temporarily suspended if greater than one calendar year has passed since either the arrival of the first shipment or the most recent update. This annual update shall be completed prior to resuming shipping.
8. When the Permittee has reason to suspect that the process generating the waste or waste stream has changed, the Permittee shall contact the generator and update the WPR as necessary.
9. New WPRs and WPR updates that are required by this WAP shall be documented in the Operating Record.

III. DISCREPANCIES AND DISCREPANCY RESOLUTION

1. Description of Discrepancies.
 - a. Manifest Discrepancies:
 - i. Manifest incompleteness.
 - ii. Container count or shipment weight discrepancies:

- A. The Permittee shall use the following criteria to determine whether a count/weight discrepancy exists between the manifest and shipment:
 - (1). For bulk wastes, variations greater than 10 percent in weight.
 - (2). For containerized wastes, any variation in piece count, such as a discrepancy of one drum in a truckload.
 - iii. Absence of required LDR notices or certifications.
 - iv. Waste Codes listed on the Manifest and applicable Waste Codes listed on the LDR certification that does not match.
 - v. Manifest errors (telephone number, addresses, EPA identification number, names, etc.).
 - b. Inspection Discrepancies:
 - i. Free liquids present where not anticipated.
 - ii. Damaged, leaking or open containers.
 - iii. Waste outside of the container.
 - c. Appearance Discrepancies:
 - i. Different appearance than is described in the WPR.
2. Discrepancy Resolution.
- a. Where discrepancies are identified, the discrepancies shall be noted in the Operating Record and resolved with the generator. Discrepancies shall be resolved prior to treatment or disposal.
 - b. Discrepancies involving wastes containing regulated concentrations of Polychlorinated Biphenyls (PCBs) shall be managed in accordance with Attachment II-1-10, *Management of Waste Containing Polychlorinated Biphenyls (PCBs) at the Mixed Waste Facility*.
 - c. Shipments with discrepancies may be placed in storage pending resolution.
 - d. A shipment with unexpected free liquids shall:

- i. have each phase sampled in accordance with this WAP; and
 - ii. the liquid phase managed in accordance with Attachment II-1-4, *Liquid Waste Management Plan*.
- e. After discrepancies have been resolved, the shipment shall be stored, treated or disposed in accordance with the applicable provisions of this Permit or returned to the generator.
- f. Discrepancies, such as typographical errors that are overlooked or discovered at a later date, shall be resolved by making corrections as information becomes available. Corrections shall be made in accordance with Condition I.13.
- g. Should a shipment involve containers that are open, leaking, compromised or damaged, the Permittee shall manage the affected waste so that the shipment no longer has open, leaking or compromised containers and either:
- i. Manage the shipment in accordance with the requirements of this WAP; or
 - ii. Arrange for the return of the shipment.
- h. Appearance discrepancies may be resolved with the generator by either:
- i. Adding information to the WPR; or
 - ii. Arranging for the return of the shipment.
- i. If the Permittee accepts a waste with a container count, shipment weight, or waste type discrepancy and the discrepancy is not resolved with the generator within 14 calendar days after the waste has been received, the Permittee shall notify the Director. The notification shall include a copy of the manifest or shipping paper and a description of the discrepancy and attempts to reconcile it.

IV. INCOMING-SHIPMENT INSPECTION REQUIREMENTS

- 1. File Review. In conjunction with each waste shipment or shipment campaign, a file review shall be conducted to ensure that:
 - a. There is a current WPR and Notice to Transport in the Operating Record;

- b. The Waste Codes listed on the manifest match the applicable Waste Codes listed on the LDR certification and in the WPR; and
 - c. Inspectors are familiar with the WPR.
2. Shipment Inspection:
- a. The Permittee shall perform an inspection of each shipment and shall document the results of that inspection in the Operating Record. This inspection shall include checking for Manifest Discrepancies, Inspection Discrepancies and Appearance Discrepancies as described in Condition III.1.
 - b. Each container and each bulk shipment shall be visually inspected for the presence of free liquids and for appearance discrepancies. Discrepancies shall be documented in the Operating Record.
 - c. Shipments that have had a remote inspection in accordance with Condition I.16. shall have the inspection of Conditions IV.2.a. waived.

