

Attachment 2- Waste Characteristics and Waste Analysis Plan

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WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN

This section describes the methods used to determine the chemical and physical nature of the solid and hazardous wastes to be handled at the US Ecology Tulsa, Inc. (USE Tulsa) facility.

1. OBTAINING CHEMICAL AND PHYSICAL ANALYSES OF WASTE STREAMS: 40 CFR 270.14(b)(2) AND 40 CFR 264.13

USE Tulsa is a commercial treatment and storage facility that accepts non-hazardous waste, listed hazardous waste, and characteristic hazardous waste for on-site management. Hazardous waste management units on-site include tanks and container storage/treatment management units. Before any hazardous waste is treated at USE Tulsa, the facility collects all the chemical and physical information required to treat, store, or dispose of solid and hazardous waste in accordance with 40 CFR Parts 264, and (where applicable) Part 268 (Land Disposal Restrictions) and Part 273 (Universal Waste Management), as well as the requirements of Chapters 205 (Hazardous Waste Management) and 515 (Solid Waste Management) of Title 252, Oklahoma Administrative Code, administered by the Oklahoma Department of Environmental Quality (ODEQ). Detailed information for these analyses is provided in the facility Waste Analysis Plan (WAP), provided in section 2 of this attachment. Information may include data provided by the generator under 40 CFR Part 261, existing published or documented data on the waste, or on waste generated from similar processes. Verification of information collected from the analysis may be repeated when the facility is notified or has reason to believe that the process or operation generating the hazardous wastes has changed.

Specific hazardous wastes managed on-site are identified in the facility Part A Permit Application. Analytical methods have been selected and analytical protocols developed to provide sufficient information to facilitate successful management of solid and hazardous wastes accepted for management on-site.

1a. CONTAINERIZED WASTE

Compatibility of waste with containers, containment systems for container storage areas, and container sampling and analysis information is discussed in the following paragraphs.

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Additional details regarding container management on-site are presented in Attachment 10-Process Information.

Incompatible wastes, or incompatible wastes and materials will not be placed or commingled in the same container unless the precautions outlined in Section 2f are taken. Hazardous waste will not be placed in an unwashed container that previously held an incompatible waste or material. Care will be taken to store only waste that is compatible with the container material.

Liquid RCRA hazardous wastes will be stored in container storage areas equipped with secondary containment. Prior to storage of solid hazardous waste outside of containment areas, a visual inspection will be performed to confirm that the waste is not liquid therefore would not require secondary containment. If there is question as to whether the waste is solid or liquid, a sample of the waste will be subjected to the Paint Filter Liquids Test, (PFLT) Method 9095 in SW 846, in accordance with facility sampling protocol (for waste acceptance) and the WAP (Section C-2). Hazardous waste confirmed to be solid by visual inspection or passing the PFLT (no free liquids) may be assigned a location in a designated container storage area not equipped with secondary containment (ex: CTA-2 and CTA-3). Temporary secondary containment setups may be used for liquid RCRA hazardous waste storage in areas without built-in secondary containment in emergency situations. For containerized liquid waste within combination packaging, the outer container is considered the secondary containment and can be stored in areas not equipped with secondary containment. The locations of container storage areas are shown in Figure A-2 -General Facility Layout presented in Attachment1-Figures.

Standard facility sampling protocol for solid and hazardous waste acceptance requires that a minimum of ten percent (10%) of the containers in a shipment will be sampled. The 10% may be composited for analysis if applicable. Standard facility sampling protocol is waived for lab pack wastes, transshipped wastes (which is containerized wastes that enter the facility and are shipped from the facility without any repackaging or treatment activities), discarded commercial products, and site-generated wastes [see Section 2e(3)]. Container sampling methods are designed to provide a representative sample of the waste. Analytical methods,

outlined in Sections 2a and 2b, have been chosen or developed to provide the information required for appropriate waste management. Specific sampling methods are discussed in Section 2c.

1b. WASTE IN TANK SYSTEM: 40 CFR 264.192(b)(2) and 270.16

Compatibility of wastes with tank systems, sampling, and analysis information is discussed in the following paragraphs. Additional details regarding tank management are presented in Attachment 10-Process Information.

Reactive waste will be stored or treated in such a way that it is protected from any material or conditions that may cause the waste to become reactive. In addition, incompatible wastes, or incompatible wastes and materials will not be placed in the same tank system unless the precautions outlined in Section 2f are taken.

Hazardous waste will not be placed in a tank system that previously held an incompatible waste or material and that has not been decontaminated or can be visually inspected and confirmed to be free of contamination unless the precautions outlined in Section 2f are taken.

Bulk sampling methods are designed to provide a representative sample of the waste. Analytical methods, outlined in Sections 2a and 2b, have been chosen or developed to provide the information required for appropriate waste management. Specific sampling methods are discussed in Section 2c.

1c. WASTE IN PILES: 40 CFR 264.250(c)(1) and (4)

USE Tulsa does not operate a RCRA regulated waste pile unit; therefore, this section is not applicable.

1d. LANDFILLED WASTES: 40 CFR 264.300

USE Tulsa does not operate a hazardous waste landfill; therefore, this section is not applicable.

1e. WASTES INCINERATED AND WASTES USED IN PERFORMANCE TESTS

USE Tulsa does not operate a hazardous waste incinerator; therefore, this section is not applicable.

1f. WASTES TO BE LAND TREATED

USE Tulsa does not operate a hazardous waste land treatment facility; therefore, this section is not applicable.

2. WASTE ANALYSIS PLAN: 40 CFR 270.14(b)(3); 264.13(b) AND 264.13(c)

The wastes accepted at the US Ecology Tulsa facility may include a wide variety of RCRA hazardous and non-hazardous (solid) wastes. Specific hazardous wastes managed on-site are identified in the facility Part A Permit Application.

