

**APPENDIX J**

**FEEDSTREAM ANALYSIS PLAN**

# **FEEDSTREAM ANALYSIS PLAN**

**Veolia ES Technical Services, LLC  
Sauget, Illinois**

---

**October 2008**

## **TABLE OF CONTENTS**

- 1.0 INTRODUCTION**
- 2.0 FEEDSTREAM PARAMETERS**
  - 2.1 Chlorine
  - 2.2 Metals
  - 2.3 Ash
- 3.0 ANALYTICAL RATIONALE**
  - 3.1 Analysis Performed by Veolia
  - 3.2 Analysis Performed by Others
  - 3.3 Manufacturer Data or Other Published Information
- 4.0 APPLICATION OF ANALYSIS FOR FEEDRATE COMPLIANCE**

---

  - 4.1 Process Planning for Feedstreams
  - 4.2 Process Control for Feedstreams
  - 4.3 Documentation and Recordkeeping for Process Planning and Control
- 5.0 SAMPLING AND ANALYTICAL METHODS**
  - 5.1 Sampling Methodologies
  - 5.2 Documentation and Recordkeeping Associated with Sampling
  - 5.3 Analytical Methodologies
  - 5.4 Documentation and Recordkeeping Associated with Sample Analysis
- 6.0 FREQUENCY OF ANALYSIS**
- 7.0 COMPLIANCE WITH FEED RATES**

## **1.0 INTRODUCTION**

Pursuant to the regulatory requirements found in 40 CFR 63.1206 (c) of the HWC MACT Standard, Veolia ES Technical Solutions, LLC (Veolia) has developed a Feedstream Analysis Plan (FAP). Its purpose is to provide a system whereby Veolia can sample, analyze, and control the incineration of feedstreams that may contain constituents requiring feedrate limits as specified in the HWC MACT Standard. The FAP also addresses how these activities will be recorded in the facility's operating record.

This FAP is organized such that each of the subsequent sections specifically addresses the six paragraphs under 40 CFR 63.1206 (c) (2) and three paragraphs under 40 CFR 63.1206 (c) (4) in the order in which they are presented in the HWC MACT Standard. In many instances, this FAP will reference the facility's Waste Analysis Plan (WAP). The WAP is an integral part of the RCRA Part B Permit, the Permit Application, and any subsequent revisions or addenda to the Part B Permit or Permit Application.

As required by sections 63.6 (e)(v) and 63.6 (e)(vi) of the HWC MACT Standard, the FAP and other documents containing procedures or information referred to in the FAP will be made available for inspection when requested by the Administrator. The FAP, correspondence with the Administrator concerning the FAP, and any subsequent additions or modifications to the FAP will be kept in the facility's Operating Record. If Veolia is required to submit copies of the FAP or portions of it (or related documents), ~~confidential business information entitled to protection from disclosure will be clearly~~ designated.

## **2.0 FEEDSTREAM PARAMETERS**

There are three feedstream constituents that are specified in the HWC MACT Standard for emission and/or feedrate limitations and that may be present in any given feedstream. These three are:

- 1) Chlorine
- 2) Metals (Mercury, Lead, Cadmium, Chromium, Beryllium, and Arsenic)
- 3) Ash

These three constituents will serve as the feedstream parameters of concern in the FAP as required by 40 CFR 63.1206 (c) (2) (I) of the HWC MACT Standard. Feedstream data applicable to each of these parameters will be obtained for all feedstreams in order to control the incineration of them and remain within the feedrate limits set for them.

### **2.1 Chlorine**

Feedstream data will provide a weight-based percentage of chlorine for each waste feed to the incinerators. These results can be used to both estimate targeted feed rate values and control actual feed rates during incineration.

## **2.2 Metals**

Feedstream data will provide a parts-per-million concentration for each of the listed metals in each of the waste feeds to the incinerators. For analytical results that show less than detection limit concentrations, ½ the detection limit value will be used for incinerator feed computations. These results can be used to both estimate targeted feed rate values and control actual feed rates during incineration.

## **2.3 Ash**

Feedstream data will provide a weight-based percentage of ash for each of the waste feeds to the incinerators. These results can be used to both estimate targeted feed rate values and control actual feed rates during incineration.

## **3.0 ANALYTICAL RATIONALE**

In 40 CFR 63.1206 (c) (2) (ii) of the HWC MACT Standard, a facility is required to identify how it will obtain the necessary analysis to comply with these regulations. There are three sources of analytical information that Veolia can use in evaluating the feedstream parameters as described in Section 2.0 of the FAP. They are:

- 1) Analysis performed by Veolia
- 2) Analysis performed by others
- 3) Manufacturer data or other published information

These sources are also referenced in the facility's WAP and the ways in which they can be applied to feedstreams are extensively addressed. Many of the analytical procedures performed as described in the FAP are also required as part of the waste acceptance and management process at Veolia. The information derived from these procedures can then be used in complying with the feedstream limitations for the parameters identified in the FAP.

