OhioEPA

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Waste **A**nalysis **P**lan Guidance

A guide for preparing and reviewing waste analysis plans submitted with Part B of the Ohio Hazardous Waste Facility Installation and Operation permit application

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FINAL
June 2000

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Section 1.0 Introduction

Waste analysis involves identifying or verifying the chemical and physical properties of waste, either by testing or, in certain situations, by applying knowledge of the waste. Waste Analysis Plans (WAPs) are written plans which document the procedures used to perform analysis of waste generated, treated, stored, or disposed at hazardous waste management facilities. WAPs are submitted as a requirement of Part B of the Ohio Hazardous Waste Facility Installation and Operation Permit application, and as such become an enforceable part of the permit. A WAP is required of every permitted Treatment, Storage, or Disposal Facility (TSDF) in the State of Ohio.

The primary purpose of this guidance is to assist State of Ohio hazardous waste facility permit writers in the review of WAPs submitted with Part B of the permit application. It may also be used by the regulated community in the preparation of WAPs.

This guidance has two parts: a narrative portion and a checklist. The narrative portion of this guidance describes the level of detail expected and provides technical support for key elements of WAPs. It provides the Ohio Administrative Code (OAC) regulatory citation, and specific requirements permit writers should look for when reviewing WAPs. The checklist should also be used in the actual review of WAPs. Using the checklist, the permit reviewer will be able to determine if the plan is complete and technically adequate. Included here as Appendix I, this checklist may also be found in the review tool for Part B applications.

Section 2.0 Applicability

This guidance is applicable to all facilities subject to the permitting requirements of OAC Chapter 3745-50. The specific requirement for submittal of a waste analysis plan is detailed in OAC Rule 3745-50-44 (A)(3), "Contents of the Part B Permit Application".

Facilities accumulating hazardous waste under OAC Rule 3745-52-34 that also treat hazardous wastes in tanks or containers to meet applicable treatment standards under OAC Rule 3745-59-40 to OAC Rule 3745-59-44 are required to develop and maintain a written WAP in accordance with OAC Rule 3745-59-07(A)(4). While not specifically focused on this portion of the regulated community, certain parts of this guidance may apply to facilities preparing these plans.

Additionally, non-permitted facilities that do not conduct treatment of hazardous waste in tanks or containers may opt to use this guidance to develop a WAP. WAPs, though not required of these facilities, offer many advantages, including promotion of waste management consistency, demonstration of compliance, and reduction of potential liabilities associated with mis-characterization of wastes.

Section 3.0 Definitions and Acronyms

1. Acronyms

SW-846	*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. SW-846, EPA SW-846.3.3 (most recent revision)
DQO	Data Quality Objective
IRI	Ignitable, Reactive, or Incompatible
QA/QC	Quality Assurance / Quality Control
OSHA	Occupational Safety and Health Act / Administration
LDR	Land Disposal Restriction
TSDF	Treatment, Storage, or Disposal Facility

2. Fingerprint Analysis - abbreviated waste analysis conducted for waste parameters which may verify that a waste received from an off-site source matches the expected characteristics for that waste.

3. Off-site Facility - a facility that receives and manages hazardous waste from another facility that is not geographically on site.

4. On-site Facility - a facility that manages only those hazardous wastes which are generated on it's geographically contiguous property.

5. Waste Analysis Plan - a written plan which documents the procedures used to perform waste analysis requirements.

6. Waste Profile Sheet - a written form completed by the generator as a waste pre-acceptance condition with the TSDF. The waste profile sheet contains detailed information on the physical and chemical characteristics of the waste.

7. Boundary Conditions - the expected high and low values of a characteristic based on historical average analysis.

8. Tolerance Limits - the high and low values of a characteristic between which a waste management unit can manage waste and still meet permit, process, or regulatory criteria.

9. Representative Sample - a sample of a universe or whole (e.g. waste pile, lagoon, ground water) which can be expected to exhibit the average properties of the universe or whole.

10. Pre-acceptance - the information collection process where a complete physical and chemical analysis (sufficient to treat, store, or dispose of the waste) of a representative sample of waste is obtained before the waste is accepted for management. The purpose is to determine if a waste can be accepted for management by the facility within permit, process, or regulatory constraints.

Section 4.0 Waste Analysis Plan Requirements

The following is a discussion of information to be included in waste analysis plans submitted with the Part B permit application. It is important to note that WAPs are facility specific, and as such, there is flexibility in the content and level of detail required.

The information presented in the guidance is meant to be sufficient for most of the facilities in Ohio; however, there may be facilities where additional information requirements are not addressed. Also, there may be situations where not all of the guidance is applicable. All WAPs must be carefully prepared and reviewed to determine facility-specific waste analysis requirements are met.