V. SAMPLING AND ANALYSIS REQUIREMENTS

- 1. Sample Collection. Samples shall be obtained as outlined in Condition VII.1.
- 2. Sample Collection Deadlines.
 - a. Receipt inspection and sampling of waste in rail cars shall occur within 10 calendar days of arrival at the Permittee-operated spur.
 - b. Receipt inspection and sampling of highway shipments shall occur within seven calendar days of arrival at the Facility.
 - c. Samples taken from incoming shipments shall be submitted to off-site laboratories within a sufficient time period to achieve applicable method hold times.
- 3. For each shipment, on-site analyses shall include the following:
 - a. liquid pH (if applicable);
 - b. photoionizer (“sniffer”), if the waste is non-debris; and
 - c. Paint Filter Liquids Test (PFLT), if the waste is non-debris and destined for direct disposal in the Mixed Waste Landfill Cell.

4. On-site analyses shall either be performed in the field at the time of incoming shipment inspection or a sample may be collected for analysis in the on-site laboratory.
 - a. These analyses, where applicable, shall be performed on at least 10 percent of the containers in the shipment.
 - b. Instrument calibration and sample analysis shall be performed at the same location.

5. For each waste stream, a sample of waste shall be analyzed for the parameters listed in Condition V.6. as indicated:
 - a. The first shipment to arrive at the site.
 - b. Annually for Non-Treated Wastes. For off-site wastes that have not been treated to meet LDR treatment standards prior to arrival at the Facility:
 - i. The first shipment following or any one shipment prior to the one-year anniversary date of the most recent shipment that was sampled and analyzed for the requirements in Condition V.6.
 - c. Semi-Annually for Treatment Residue Wastes that are certified to meet all applicable LDR treatment standards upon arrival at the Facility. For these wastes:
 - i. The first shipment following or any one shipment prior to the date six months after the most recent shipment that was sampled and analyzed for the requirements in Condition V.6.
 - d. If a new code is added to the waste following the procedures in Condition II.6., the next shipment following that addition shall be sampled and analyzed for the parameters in Condition V.6.
 - e. For purposes of the requirements in Conditions V.5.b., V.5.c. and V.5.d., a sample from a specified shipment may be replaced by a sample from a shipment among a set of available shipments, provided that the shipment that is selected for sample substitution arrives within three calendar days of the date of arrival of the specified shipment.

6. The following parameters shall be analyzed by a Utah Department of Health certified laboratory, using the methods specified in Condition VI.3.:
 - a. Total or TCLP metals analysis for antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver and thallium;

- b. Total and amenable cyanide;
 - c. Volatile and semi-volatile organics; and
 - d. The applicable extract concentration or total concentration-based treatment standards.
7. Reconciling analytical data and discrepancies from results required by Conditions V.3. and V.6.
- a. The Permittee shall review and reconcile the results with input as necessary from the generator or the generator's designated agent, to ensure that hazardous waste codes have been properly established and whether additional hazardous waste codes are to be added to the WPR and LDR certification. If the results are consistent with the current WPR, the generator need not be contacted.
 - b. For total concentration-based results that could exhibit characteristics that are not currently associated with the waste, TCLP analyses shall also be run on the sample of the waste stream to verify whether the waste exhibits those characteristics. For purposes of this requirement, the total results based on dry weight shall be divided by a conversion factor of 15 (mg/kg)/(mg/L) in order to determine whether a TCLP limit has the possibility of being exceeded. For example, a result of 75 mg/kg or greater for Ag would require a TCLP analysis for Ag since the hazardous waste characteristic limit for Ag is 5 mg/L. Use of this conversion is applicable only to solid-phase wastes.
 - c. The evaluation shall address analytical results that show the presence of concentrations of listed waste constituents (e.g., F001-F005 solvent constituents) that were not addressed as part of the WPR evaluation in terms of whether additional waste codes or treatment standards would be applicable.
 - d. If the results show that treatment is required prior to disposal, the Permittee shall arrange for such treatment. If treatment on site cannot be arranged, the waste shall be sent to an appropriate treatment, storage, or disposal facility or returned to the generator, based on the generator's instructions.
 - e. While awaiting the first round of these sample results, shipments shall not be treated or disposed. However, for the annual or semi-annual confirmation sampling of bulk waste, the corresponding shipment of waste may be kept in the landfill cell provided that the waste is prevented from commingling with other wastes. The waste shall not be covered with other waste prior to the receipt of these results. If the results indicate the

waste needs to be treated prior to disposal, it shall be moved to treatment or storage within five calendar days of receipt of analytical results. Waste tracking shall be conducted in accordance with Attachment III-2, *Waste Identification and Tracking*.