The three analytical sources can be applied to generator wastes received at the Veolia facility, including those that undergo subsequent blending prior to incineration, and also to wastes that are generated at the facility.

### **3.1 Analysis Performed by Veolia**

The predominate means applicable to this source of analytical information is the methodology described in Section 5.0 of the FAP. Specific analytical methods performed in the facility's laboratory are applied to applicable feedstreams to produce values for the required parameters.

Typically, the feedstream is a waste profile from a generator that has been accepted according to the facility's WAP guidelines. This waste will have had analytical work performed on a sample for an initial acceptance decision and supplemental analysis as

required for subsequent shipments of the waste. This analytical work will include information on the parameters identified in the FAP and can be used to control the incineration of the feedstreams.

In other instances, the feedstreams are wastes blended together at the facility (e.g., bulk liquids and bulk solids) or wastes generated by the facility (e.g., laboratory wastes, incinerator ash). Feedstreams that are the result of blending or other on-site processing steps prior to incineration can have parameters determined from the same analytical methods described in the previous paragraph or by statistically arriving at an average value based on a body of previously analyzed samples. Wastes generated by the facility will have parameters determined from an average value based on a body of previously analyzed samples.

For many feedstreams, the best source of information for the parameters identified in the FAP will be obtained using the technical expertise of Veolia personnel. Examples of these types of feedstreams are labpacks, controlled substances and empty containers. The facility's WAP lists some of these reference sources in Appendix WAP-F.

### **3.2 Analysis Performed by Others**

In situations where Veolia cannot perform the necessary analysis due to the nature of the feedstream (e.g., gases, some reactive materials) or when previous outside analysis of feedstreams that meets the standards of this FAP is available, Veolia will accept the analysis of others in determining parameter values. This analytical information will be evaluated and used to control the incineration of feedstreams in the same manner as analytical information produced at the facility.

### **3.3 Manufacturer Data or Other Published Information**

Many feedstreams have pre-existing information applicable to them that can be used to determine the values of the parameters as identified in the FAP. This can take the form of manufacturer specifications and data, Material Safety Data Sheets, reference sources or other published information. The facility's WAP lists some of these reference sources in Appendix WAP-F. Examples of these types of feedstreams include commercial products, pharmaceuticals, chemical reagents, and gas cylinders. This information will be evaluated and used to control the incineration of these feedstreams in the same manner as analytical information produced at the facility.

## **4.0 APPLICATION OF ANALYSIS FOR FEEDRATE COMPLIANCE**

Feedstream data will be used to maintain compliance for the feedrate limitations to the incinerators. This analysis will be completed prior to the feeding of any material to the incinerators. The documentation of these feedrate compliance methods is required by 40 CFR 63.1206 (c) (2) (iii) of the HWC MACT Standard and outlined in this section of the FAP.

Analytical results can be used to both estimate targeted feed rate values and control actual feed rates during incineration. Analysis from laboratory testing at the facility, analytical results from others, published information, and technical evaluations by Veolia personnel can all be used in complying with feedrate limitations for the parameters identified in the FAP. In addition, these analytical information sources can be used for wastes from generators, wastes blended at the facility, and wastes generated at the facility.

#### **4.1 Process Planning for Feedstreams**

When evaluating analytical results and any additional information applicable to a potential feedstream, a decision must be made whether parameters for that feedstream are acceptable for feeding to the incinerators or if some level of feed preparation is necessary. This step in the feedstream evaluation process is called process planning. It is applied to blending wastes, processing wastes into combustible charges, and determining if wastes can be fed directly to the incinerators as initially received at the facility. This planning is performed based on information from analytical results, incinerator performance capabilities, process operation history, and the technical expertise of the process planning personnel involved.

#### **4.2 Process Control for Feedstreams**

In order to ensure that feedrate limits for the parameters in the FAP are not exceeded during operation of the incinerators, automatic systems must be in place to control the incinerator process. These systems continuously track the feedstream parameters as they are introduced into the incinerators and make the necessary feed adjustments or cut-offs for compliance. Section 7.0 of the FAP addresses these systems and the rationale behind their operation in greater detail.

#### **4.3 Documentation and Recordkeeping for Process Planning and Control**

Documentation of process planning and control is demonstrated by the extensive body of information collected in the facility's data management system, and, if needed, distributed in hard copy form to appropriate personnel. This includes laboratory analysis used for feed preparation, bulk waste storage data, processing directions, and related information. Actual incinerator operations data is recorded in printed summaries, recorded onto digital data storage systems, and is also selectively available on-line. This information will be retained in the operating record for the life of the facility.

### **5.0 SAMPLING AND ANALYTICAL METHODS**

The requirements in 40 CFR 63.1206 (c) (2) (iv) and (v) of the HWC MACT Standard state that a facility must identify the sampling and test methods used for analyzing the feedstreams. The sampling methodology and much of the analytical methodology that is described in Sections 2.0 and 3.0 of the facility's Waste Analysis Plan is applicable to the FAP. Additional sampling and testing information is included in the following paragraphs of this section.