USE Tulsa may accept any liquid or solid RCRA hazardous waste, as defined in 40 CFR 261 (and identified on the facility Part A), for storage and/or treatment. Additionally, non-hazardous industrial wastes (not subject to regulation under 40 CFR Part 264) are managed on-site in accordance with the requirements of OAC 252:515. Additional information regarding waste analysis parameters and rationale, test methods, sampling methods, and frequency of analysis as well as additional requirements for wastes generated off-site and for ignitable, reactive, or incompatible wastes are addressed in the sections below.

2a. PARAMETERS AND RATIONALE FOR WASTE ANALYSIS: 40 CFR 264.13(b)(1)

USE Tulsa has selected physical and chemical waste analysis parameters to facilitate safe solid and hazardous waste handling practices as well as sound tank and container management practices at the facility. The waste analysis parameters selected and their rationale for selection are shown in Figure 1-Waste Analysis Parameters and Rationale. The parameters identified in Figure 1 are those currently utilized or expected to be utilized by USE Tulsa. Additional or equivalent methods may be used at the discretion of USE Tulsa.

In addition to the parameters identified in Figure 1, the Paint Filter Liquids Test, (PFLT) Method 9095 in accordance with SW-846 will be used to identify containers requiring secondary containment during storage (see Section la) (add wording for 100% visual inspection). In accordance with facility sampling protocol and this WAP, hazardous wastes designated for storage in container storage areas not equipped with secondary containment

will be subjected to the PFLT and managed accordingly. In addition, wastes identified by EPA waste codes F020, F021, F022, F023, F026 or F027 will not be assigned a container storage location without secondary containment.

2b. TEST METHODS: 40 CFR 264.13(b)(2)

Analytical methods used by USE Tulsa are standard laboratory methods or are methods developed by USE Tulsa for waste management on-site and incorporated into this Waste Analysis Plan. The physical and chemical waste analysis parameters for solid and hazardous waste management in tank systems, container management areas, and (where applicable) process equipment are shown in Figure 1- Waste Analysis Parameters and Rationale. The specific analytical testing method to be used for each parameter is shown in Figure 2-Waste Analysis Parameters.

Prior to approving a waste stream for management on-site, USE Tulsa requires that the generator provide information. A representative waste sample may be requested for examination prior to approval. Specific information regarding pre-acceptance procedures is presented in Section 2e(1). USE Tulsa personnel will evaluate the data (initial profile) provided by the generator to determine if the waste is suitable for management at the USE Tulsa facility. An independent laboratory, in-house laboratory, or combination of these may be used by the generator or USE Tulsa for sample analysis.

2c. SAMPLING METHODS: 40 CFR 264.13(b)(3), Part 261, Appendix I

Off-site generators are responsible for collecting representative samples of their waste streams. Original waste samples from generators may be requested prior to waste profile approvals or during waste acceptance by USE Tulsa personnel in order to gain necessary information regarding the treatment and disposition of the waste. Should the generator need instructions on representative sampling procedures, USE Tulsa may provide the recommendations as specified in 40 CFR 261, Appendix I, or an equivalent sampling method. Standard on site facility sampling protocol is described in Section 2e(3).

2d. FREQUENCY OF ANALYSIS: 40 CFR 264.13(b)(4)

The initial waste profile analysis will be evaluated and recertified every year or if the Generator has notified US Ecology Tulsa or US Ecology Tulsa has reason to believe that the process that produces the waste stream has changed. If the waste has not been managed onsite during the preceding 18-months, the applicable waste approval data will be reviewed by the approvals department and forwarded to additional departments as necessary. This review will be to determine if the information is still accurate and whether the re-approval process may be applied or if the complete waste approval process needs to be followed. An example of the current re-approval form is shown in Figure 4-Re-Approval Notice. If the generator cannot make this certification, a new Waste Characterization Profile Form (profile) must be provided for the waste analysis parameters.

A waste stream re-characterization will be performed when a generator notifies US Ecology Tulsa that a process or operation generating the waste has changed. In the event US Ecology Tulsa has reason to believe that the process or operation generating the waste has changed without notice from the generator, a re-characterization request will be made. The results will be submitted to US Ecology Tulsa before additional waste from the re-characterized waste stream can be accepted from the generator.

If the fingerprint analysis of a waste (as outlined in Section 2e) indicates that the waste received at the facility does not agree with the waste acceptance profile described by the manifest, the generator may re-characterize the waste by either amending the existing profile or providing a completed WCR (profile) and appropriate analysis.

For certain emergency response situations and generator spills, some of the initial waste analysis parameters for on-site management (Figure 1-Waste Analysis Parameters and Rationale) may be waived. This will only occur if the generator can adequately make the hazardous waste determination of 40 CFR 262.11. All available analytical data, generator knowledge, and supporting SDSs will be evaluated prior to receipt of the waste at the USE Tulsa facility. Upon arrival of the waste on-site, additional testing may be performed at the discretion of USE Tulsa.

Conditionally exempt small quantity generators may not be required to perform some of the initial waste analysis parameters identified in Figure 1-Waste Analysis Parameters and Rationale. The waste analysis data requirements for these generators will be determined on a case-by-case basis by the General Manager or designee prior to approval.

2d(i). WASTE TREATMENT VERIFICATION

Each batch of mixed, one-time receipt, or inconsistent wastes must be sampled and undergo specific verification to show the treated waste meets the LDR standards defined in 268.40 and/or 268.48.

Consistent waste stream approvals will not require individual batch analysis after treatment if the recipe has been proven to be effective. The consistent approvals recipe will be "proven" after the same recipe is applied to 5 consecutive boxes with 100% effective treatment demonstrated by laboratory analysis. The recipe should then be tested once a month. The recipe should only be applied to single approvals, or if the approval(s) are for generators who produce identical waste streams at multiple sites.