8. If an analytical discrepancy cannot be resolved, the shipment shall be rejected. Rejected waste shipments shall be returned to the generator or forwarded to an appropriate treatment, storage or disposal facility, based on the generator's instructions.
9. If it is determined that the waste with an analytical discrepancy had been misplaced, mislabeled, or otherwise mismanaged or is actually another waste that had already been profiled for acceptance at the Facility, such waste shall be properly labeled and accepted through the established tolerances for the correct waste. Investigation and corrective measures shall be implemented to ensure proper management of the affected waste.
10. Notations shall be added to the WPR and Operating Record as necessary to reconcile the analytical discrepancy.
11. An analytical data quality review shall be completed for all analytical data used in making disposal decisions.

VI. ANALYTICAL METHODS

1. The Permittee shall use the most current version of analytical-test methods in accordance with the most current edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Publication SW-846, or equivalent methods approved by the Director pursuant to Utah Admin. Code R315-2-15.
2. Methods for the following WPR Analytical Parameters include:
 - a. Determination of free liquids based on visual observation or Paint Filter Liquids Test (PFLT), SW-846 9095.

This parameter was selected so that preparations for liquid waste management may be arranged or so that shipments with unexpected free liquids may be identified. During completion of the WPR, the generator may waive the PFLT test if free liquids are present or if it is determined, through visual observation and process knowledge of the waste, that free liquids are not present. The waste in the profile shall not be considered to have free liquids if the laboratory report for the SW-846 method notes that no free liquids were observed passing through the filter.

- b. pH, SW-846 9040.

This parameter was selected as a general profile parameter for liquid wastes.

- c. Volatile organics and semi-volatile organics, SW-846 8260 and 8270.

These parameters or declarations were selected to analyze the waste in terms of its applicable hazardous waste codes. A generator may stipulate that a waste has hazardous waste codes without supporting analytical results so long as the basis for that determination is provided.

- d. The Permittee may include the results of other test methods as necessary to profile the waste.

3. Required incoming shipment off-site analyses include:

- a. TCLP extraction by SW-846 1311 as needed.
- b. Metals analysis (except mercury), SW-846 6010, using the applicable SW-846 Sample Prep methods; and mercury analysis, SW-846 7470/7471.

These parameters provide verification of the metals content of the waste and verify that the hazardous waste codes for the corresponding characteristics for metals were properly established.

- c. Total and amenable cyanide, SW-846 9010 or 9012.

These parameters provide verification of the cyanide content of the waste and verify that the hazardous waste codes for the corresponding characteristic for cyanides were properly established.

- d. Volatile and semi-volatile organics, SW-846 8260 and SW-846 8270. Verification by analyzing the mobility extract as needed.

These parameters provide verification of the organics content of the waste and verify that the hazardous waste codes for the corresponding characteristic for organics were properly established.

- e. The applicable concentration-based treatment standards.

These parameters provide verification of the applicable treatment standards of the waste.

4. Required incoming shipment on-site analyses (incoming chemical screening analyses) include:

- a. Determination of free liquids based on PFLT, SW-846 9095.

Non-debris waste intended for direct disposal is required to pass this parameter prior to disposal in the landfill cell. Failure of this test indicates a free liquids inspection discrepancy. If only dry solid material passes through the filter, a notation will be made and the test shall be given a passing result.