## **5.1 Sampling Methodologies**

Sampling is performed at the Veolia facility to identify waste shipments and also by the generator at their location when making an initial determination on the acceptability of the waste at Veolia. In some instances, an actual sample will not be required because technical personnel at Veolia will have determined that sufficient documentation already exists that identifies information regarding the parameters described in Section 2.0 of the FAP (see also Section 4.0, Paragraph 4.1.12 (2) of the WAP). In order to obtain a representative sample of the waste, specific sampling procedures that are dependent on both the nature of the waste sampled and the type of processes in which the waste will be stored or transferred must be performed. Section 2.0 of the facility's WAP and pertinent appendices in the WAP list these procedures and the ASTM method number (or other EPA approved method) on which they are based. This section in the WAP also addresses the sampling equipment used, the types of intended containment or processes that can impact the sampling, and guidelines on how to ensure that a valid and representative sample is obtained.

## **5.2 Documentation and Recordkeeping Associated with Sampling**

All samples taken at the facility or sent to the facility for analysis are assigned a unique sample identification number. These identification numbers are recorded in a chain-of-custody log and used for tracking the sample through the facility's data collection system. Each sample also has a label affixed to it identifying its contents, the date the sample was taken, and the person who took the sample.

## **5.3 Analytical Methodologies**

### **CHLORINE**

The analytical procedures and EPA approved methods related to determining the amount of chlorine in a feedstream are found in Appendix WAP-A to the facility's WAP.

### **METALS**

Feedstreams that require analysis for the metals specified in the HWC MACT Standard will either contain these metals in a non-water-soluble form or a water-soluble form. Samples of feedstreams in a non-water-soluble form will require additional preparation steps prior to analysis. The analytical procedures and EPA approved methods related to determining the amount of listed metals in a feedstream are listed below.

#### Digestion Procedure for Non-Water-Soluble Samples

Method 3051A – Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oils

Procedure for Determining Concentration of Mercury in Sample

Method 7473 – Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry

Procedure for Determining Concentration of Arsenic, Beryllium, Cadmium, Chromium and Lead in Sample

Method 6010C – Inductively Coupled Plasma-Atomic Emission Spectrometry

**ASH**

The analytical procedures and EPA approved methods related to determining the amount of ash in a feedstream are found in Appendix WAP-A to the facility's WAP.

**5.4 Documentation and Recordkeeping Associated with Sample Analysis**

Documentation of analytical work is accomplished by recording it in laboratory logbooks, entering it into the facility's data management system, and, if needed, distributed in hard copy form to appropriate personnel. All technical files for waste profiles will also include initial laboratory analysis and any applicable subsequent analysis. This information will be retained in the operating record for the life of the facility.

**6.0 FREQUENCY OF ANALYSIS**

In 40 CFR 63.1206 (c) (2) (vi) of the HWC MACT Standard, a facility is required to identify the frequency with which an initial analysis is repeated or reviewed to ensure that it is current. This FAP will require that the analytical information for the feedstreams be re-evaluated on a frequency consistent with that described for all wastes as described in Section 4.1.3 of the facility's WAP. The three events that may trigger a need to update or evaluate the analysis of a given feedstream are:

- 1) Generator notifies Veolia that a feedstream has changed
- 2) Subsequent analysis for a feedstream used by Veolia is inconsistent with the original analysis
- 3) Five years have passed since the last assessment of the feedstream

In order for a feedstream to be considered acceptable again for incineration after one of these events has occurred, the evaluation process as described in this FAP must be completed.

**7.0 COMPLIANCE WITH FEED RATES**

Veolia employs process control systems for the incinerators that monitor, adjust and record feedstreams and the key parameters identified in the FAP that are associated with

them. These systems meet the requirements of 40 CFR 63.1206 (c) (4), paragraphs (i), (ii) and (iii). The systems and the rationale that supports these systems are described in the following paragraph.

### **7.1 Feed Rate Compliance Systems and Methodology**

After the metals and ash concentrations for feedstreams are determined, they will be entered into the facility's data management systems. These feedstreams are identified in the system under a site tracking number, bulk pit number, or tank number. Once this information is in the waste tracking system, the incinerator control systems are able to import and store the data for use as the waste streams are processed at the incinerators. All waste introduced into the incinerators has an associated site identification designation (receiver number, etc.) so it can be referenced to the appropriate data from the waste tracking system. As weights are recorded at 15 second intervals for each specific waste stream entering the incinerator, computations are being performed to calculate the quantities of metals (as low volatile metals, semi volatile metals, and mercury) and ash that are being incinerated. These quantities are displayed, totalized, and recorded in a manner that will show compliance with the established operating parameter limits for the metals categories and ash. One hour and 12 hour rolling totals are displayed for the incinerator operators for monitoring of these feeds.