For consistent waste streams which have waste codes or Underlying Hazardous Constituents (UHC's) identified by the generator, and if those constituents of concern are not detected during laboratory analysis after 5 separate shipments of that waste, further testing for that constituent of concern will not be required and USE Tulsa will discuss these results with the generator to discuss possible removal of the identified waste code or UHC.

2e. ADDITIONAL REQUIREMENTS FOR WASTES GENERATED OFF-SITE: 40 CFR 264.13(c)

2e(i). PRE-ACCEPTANCE PROTOCOL

Prior to accepting a waste at the facility, a form summarizing waste characteristics (profile), as shown in Figure 3-Waste Characterization Profile form or form with equivalent information is required to be completed by the generator for each solid and hazardous waste stream. In addition to the profile, the generator may attach any previously performed analytical data and all applicable SDSs. The generator may use knowledge of process or

laboratory analysis to complete this form. The completed (WCR) profile will allow USE Tulsa to make a preliminary evaluation regarding the acceptability of the waste and will provide preliminary basic information enabling USE Tulsa to successfully manage hazardous waste in accordance with the requirements of 40 CFR Part 264. The profile also identifies

wastes subject to the land disposal restrictions (LDR) as specified in 40 CFR Part 268.

The generator is responsible for defining waste in accordance with 40 CFR 262.11 and through knowledge of process, to aid USE Tulsa in its applicability of 40 CFR 264, Subpart CC. The generator is also responsible for completing a (WCR) profile.

The generator's waste characterization normally includes an analysis of a representative sample of the waste, however sufficient generator knowledge of the waste may be used in some cases. The generator or an independent laboratory may perform the test, including the USE Tulsa laboratory. Testing and analyses are performed using standard laboratory tests (EPA, ASTM, AWWA, or other approved tests) or alternate methods approved in the USE Tulsa RCRA Waste Analysis Plan.

USE Tulsa has developed a series of criteria to determine the acceptability of specific waste. These criteria are referred to as pre-acceptance reviews and dictate what information is needed to determine the acceptability of the waste for on-site management. At a minimum, USE Tulsa will obtain all the information required by 40 CFR §264.13(a)(1) and as outlined in 40 CFR §264.13(a)(2). If the generator has not supplied the detailed analysis, USE Tulsa may elect to gather the specified information. If the information is not provided by the generator nor has USE Tulsa gathered the information, the waste stream is not approved to be received at USE Tulsa. The applicability of Subpart CC will be evaluated during the approval process. Subpart CC constituents will be identified based on information provided by the generator and Fineness Modulus (FM) values will be used in the determination of the total Subpart CC value for that waste stream. The waste stream will be flagged using an internal system to document the Subpart CC applicability and the required management. The waste stream is given a treatment code that corresponds to the facilities management methods for handling.

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The pre-acceptance review is the mechanism for deciding the acceptability of a particular waste, based on the conditions or limitations of existing permits, compatibility with other wastes being managed on site, and the waste's suitability for management utilizing the process options, and off-site disposal options available. The pre-acceptance review may be carried out on-site, prior to the receipt of the initial load, or upon receipt of the initial load. USE Tulsa may obtain analytical information, as needed either during the pre-acceptance review or incoming load review to confirm the concentration of constituents of concern reasonably expected to be present in the waste. At USE Tulsa, the Approvals Coordinator or designated trained employee(s) reviews the information on the completed profile to ensure compliance with the facility's RCRA permit. The General Manager or their designee reviews the completed profile for the ability to properly and safely treat the waste with the facility's treatment options. The General Manager or their designee may request that other qualified USE Tulsa employees review the profile as well if there are any questions or special conditions.

USE Tulsa is responsible for the pre-acceptance evaluation decision. Samples of waste necessary for pre-acceptance consideration may be subjected to a fingerprint analysis. USE Tulsa may require additional analysis to screen sample for other contaminants or properties to determine appropriate storage, treatment, and disposal methods.

The pre-acceptance evaluation is concluded with documentation of the decision regarding acceptability of the waste and the proposed method of management. Included within the documentation is the required notification to the generator that the waste is approved for management in accordance with the facilities permit and 40 CFR §264.12(b).

USE Tulsa technical disposal decisions are based on:

- Available waste management methods;
- Conditions or limitations of existing permits and regulations;
- Capability to manage the waste in a safe and environmentally compliant manner.
- Profile description of the process generating the waste;
- Profile description of the chemical and physical properties of the waste;
- Any applicable LDR notification per 40 CFR 268.7(a);

- Results of the fingerprint analysis;
- Management's technical experience and judgment.

The personnel involved in reviewing and approving the pre-acceptance waste profiles participate in a team approach to these approvals The General Manager or their designee works with other qualified USE Tulsa employees as needed to perform the following tasks for review and approval:

- Reviews the profile to ensure that the waste can be safely stored and treated at the site, and as such, has been trained by experience and training.
- Assess the regulatory compliance of the waste to ensure that the waste fits within the permit limits of the facility
- Ensure that the receipt and handling of the waste is within the constraints of the facility
- Reviews all facets of the waste profile

Requirements:

For each new proposed waste stream, except as noted herein, the following information will be obtained as appropriate:

- Pertinent chemical and physical data to determine waste characteristics and when appropriate, representative sampling information and certifications.
- A representative sample, if required and available (may not be required if facility management determines the pre-acceptance documentation gives sufficient information to maintain compliance with permit and operational constraints and submittal of a sample for analysis would not aid in the disposal or treatment process).

Other exceptions to sample requirements are listed in section 2e(5).