- b. Specific analytical methods are not required to be followed for liquid pH and photoionizer analyses.
 - i. The liquid pH analysis may be performed in the field using a pH meter, pH paper, or another applicable method.
 - A. A field analysis indicating a pH less than four or greater than 10 shall be verified by sampling and analyzing within the on-site laboratory. This verification shall only be necessary if the measured pH reading is not within two units of the pH (or pH range) stated on the WPR.
 - ii. A calibrated instrument shall be used for the photoionizer analysis.

VII. SAMPLING QUALITY CONTROL REQUIREMENTS

1. Waste Sampling Requirements

- a. Required Sampling Methods:
 - i. Personnel obtaining samples from incoming shipments may use guidance from the methods and comments outlined in 40 CFR 261 Appendix I in selecting which device to use.
 - ii. A sample from an incoming shipment shall be obtained by using one or more of the following devices: a shovel, spade, scoop, thief, trier, auger, sampling tube (Shelby or split tube) or using alternative methods as directed by the Laboratory Manager.
 - iii. Appropriate preservation shall be used for each sample, as specified in the applicable analytical method.
- b. Required Sample Collection:
 - i. Samples to be analyzed for the parameters listed in Conditions V.3. and V.6. shall be collected as specified below. Compositing requirements are described in Condition VII.2.

- A. Bulk Railcar Shipments: Six aliquots from random locations, composited into one sample for off-site and PFLT analyses. One discrete sample collected from a random location for other on-site analyses.
- B. Bulk Highway Shipments: Four aliquots from random locations composited into one sample for off-site and PFLT analyses. One discrete sample collected from a random location for other on-site analyses.
- C. Container Shipments (rail or highway):
 - (1) For off-site and PFLT analyses (if required), one aliquot from each 10 percent of the containers on a shipment composited into one sample, with a minimum of six aliquots from six different containers within the shipment. Where there are less than six containers in the shipment, the requirement is a minimum of six aliquots from different locations ensuring that at least one aliquot is taken from each container.
 - (2) For other on-site analyses, one discrete sample collected for 10 percent of the containers on a shipment.
 - (3) Containers from which these samples are taken shall be randomly selected from all of the containers on a shipment.
- ii. For purposes of sampling and analysis, a highway shipment with a truck and a pup shall be considered two separate shipments. Each railcar shall be considered a separate shipment.
- iii. Random sample locations shall be selected by:
 - A. The containers on a shipment shall be numbered, or bulk waste divided into sampling sites that are assigned numbers.

For bulk sampling sites, a shipment shall be divided into somewhat equal volumes to include possible sampling locations at varying depths in the bulk shipment. The length, width, and depth dimension for rail car divisions shall be made so that there are approximately 40 divided volumes of equal size including volumes at different

depths. When objects are shipped as bulk in a rail car, the objects may be used for random selection.

For bulk highway shipments, a shipment is similarly divided so that there are approximately 12 volumes including volumes with varying depths in the shipment.

- B. A random number shall be selected.
 - C. Samples or aliquots shall be obtained from containers or bulk location sites with numbers that match the selected random number.
 - D. The random numbers selected for sampling shall be documented in the Operating Record.
- iv. Sample containers shall be closed, labeled and delivered to the on-site laboratory for sample preparation. Care shall be taken to keep samples from being exposed to environments of extreme heat, moisture or solar radiation.
- c. Containment of a Sample
- i. Samples of hazardous waste for analyses shall be placed in containers appropriate to the analytical method to be used.
 - ii. On-site analyses that do not have specific analytical methods may be placed in glass or plastic containers.
 - iii. A sample container shall have the following characteristics:
 - A. The container shall be free from contaminants to a degree that a false positive or a false negative outcome for waste management would not be produced, based on the results of analysis, compared to an uncontaminated container.
 - B. The container shall be of a volume comparable to the volume of the sample to be taken. Specifically, non-debris samples shall not be less than 20 percent of the working volume of the container.
 - C. The container shall be able to be closed in such a manner that material may not enter or escape the closed container.
 - D. The material of the container shall not react with the waste.