Purpose of the Plan

The purpose of a WAP is to describe how a TSDF will collect the information necessary to manage waste. The WAP documents the procedures used to obtain information on the chemical and physical properties needed to effectively treat, store, or dispose of the waste in accordance with permit, process, or regulatory considerations. For example, storage facilities must know waste properties to ensure proper storage container selection. Treatment facilities will have information needs to ensure safe and effective waste treatment. All forms of waste management at a TSDF require accurate waste analysis.

Content and Organization of the Plan

Required content of the WAP can be found in OAC Rule 3745-54-13 "General Waste Analysis". Paragraph (A) requires that TSDFs obtain a detailed chemical and physical analysis of a representative sample of a waste, before managing the waste, which includes all the information necessary to comply with OAC Chapters 3745-54 to 57 and 59, and with permit terms and conditions. Paragraph (B) of this rule requires a written plan that *"describes the procedures to be implemented in order to comply with paragraph (A) of this rule"*. Paragraph (B) also specifies certain other minimum requirements for the plan.

Ohio EPA believes that there are six major elements of an effective WAP. These six elements are the facility description, waste analysis parameters, sampling procedures, testing and analytical methods, re-evaluation frequencies, and special procedural requirements. Each of these elements are described in detail throughout this guidance.

There is no required format for the WAP. An important consideration when organizing the WAP is that information is presented in a logical fashion. While narrative

is necessary to describe waste analysis procedures at the facility, the most effective means of communicating this information to Ohio EPA is through the use of tables and flow charts to summarize and highlight key information. Where it is believed that a table and/or flowchart would aid in clarifying the information presented, that is noted in this text, and an example is provided

For off-site facilities, waste analysis can generally be seen as a three phase process: pre-acceptance, acceptance, and post-acceptance/management. Pre-acceptance is the collection of waste information before it is accepted by the facility. Typically, this happens prior to waste ever being shipped to the TSDF, and may include such activities as completing the waste profile sheet, collection of a representative sample to generate laboratory analytical data, and compiling documentation of generator knowledge, or some combination thereof. The purpose of this phase is to determine if the waste is acceptable by the facility based on comparison of the waste characteristics to permit, process, and regulatory constraints. The acceptance phase of waste analysis includes making the determination that wastes arriving at the facility are the same as those characterized during pre-acceptance. Typically this is done through fingerprint sampling, as described later in this document. The post-acceptance/management phase should include any necessary waste analysis that occurs after wastes have been accepted into the facility. This phase may include such items as testing treatment residues to determine if land disposal restriction (LDR) treatment standards have been met. Off-site TSDFs may find it helpful to organize the WAP into the phases of waste analysis as described above. Each phase could be described in terms of the waste analysis parameters, sampling procedures, testing and analytical methods, etc., as those elements are described in this document. Such an organization may clearly describe the waste analysis occurring during each phase at the facility.

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4.1 Facility Description

The facility description portion of the WAP describes the wastes managed, the waste generating processes, and the hazardous waste management units. This section of the WAP should answer the questions: What are the wastes to be managed in each unit at the facility? What are the characteristics of that waste? What are the characteristic of the unit that control the ability to safely store or manage the waste? The information in this section is used throughout the remainder of the WAP to select and evaluate waste analysis parameters, sampling and analytical methods, and re-evaluation frequencies.

The requirements for a description of the facility, waste management units, and wastes to be managed are not explicitly stated in the waste analysis regulations, however,

this information is considered vital to ensuring the remainder of the WAP is technically adequate. Where this information is provided for in another section of the Part B application this information need not be duplicated in the WAP; however, it should be referenced and relevant points summarized to justify waste analysis decisions. This summarization may take the form of a list or a table, and should contain the information upon which the remaining waste analysis decisions were made. Consider for example a large facility with multiple waste streams and hazardous waste management units. The facility description must be of sufficient detail and clarity to discern which waste streams are managed in which units. Based on that information, the facility can select relevant acceptance and rejection criteria for each parameter of each waste stream.

4.1.1 Description of Waste Generating Processes and Activities

Knowledge of the waste generating process is essential to waste analysis. This knowledge is used to help develop and evaluate the list of parameters specified in the WAP. It may also help to determine waste re-evaluation frequencies. For on-site generated waste the information is easy to collect and document. All on-site process and activities which generate hazardous waste to be managed in permitted units should be described in the WAP. Additional waste streams generated on-site but treated, stored, or disposed off-site could optionally be included in the WAP.

For waste generated off-site, waste generating process information can be collected as part of the pre-acceptance process. These off-site waste generating processes should be briefly described, and procedures should be in place for the facility to obtain updated waste generating process information for wastes to be managed on-site *(collection and documentation of this information is vital where TSDFs rely in part or in whole on generator knowledge. Refer to section 4.4.4 for proper documentation where generator knowledge is used and section 4.5 regarding waste analysis re-evaluation)*. Detailed descriptions of each generators process should be included in the generator's customer file at the facility. These descriptions should include generating process information to the degree that it is relevant to waste analysis. For example, use of degreasing solvents for parts washing could be a generating process description. However, enough detail about the process should be provided to evaluate the potential of additional constituents to be present in the waste, for example metals. This information will of course affect the selection of parameters.