Profile Updates:

Profile evaluations will be performed annually from the date of the original generator certification. In addition, a waste profile evaluation will be conducted in accordance with 40 CFR §264.13 (a)(3) if any of the following occurs:

- Generator notification indicates a change in the process generating the waste.
- Visual waste inspection, fingerprint, or other analysis as described in 2b indicates the waste received at the facility does not match the identity of the waste profile. These updates may be in the form of a profile addendum letter to the profile from the generator requesting the change, or it may be in the form of a new profile reflecting the changes.

2e(2). ACCEPTANCE PROTOCOL

Each shipment of waste is inspected, sampled, and analyzed as defined in this document before acceptance, except as noted in section 2e(3). This procedure serves first to compare the received waste identity with that determined during the pre-acceptance process and the manifested waste. Second, it serves to ensure proper disposition of the waste for treatment, storage, or disposal of the waste. Although analysis is generally only performed by properly trained and qualified USE Tulsa laboratory employees, other contractors may be utilized if needed. Non-bulk and small bulk hazardous waste shipments (e.g., drums and tote tanks) arriving on site will be unloaded into a storage location as soon as possible, generally within 48-hours of arrival, at which time the sampling and receipt approval process begins. Rejected waste may remain on site until the safe shipment of the waste can be arranged, providing the waste may be safely segregated and stored. If the rejected waste will be on-site more than ten (10) days since its arrival at the facility, DEO will be notified and provided information on the identification of the generator, all available waste information, the reason for the delay, and the expected date of shipment either to the generator or an appropriate receiving facility. DEQ will then instruct USE Tulsa of any further actions or information needed to ensure the waste is properly handled.

USE Tulsa acceptance procedures are designed to ensure that solid and hazardous waste received at the facility matches the identity of the waste on the accompanying manifest. Upon arrival of a solid or hazardous waste at the facility, a sample of the waste is collected, and fingerprint analyzed on-site as described in 2e(3). Subsequently, the waste may be assigned to a specific temporary storage tank or container storage area depending on the chemical properties of the waste.

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Multiple reviews are conducted of the received waste prior to acceptance to the facility. When the load arrives, the paperwork, including the hazardous waste manifest and LDR notice, are reviewed by receiving personnel or receiving laboratory personnel for full completion and meeting the permit requirements. These associates have been trained to ensure that the received manifest has been correctly and fully completed, and that if a problem is detected, will bring it to the attention of the General Manager or their designee, as needed, to resolve the issue or reject the load. Once reviewed and approved, the waste is sampled (as required) and the fingerprint tests are conducted by the laboratory personnel. USE Tulsa reserves the right to use commercial laboratories for any analytical methods (required or optional) during waste management activities. If all test results are within the tolerances of the Waste Analysis Plan's requirements, the lab personnel or appropriately trained technical personnel approves receipt of the waste and transmits that information to the operations employee who unloads the waste into the appropriate receiving area. The Laboratory Manager/Supervisor, Chemist, and/or Laboratory Technician have been trained in the analytical protocols and regulatory and permit limits of the site to ensure that all received wastes meet the requirements. Issues associated with the waste should be brought to the attention of the General Manager or their designee, as needed, for determination if the waste may be accepted.

The incoming waste loads may remain in tank trucks or on trailers until the fingerprint analyses are completed in order to determine whether to reject or accept the waste. If unloaded for sampling, containers will be managed as appropriate for the material manifested. During acceptance or staging, USE Tulsa may manage containers in areas outside of permitted container storage areas. This period is limited to the time required to approve the receipt, but in no case will last longer than the same day in which it arrived. If the waste must be held overnight prior to approval, the delivering truck will be held in a secondarily contained unloading area. Containerized wastes will be moved to appropriate storage areas after the acceptance requirements have been met.

Upon arrival of an incoming waste load to the USE Tulsa facility, the truck driver delivers the manifest and accompanying shipping papers to receiving personnel. The specific generator waste analysis profile is then obtained and reviewed. The manifest is then inspected for completeness and correctness, with a minimum of the following information checked for hazardous wastes:

- The manifest document number;
- The generator's name, address, and EPA ID number;
- Each transporter's name and EPA ID number;
- An alternative TSDF, address, and EPA ID number (if applicable);
- DOT shipping name, hazard class, UN/NA number, and packing group;
- The volume/weight of waste in a bulk shipment or the number and type of containers in a piece shipment;
- A signed and dated certification of the shipments contents by the generator;
- A signed and dated transporter 1 and 2 block (if necessary);
- For hazardous wastes, a complete LDR notification/certification form (if not already on file)

The shipment of hazardous waste is then inspected visually for the following information:

- The number and type of containers or bulk volume anticipated from manifest information;
- Shipment labels/placards in accordance with information on the manifest;
- Other irregularities with the shipment (e.g., leaks, poor container condition, etc.).

USE Tulsa receives hazardous waste in accordance with the requirements of Subpart E of 40 CFR Part 264. When hazardous waste is received on-site, USE Tulsa will:

- Sign and date each copy of the manifest to certify that the hazardous waste described by the manifest was received;
- Note any significant discrepancies in the manifest [as defined in 40 CFR 264.72(a)] on each copy of the manifest;
 - Manifest discrepancies are differences between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity or type of hazardous waste a facility actually receives. Significant discrepancies in quantity are: 1) For bulk waste, variations greater than 10

percent in weight; and 2) for batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload. For bulk waste, the noted weight on the manifest may be converted to volume using the waste's specific gravity, if needed. This calculated volume is then compared to the actual bulk waste volume. Any volume discrepancy greater than 10% is managed as a significant discrepancy. Significant discrepancies in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper.