- d. **Sample labeling**
 - i. Sample labels or markings shall be affixed to or provided on the sample container at the time of sampling.
 - ii. Sample labels shall include the following information:
 - A. Generator Number;
 - B. Bates Number or Shipment Number;
 - C. Date and time of sample collection;
 - D. Initials of the sample collector; and
 - E. Container number or sample location.
- e. **Sampling Safety**
 - i. Personnel collecting samples of hazardous waste shall be protected from contact with the waste by wearing appropriate personal protective equipment:
 - ii. Sampling shall be performed after personnel have checked the manifest and are familiar with the WPR.
- f. **Sample Equipment Decontamination**
 - i. After each sampling event, the sampling equipment shall be decontaminated, as necessary, to ensure that it is visually free of any residue and to prevent the potential for cross-contamination with future samples.
 - ii. Waste generated during decontamination shall be returned to the generator's waste, or managed as the Permittee's waste.
- g. **Chain-of-Custody**
 - i. Samples shall remain under chain-of-custody management.
 - ii. A chain-of-custody record shall be completed by the sampler prior to relinquishing custody of the sample. The following requirements shall apply to the chain-of-custody record:
 - A. A chain-of-custody record shall accompany the sample.

- B. Copies of chain-of-custody records shall be kept in the Operating Record for a period of five years.
- iii. Seals shall be required if a sample leaves the sample collector's custody prior to receipt of the sample at the laboratory.
 - A. When a paper or tape seal is used, the following information shall be provided on the seal:
 - (1) The sampler's initials; and
 - (2) The date of sample being sealed.
 - B. When seals are used, the seals shall be affixed to the sample container or package to secure the opening before the sample leaves the custody of the sample collector.
- iv. For chain-of-custody management, a sample shall be considered in custody when one or more of the following conditions are met:
 - A. The sample is in the custodian's physical possession.
 - B. The sample or sample container is in view of the custodian.
 - C. The sample is secured or monitored by the custodian so that no one can gain access to the sample without being detected by the custodian.
- v. Once the sample has been taken to the on-site laboratory, its receipt shall be recorded in the Operating Record.

2. Sample Compositing Requirements

- a. For solid waste samples requiring off-site chemical analyses, compositing shall be performed within the on-site laboratory.
 - i. Liquid samples may be composited in the field or within the on-site laboratory.
- b. Sample aliquots collected in the field shall be composited in the on-site laboratory or in the field (liquid samples) by mixing the aliquots in a stainless steel, glass or brass bowl using a stainless steel, glass or brass mixing device.

- c. After mixing has been completed, a sample shall be taken from the mixture and transferred into an appropriate container as specified by the applicable analytical method.
- d. Additional requirements for samples requiring volatile analysis:
 - i. Sample transfer shall take place within five minutes of the completion of the compositing process.
 - ii. The volatile sub-sample shall be the first sample transferred from the composite mixture.
 - iii. The volatile sub-sample shall be taken from the center of the waste mixture.
 - iv. The sample container shall be immediately capped off, minimizing the amount of headspace in the container.
- e. Compositing of aliquots for a PFLT analysis may be completed in the field or the on-site laboratory by placing the collected aliquots in a container or mixing bowl and mixing them until the sample material is thoroughly mixed.

3. Equipment Calibration Requirements

- a. Calibration shall be made at the temperature of the sampling environment and adjustments may be made based on calibration results.
- b. Calibration results and adjustments, if required, shall be documented.
- c. Any meter used for waste characterization determinations shall be calibrated using reliable commercial reference standards or solutions in accordance with the manufacturer's instructions.
- d. Equipment used during sampling shall be calibrated as outlined below.
 - i. pH Meter.
 - A. Each instrument/electrode system shall be calibrated at a minimum of two pH units that bracket the expected pH of the samples and are approximately three pH units or more apart.
 - B. The meter shall be calibrated prior to the first sample analysis of the day, and again every three hours or 10 analyses.

- ii. Photoionization Detector (PID) or Flame Ionization Detector (FID).
 - A. The PID or FID shall be calibrated using the manufacturer's recommended procedures.
 - B. The PID or FID shall be calibrated on a daily basis during the sampling event and again every three hours or 10 analyses.

- 4. Required Preventive Maintenance:
 - a. A maintenance record shall be kept for the pH meter and the photoionization detector documenting that the equipment has been maintained in accordance with the manufacturer's recommended maintenance procedures and frequency.

END OF ATTACHMENT II-1