4.1.2 Identification and Classification of Hazardous Wastes Managed

A detailed description of the wastes managed should be provided. For on-site facilities, very specific descriptions of the waste managed can be provided because these facilities will manage waste with little variation. For off-site facilities which accept waste from numerous generators, where appropriate waste stream types can be described instead of individual waste streams. The descriptions of waste stream types should account for the variation in waste between generators. For example, an on-site storage facility may generate paint waste containing only cadmium pigments, and may describe that waste with the D006 waste code. An off-site facility may be permitted to accept paint waste containing cadmium or chromium pigments from several generators, and may describe that waste stream type as D006 and D007 even though an individual generator's waste would likely only carry one of the codes. Detailed descriptions of each waste stream must be included in each generators customer file. This description of the wastes will give valuable information on what parameters to select, sampling methods, and selection of sampling equipment. The waste description should include, at a minimum, the following:

- ***identity of the waste*** this is the common name of the waste as it is called at the facility. It may be a brief description *(e.g., parts washer solvent)* a waste profile number *(e.g., Q99-0612)* or the chemical name or abbreviation *(e.g., trichloroethylene (TCE))*. The name must be unique for each waste stream or waste stream type at the facility.

- ***the waste generating process*** this would be the name of the process *(as described in the above section 4.1.1)* generating the waste stream

- ***rationale for designating the waste hazardous*** is the waste listed or does it exhibit a characteristic?

- ***chemical and physical characteristics*** this should include information necessary to sample, treat, store, or dispose of the waste. It also should indicate the source of the information *(i.e. generator supplied knowledge or laboratory analysis)*

- ***appropriate OEPA hazardous waste classifications*** such as OEPA hazardous waste codes and LDR treatment standards

4.1.3 Description of Hazardous Waste Management Units

The description of the hazardous waste management units (HWMUs) aids in the selection of parameters by identifying any possible waste-unit incompatibilities, and permit, regulatory, or process constraints of the unit. An example is storage of strong corrosives in steel tanks. The HWMU description would tell us that the tanks are constructed of steel and therefore we would add corrosivity as a characteristic of concern in the WAP for wastes managed in that HWMU. A brief description of all hazardous waste management units at the facility should be provided to justify or identify unit limitations. This description may be provided in other sections of the Part B application and referenced and summarized in the WAP. The description should include the following information regarding the units:

- ❏ a physical description of the units;
- ❏ a list of wastes managed in each unit;
- ❏ waste management methods in the units *(such as mixing, etc.)*;
- ❏ permit, regulatory, or process constraints of the unit (*permitted waste codes,etc.)*
- ❏ and any additional limitations to be considered when conducting waste analysis.

An efficient way to communicate these limitations is through use of a table, such as the example below:

	Hazardous Waste Management Unit			
Characteristic	Tanks 01 - 09	Tanks 10 - 99	Container Storage	Waste Pile
Corrosive	pH > 3	No limitations	Bay 1 only	No corrosives
Flammable	No limitations	No limitations	Bay 3 only	No flammables
Reactive	No Reactives	No Reactives	Bay 2 only	No reactives
Toxic	No limitations	No limitations	Bay 4 only	No toxics
Waste Codes	F002, F003 only	D008, D010 only	all listed on part A application	D008 only
Capacity	<10,000 gal at any one time	<25,000 gal at any one time	195 55-gal drums at any one time	100 cu. yds.
Other	S.G. < 1.3	S.G. <1.3	No limitations	no liquids

For additional clarity, the entire facility description information contained in Section 4.1 may be summarized in a table, such as in the example below:

Waste Identity	Waste Code	HWMU[1]	Generating Process[2]	Rationale	Chemical /Physical Characteristics
Drycleaning solvent (PERC) Q99-022374	F002 F003	Tanks 01-09	off-site drycleaning equipment clean-out	Toxic	1. Miscible with alcohol, oils 2. Liquid 3. Colorless 4. No flash point
Lead Water Q99-070274	D008	Tanks 10-99	off-site lead abatement	Toxic	1. Liquid 2. 1<s.g.<1.2 3. Colorless to turbid 4. No flash point 5. 6<pH<8 6. Typ. 100 - 200 ppm

1 HWMU limitations are provided in Table 4.1.3
2 Generating process descriptions are provided in Section 4.1.1

4.2 Waste Analysis Parameters OAC Rule 3745-54-13(B)(1)

The waste analysis parameters portion of the WAP specifies the parameters used to represent physical and chemical characteristics of the waste to be managed. Facilities must specify waste parameters which ensure compliance with regulatory requirements (e.g. LDR), permit conditions (e.g. permitted waste codes), and safe and effective waste management operations (e.g. incompatible wastes).