- Upon discovering a significant discrepancy, USE Tulsa will attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations or in person). If the discrepancy is not resolved within 15 days after receiving a hazardous waste, USE Tulsa will immediately submit a letter describing the discrepancy, attempts to reconcile the discrepancy, and a copy of the manifest or shipping paper at issue to the ODEQ.
- Provide the appropriate transporter copy of the signed manifest
 - The manifest may be signed and provided to the transporter prior to completion of confirmation analysis as specified in this WAP. When subsequent analysis identifies a manifest discrepancy, USE Tulsa will contact the generator to resolve the discrepancy.
- Send a copy of the manifest to the generator within the timeframe presented in 40 CFR 262.42.

2e(3). SAMPLING AND ANALYSIS OF WASTE MOVEMENTS

The sampling and analysis of the incoming waste will utilize appropriate methods as specified in 2b of this document. The sampling procedures will depend upon the type of shipment and the type of waste. Sampling methods are discussed in section 2c.

100% of containerized loads will have a visual inspection, while a minimum of 10% per waste stream per shipment and manifest will be sampled. Multiple manifests from the same generator containing the same waste stream will be treated as separate loads and will each

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have a 10% sampling requirement. A visual inspection form or equivalent will be completed during the visual inspection. If the appearance of the waste varies in any significant way from that listed on the profile, the waste in question may be rejected or sampled and analyzed before further handling. Sampling and fingerprint analysis for bulk loads routinely received in volumes of >5 loads per month may be reduced to 20%. Standard facility waste acceptance protocol is waived for lab pack wastes, transshipped wastes, discarded commercial products, and site-generated wastes. Acceptance protocols for these wastes are discussed below.

- Lab pack wastes The packing list arriving with lab packs will be compared to the pre-acceptance packing list. Discrepancies will be resolved prior to acceptance.
- Transshipped wastes Waste acceptance for transshipped wastes will consist of verification of manifest information, container count, and container labels. In some cases, USE Tulsa may sample transshipped wastes (e.g., prior to shipment to an affiliated facility or if USE Tulsa has concerns regarding the identity of the waste).
- Discarded commercial products Generator "knowledge of process" including applicable SDS sheets provide adequate characterization of waste commercial products.
- Site generated wastes Site generated wastes include used personal protective equipment, process residuals, and incidental wastes. Waste acceptance for site-generated wastes is not required. "Knowledge of process" or profile information corresponding to processed waste streams will adequately characterize these wastes for proper management. Analysis of the waste may be conducted at the discretion of USE Tulsa.

In addition, USE Tulsa may waive on-site sampling requirements where pre-acceptance evaluations coupled with visual inspections or if any of the following conditions exist:

• A sample cannot be reasonably obtained, such as filter cartridges, tank cleanout sludge (prior to cleanout), large, contaminated pieces, or debris

- Waste contained in a labpack or combination packaging. Combination packaging is defined in 49 CFR §171.8 as "...one or more inner packagings secured in a non-bulk outer packaging and is subject to DOT requirements of 49 CFR part 173.
- Commercial products or chemicals, off-specification, outdated, unused, contaminated, or banned. These products are typically supported by a SDS.
- Empty containers of waste material, commercial products or chemicals, including empty containers which may contain residues. A container shall be determined empty according to the criteria specified in 40 CFR §261.7.
- Residue and debris from the cleanup of spills or releases of chemical substances, previously approved wastes, commercial products, or a waste which would otherwise qualify as an exception.
- Wastes that are easily identifiable through an inspection process. Examples may include cathode tubes, batteries, fluorescent light tubes, filters and filter cartridges, wire or tubing, paper products, metals sheeting and parts, crushed glass, computer parts, and other debris.
- Demolition wastes. This includes wastes from the dismantling or demolition of plants, facilities, or industrial equipment contaminated with chemicals from the process.
- USE Tulsa site-generated wastes.
- Household hazardous waste (HHW), pesticides, waste from small quantity generators and or small volume waste streams (<100 tons per year). For these exceptions, the generator will supply USE Tulsa with sufficient chemical and physical characteristics information for the proper management of the waste.
- Controlled substances regulated by government agencies including drugs and/or materials from clandestine labs.
- Wastes from remediation projects in which the waste characterization is known through a sampling plan approved by a federal or state agency.
- Debris as defined in 40 CFR §268.2. These materials will be visually inspected prior to acceptance in order to ensure the waste meets the definition of debris.
- Contaminated personal protective equipment (PPE).

- Aerosol cans.
- Materials not amenable to sampling such as structural steel, tanks, pipe, cement, glass, empty drums, machinery. Equipment, manufactured items, monolithic materials, and others may be managed by USE Tulsa which do not allow for normal sampling procedures. These materials will be managed on a case-by-case basis.

In these cases, the shipment will be inspected for conformance with manifest and preacceptance documentation as previously described.

Liquid in containers will be sampled with a column liquid waste sampler, also called a Coliwasa (or other suitable method). Solids and sludges in containers will be grab-sampled with a trier (or other suitable method). If standard facility sampling techniques do not provide a representative sample for analysis, an alternate method will be used. The USE Tulsa laboratory has the equipment, procedures, and training to complete all of the required fingerprint testing, but off-site laboratories may be used at the discretion of USE Tulsa.

For incoming bulk liquid waste in tank trucks, the representative sampling device used by USE Tulsa will be a coliwasa (or other suitable method). A grab sample will be collected through the dome hatch on top of the truck trailer. An alternate sampling procedure may be selected (if deemed necessary) to obtain a representative sample, i.e., for safety reasons or when the waste is not of homogeneous composition. Off-site laboratories may be used at the discretion of USE Tulsa.

The analyses conducted on-site are for selected analytical (fingerprint) parameters. Fingerprint parameters are selected to support the identification of wastes received at the facility. These parameters are normally a subset of the initial waste analysis information (profile) that generators have provided to USE Tulsa during pre-acceptance procedures. The analyses performed on a waste will be selected to provide adequate information to provide confirmation of waste identity, facilitate sound waste management practices on-site, and determine applicability of LDR requirements for appropriate hazardous waste disposal. A standard set of fingerprint analyses are generally conducted on the wastes, depending on the type of waste that it is. The General Manager or their designee selects the tests that are

required for each waste stream and may elect to require additional tests based on the information included in the waste profile or determined from review of the initial receipt information.

The results of the on-site fingerprint analysis are maintained in the operating record and the results are compared to the initial waste analysis data. If the fingerprint analysis results are within acceptance tolerances, the waste received at the facility will be identified as the solid or hazardous waste specified on the accompanying manifest, and therefore, acceptable for management.

Based on the results of the fingerprint tests, each waste stream is directed to an appropriate storage area. Bulk liquid wastes are stored in the TF-1 tank farm. Non-bulk (e.g., drums) and small-bulk (e.g., tote tank) containerized wastes are generally unloaded into the CMA-3 area which has the ability to segregate incompatible wastes into separate cells. Separate cells are available for flammables, oxidizers, acids, and bases. Containerized waste will be segregated according to the DOT shipping hazard class information on each container's label and in compliance with the Part 264 Appendix V. Wastes that are received and proven to be non-hazardous wastes and waste in combination packaging may be received into and stored in the other waste management areas of the facility designated for such operations.

Waste variability may be attributed to waste loading procedures or other factors. Loading onto tank trucks may mix the waste and may incorporate some solids from generator storage devices. Examples of anticipated waste variability could be the result of any of the following:

- differences due to temperature;
- precipitation or absorption of constituents after sampling for waste analysis data due to varying length of storage time before management
- sedimentation of solids during prolonged storage times or during transportation to the USE Tulsa facility.

Analytical results of the sample taken at the USE Tulsa facility for fingerprinting may differ somewhat from the waste analysis data provided by the generator (i.e., some range is anticipated for the results of analytical procedures).

Accepted tolerances for acceptance criteria are as follows:

- Physical state of sample Anticipated physical state must be within tolerance limits from value stated on waste profile.
- Flash Point The fingerprint analysis determines if the flash point is equal to or greater than 140 degrees F, or less than 140 degrees F. Unexpected flash point
- determination resulting in a change in characterization status is considered out of the tolerance limit.
- pH If the fingerprint analysis indicates that a characteristic or segregation determination must be changed from what is listed on the waste profile based on pH, the waste is out of tolerance limits.

If any fingerprint parameter falls outside the accepted tolerances, it may be necessary for a second sample to be taken and the analysis repeated. Should the second sample of the fingerprint parameters fall outside the accepted tolerances, the generator will be contacted and advised that the waste may either be re-characterized or that it will be rejected (see Section 2e(2) for procedures applicable to significant manifest discrepancies). Fingerprint discrepancies could require USE Tulsa personnel to verify the container has been properly labeled by the generator during preparation of the waste for transport. If fingerprint analysis indicates results within specified acceptance tolerance for an alternate approved waste stream, the waste will be accepted and appropriate waste names and numbers will be changed on the manifest (with approval from the generator).

2e(4). SITE MANAGEMENT

Site generated wastes include wastes generated during site processing or other management practices, contaminated personal protective equipment (PPE), and clean up residuals from incidental spills.

Upon storing waste in tanks, solid and hazardous waste may be generated by the settling of suspended solids in the bottoms of tanks. Solid and hazardous waste may be generated as solids are filtered from liquids or during other types of on-site processes. Generated solids are accumulated in containers on-site. Knowledge of process (including waste stream history) or testing may be used to determine appropriate management practices for these wastes. If a site-generated waste is determined to be hazardous, the waste will be managed in accordance with state and federal regulations.

USE Tulsa may receive and treat characteristic hazardous waste from off-site generators to meet treatment standards in accordance with Subpart D of 40 CFR Part 268. USE Tulsa may also treat characteristic site-generated hazardous wastes to meet treatment standards in accordance with Subpart D of 40 CFR Part 268. For each shipment of such waste to a subtitle D facility, USE Tulsa will prepare documentation in accordance with 40 CFR 268.9(d). This WAP describes the procedures developed by USE Tulsa to comply with the requirements of 40 CFR 268.7(a)(1) through (a)(10). The General Manager or designee approves each treatment batch to ensure that the wastes meet the applicable disposal requirements, including standards for the bulking of liquid wastes or fuels blending off site, or shipment to an off-site disposal facility for further waste management not available at USE Tulsa.

2f. ADDITIONAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES: 40 CFR 264.13(b)(6); 40 CFR 264.17

USE Tulsa may handle ignitable wastes, as defined under 40 CFR 261.21(a)(1). After testing, Waste streams designated as ignitable may not exhibit the characteristic of ignitability in some shipments and if so, will be managed appropriately. USE Tulsa will manage ignitable and reactive waste in accordance with the following procedures. Incompatible wastes, or incompatible wastes and materials will not be placed in the same container unless precautions are taken to prevent reactions that could:

- Generate extreme heat or pressure, fire or explosions, or violent reactions
- Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment
- Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions
- Damage the structural integrity of the device or facility
- Through other like means threaten human health or the environment.

Ignitable wastes are stored in closed containers in order to prevent accidental ignition. Reactive wastes are stored in closed containers or tanks in order to prevent accidental reaction. Incompatible wastes are separated and ignitable/reactive wastes are protected from sources of ignition or reaction. Activities that would produce open flames, hot surfaces, frictional heat, sparks, spontaneous ignition or radiant heat will not occur in the vicinity of ignitable wastes.

As a safeguard for handling ignitable and reactive wastes, smoking is not allowed within the inner fence-line of the facility (except in designated areas). Signs are posted at the main entrance to the facility stating, "No Smoking Beyond This Point". Prior to co-mingling wastes in storage tanks or tankers, USE Tulsa operations personnel will use existing waste analysis information provided by the generator, and/or published literature to determine if there is a potential danger in mixing incompatible wastes. The primary sources of published literature used for reference include 40 CFR 264 Appendix V, The Merck Index 3rd Edition, and The Rapid Guide to Hazardous Chemicals in the Workplace (Sax and Lewis, 1st Edition).

Potentially incompatible wastes may be bench tested in the on-site laboratory. Since a portion of each waste sample is retained during the initial sampling from incoming trucks, proportional amounts of different wastes to be co-mingled may be mixed and observed for incompatibility.

3. WASTE ANALYSIS PLAN AMENDMENT FOR WASTES SUBJECT TO THE LAND DISPOSAL RESTRICTIONS: 40 CFR 268 SUBPART B

All solid and hazardous wastes accepted for management on-site will be subject to applicable requirements of this Waste Analysis Plan. The USE Tulsa facility does not operate any hazardous or solid waste land disposal unit.

3a. WASTE CHARACTERISTICS

Analytical or "knowledge of process" data will be required from the generator for each waste managed at the USE Tulsa facility to identify restricted waste in accordance with 40 CFR 268. LDR information (if applicable) for all applicable hazardous waste managed at the USE Tulsa facility that is not otherwise exempted will be maintained in the operating record.

4. **RECORDKEEPING REQUIREMENTS**

The following records will be maintained in the facility operating record for 3 years unless noted:

- Information gathered in accordance with this WAP (ex: fingerprint analysis results)
- Laboratory results performed for waste analysis
- Manifests

-----END OF SECTION-----

Figure 1

WASTE ANALYSIS PARAMETERS

AND RATIONALE

PARAMETER	RATIONALE FOR SELECTION	
Color	Waste verification	
Physical state, appearance	Waste verification	
Paint Filter	Waste verification	
Temperature	Identify waste streams that need to cool before unloading	
рН	Waste verification, storage selection, and verification of USE Tulsa treatment efficacy	
Oxidizers	Waste verification, storage selection, and verification of USE Tulsa treatment efficacy	
Normality	Waste verification of acid/alkaline content	
Specific gravity	Waste verification	
Flash Point	Waste verification, storage selection, and verification of USE Tulsa treatment efficacy	
TOC	Verification of LDR treatability subcategory for D001 waste	
Sulfide screen	Verification of potentially reactive sulfide waste an to aid in storage area selection	
Cyanide screen	Verification of potentially reactive cyanide waste and aid in storage area selection	

Verification of LDR treatment standards and USE
Tulsa treatment efficacy
Verification of LDR treatment standards and USE
Tulsa treatment efficacy
Verification of LDR treatment standards and USE
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Verification of LDR treatment standards and USE
Tulsa treatment efficacy

Thallium	Verification of LDR treatment standards and USE Tulsa treatment efficacy
Nickel	Verification of LDR treatment standards and USE Tulsa treatment efficacy
Percent solids	Waste verification and element of stabilization formulation
Heat of combustion	Waste verification and confirmation of acceptability for off-site fuel
Halogen	Waste verification and/or verification of LDR treatment standards, confirmation of acceptability for off-site fuel
Percent water	Confirmation of acceptability for off-site fuel
Total VOCs	Waste Verification
Total Semi-VOCs	Waste Verification

*Selection of applicable analysis is dependent of waste characteristics and method of waste management on-site. See Figure 2, Waste Analysis Parameters used to identify methods performed on all waste streams.

Figure 2					
WASTE ANALYSIS PARAMETERS					
PARAMETERS	ANALYTICAL METHODS	PROTOCOL			
Color	SM 2120	All waste streams			
Physical state, appearance	Receiving or lab personnel	All waste streams			
Paint Filter	SW 846 9095	All waste streams			
Temperature	SM 2550	Optional analysis			
	SM 4500-H+B or SW-846 9040,				
рН	9045 or 9041	Aqueous waste streams			
		All corrosive waste			
Normality	USE Tulsa protocol	streams			
		All corrosive waste			
Oxidizers	ASTM D4981-08	streams			
		All liquid waste			
Specific Gravity	ASTM D 1298	streams			
Flash point	ASTM D 3278-96 or SW-846 1010	Optional analysis			
TOC	SW-846 9060, EPA or SM 5310	Optional analysis			
Sulfide screen	Lead Acetate Test Strips	Optional analysis			
Cyanide screen	Cyanide MilliporeSigma QuantoFix	Optional analysis			
Reactive cyanide	SW-846 9010	Optional analysis			
Reactive sulfide	SW-846 9030, 9034	Optional analysis			
TCLP	SW-846 1311	Optional analysis			
Arsenic	SW-846 6010, 7040, 7041	Optional analysis			

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Barium		SW-846 6010, 7080, 7081	Optional analysis
Beryllium		SW-846 6010, 7090, 7091	Optional analysis
Cadmium		SW-846 6010, 7030, 7031	Optional analysis
Chromium		SW-846 6010, 7190, 7191	Optional analysis
Lead		SW-846 6010, 7420, 7421	Optional analysis
Mercury		SW-846 7470, 7471	Optional analysis
Selenium	l	SW-846 6010, 7740, 7741	Optional analysis
Silver		SW-846 6010, 7760, 7761	Optional analysis
Antimony		SW-846 6010, 7041, 7040	Optional analysis
Nickel		SW-846 6010, 7520, 7521	Optional analysis
Thallium		SW-846 6010, 7840, 7871	Optional analysis
Percent sol	ids	40 CFR 261 Appendix II Section 7	Optional analysis
Heat of comb	ustion	ASTM D 240-17	Optional analysis
Halogen		SW-846 9077	Optional analysis
Percent water		ASTM D4017-02	Optional analysis
Total VOCs		SW-846 8100, 8060, 8270	Optional analysis
Total Semi-V	'OCs	SW-846 8021, 8015	Optional analysis
SM AST SW Hao	ГМ -846	Analytical methods may be substituted with ap (e.g., accepted methods superseding listed met may be performed at the discretion of facility p Standard Methods for the Examination of Wat Edition, 1985 American Society for Testing and Materials Test Methods for Evaluating Solid Wastes Water Analysis Handbook for Spectrophotome Method included with test kit	hods). Optional analyses personnel. er and Wastewater, 16th
USI	E Tulsa tocol	USE Tulsa Analytical Protocols available upor	n request

Figure 3- US Ecology Waste/Material Profile Form Example

	Profile #:
WASTE/MATERIAL RECENT	nlates may be available online for various common waste streams, Universal oods, and Lab Packs. To see a list of templates click <u>HERE.</u>
A. GENERATOR/CUSTOMER INFORMATION (If foreign	generator, complete Waste Import Supplement)
1. Generator:	Invoicing information is the same as generator mailing address
2. Site Address:	P.O. required for payment? If yes, include:
City: Phone:	8. Invoicing Company:
State: Zip: Country:	
3. Mailing Address:	9. Invoicing Address:
City:	City:
State: Zip: Country:	State: Zip: Country:
4. Technical Contact:	10. Customer Contact:
5. Phone: Email:	11. Phone: Email:
6. Generator Status: O SQG O LQG O VSQG/CESQG (If yes,	complete Certification Supplement) O Not Applicable
7. EPA ID #: NAICS CODE:	State ID #: (If applicable)
B. WASTE/MATERIAL STREAM (For assistance completing	this document, click HERE)
1. Common Name:	
(Please provide a site history for Remediation & IDW sites. Us 2. Generating Process:	e additional form if necessary.)
3. Source Code:	Form Code:
C. SHIPPING/PACKAGING INFORMATION	
1. DOT Hazardous Materials? O Yes O No Proper Shipping N	lame:
2. Additional Description: (49 CFR 172.203, e.g. "Lead" or "D008	3")
3. RQ: O Yes O No RQ Reason:	RQ Threshold: UN/NA #:
	Select #2 Select #3
4. DOT Special Permit? O Yes ONo Permit #:	
5. 24-Hour Emergency Phone:	6. DOT Inhalation Hazard? O Yes ONo
	Boxes Drums Oylinder Container Size: R 173.12(b) Lab Pack Inventory lists required)
Combination Containers (e.g., inne	
Other, Describe:	
8. Volume/Frequency: Volume:	Units:
Frequency: O Year O Quarterly	Monthly 1 Time Other, Describe:
D. PHYSICAL PROPERTIES (Use additional form if necessary))
1. Physical Description (e.g. soil, water, PPE, debris, sorbent, etc.	. Include 100% of container content. If debris, provide dimensions & weight.)
Description	Typical (%) Min (%) Max (%)
2. Odor: None Slight Strong	Odor Type: Ammonia Amines Mercaptans Sulphur Organic Acid Other, Describe:
3. Physical State: (at 70%) Solid Dust/Powder Debris	Sludge/Slurry Liquid Gas/Aerosol Varies S. Liquid phases: Osingle ODouble Layer OMulti-layer ON/A
Color: Primary Color Secondary Color Secondary Se	
 Is it solid using the paint filter test? (40 Crn Part 204.314(b)) Is there a possibility of incidental liquids from transportation 	
7. pH: (If solid, provide estimated pH if mixed 50:50 with water) 8. Flash Point: °F and/or < 90°F	9 ⁹ F 140 - 199 ⁹ F >200 ⁹ F Does Not Flash Flammable Solid
BTU /lb. Value: and/or <pre>occupant</pre> BTU /lb. Value: and/or <pre>occupant</pre> State there any known handling/treatment issues involving the	

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Figure 4-Waste Recertification Document Example

RE-APPROVAL NOTICE
Customer Account:
Name:
Company:
Address:
City, State Zip:
Thank you for selecting US Ecology as your environmental management partner. In the event that a waste stream has changed, the generator may use this form to re-approve the waste profile.
Generator Name: EPA ID No.:
For Benzene NESHAP Regulated Generators: Please provide your updated TAB here Mg/Year, if this field is left blank, it will be assumed that there are no changes to the TAB quantity for your facility.
Waste Common Name:
Waste Code(s):
Approval No.: Expiration Date:
Please select one of the following options:
□ Re-approval with No Process Change □ Re-approval with Process Change □ Process Change
Please provide a detailed description below of the changes to the waste stream:
This Re-approval Notice acknowledges the acceptability of waste material(s) into the EQ facility(s) and ensures that each facility has the appropriate permit(s) issued by federal and state regulatory agencies to properly transport, treat, and/or dispose of the waste material(s). Upon signature and submittal of this form, the waste stream will be reviewed to extend the expiration for one year.
I certify that all information (including attachments) is complete and factual and is an accurate representation of the known and suspected hazards, pertaining to the waste described herein. I authorize EQ to add supplemental information to the waste approval fi provided I am contacted and give verbal permission. I authorize EQ to obtain a sample from any waste shipment for purposes of verification and confirmation. I agree that, if EQ approves the waste described herein, all such wastes that are transported, delivered, lendered to EQ by Generator or on Generator's behalf shall be subject to, and Generator shall be bound by, the Standard Terms and Conditions associated with the original Waste Profile. (The Standard Terms and Conditions are incorporated into the Waste Profile as Page 4.)
Generator Signature: Printed Name:
Company: Date:
Questions? Please call (800)592-5489. Please return completed document to Customer Service via fax (800)592-5329 or e-mail at
customer.service@usecology.com
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