The parameters section must include information on the rationale (how the parameters ensure compliance with OAC Rule 3745-54-13(A)(1)) for parameter selection, and should include acceptance and rejection criteria for each parameter.

Parameters for all phases of waste management for each waste stream may be discussed in this section. For example, treatment and disposal facilities which must test waste for compliance with LDR regulations may specify those parameters in this section. The permit reviewer must ensure that the applicant lists the rationale for each parameter of each waste stream during all phases of management (pre-acceptance, acceptance, and post-acceptance/management) if applicable.

4.2.1 Selection of Waste Analysis Parameters

Facilities should consider several data needs when selecting parameters to define waste which is capable of being managed at the facility. Selection of these parameters is facility specific. Facilities must propose which parameters they will use, and provide the rationale for selection of those parameters in the WAP. The permit writer must review the proposed parameters to determine their sufficiency in meeting the intent of OAC Rule 3745-54-13(A)(1). Generally, TSDFs will need information regarding the following :

- ***waste identification*** - all generators must evaluate *(through testing or knowledge)* waste for parameters which establish the waste identification under OAC Chapter 3745-51. When a TSDF generates and manages waste on-site, parameters relating to waste identification may be included in the WAP.

- ***identification of incompatible, reactive, or ignitable (IRI) waste*** - as discussed in section 4.6.2, OAC Rules 3745-54-13 and 3745-54-17 require that IRI wastes are identified and methods to make that determination must be presented in the WAP. Facilities may include parameters to meet these requirements.

- ***permit or regulatory considerations*** - permit or regulatory acceptance limits, such as PCB content of incoming waste streams, may warrant additional parameters which must be monitored. These parameters should be selected based on permit conditions or regulatory restrictions.

- ***Land Disposal Restrictions (LDR)*** - under OAC Chapter 3745-59 generators and TSDFs have various responsibilities for characterizing restricted waste. This includes treatment facilities which must test treatment residues to demonstrate that LDR standards have been achieved. A TSDF combining wastes in tank storage will need to obtain information regarding concentrations of hazardous constituents to avoiding dilution as a form of treatment, as specified in OAC Rule 3745-59-03. As a result of compliance with LDR Rules, several parameters may be specified to meet these requirements.

- ***Special Parameter Selection Requirements*** - these may include special waste analysis required by regulations for specific hazardous waste management units, including incinerators, landfills, surface impoundments, and miscellaneous units.

- ***Process considerations*** - the facility description should specify the range of waste characteristics a process can accept and still operate safely, effectively, and in accordance with applicable regulations. These limits are called Tolerance Limits, and may or may not exist for various waste characteristics. These tolerance limits are then used to select parameters which can monitor the characteristics with tolerance limits. For example, a waste oil stream may have to be of such viscosity that it can be pumped through process lines. A tolerance limit for that waste stream would then be set at the required range of viscosities. Additionally, special considerations should be given to pre-process, in-process, or post-process changes in the waste which may require that additional parameters be specified at intermediate points of treatment processes.

- ***Fingerprinting*** - fingerprint sampling is used to determine if a waste is inconsistent with the data collected during pre-acceptance. Fingerprint parameters are selected from the larger set of pre-acceptance parameters. Generally, the rationale presented for selection of fingerprint parameters will be to determine if the waste arriving on-site is the same as the waste agreed to during pre-acceptance. However, some facilities may elect to perform additional analysis, such as PCB screening, on each shipment although the waste characterization data *(pre-acceptance data)* indicates PCBs are not present.

At a minimum, facilities should consider these above criteria when selecting parameters. Not all of the above criteria may apply to any individual facility; likewise, there may be other facility specific considerations that are not addressed above. The parameters which have been selected must be listed in the WAP for each waste stream (or waste stream type), along with the rationale for each parameter. The rationale must describe why the parameter was chosen and how it will ensure waste management is within permit, process, and regulatory limits or otherwise meets the intent of OAC Rule 3745-54-13(A).

4.2.2 Additional Information Regarding Selection of Fingerprint Parameters

Selection of fingerprint parameters should focus on a specific subset of the pre-acceptance parameters. Boundary conditions, or expected range of a characteristic, for fingerprint parameters should be established and included in the WAP. These are established through knowledge of the average characteristics of the waste stream. When boundary conditions are exceeded, that is an indication to the TSDF that the waste is atypical, and a more detailed analysis or shipment rejection may be warranted.

Specific parameters chosen for fingerprinting are waste stream specific, and should be based upon the fingerprint parameter selection criteria described in section 4.2.1. In general, several parameters should be chosen, both quantitative and qualitative. Usually they are taken from the larger set of pre-acceptance parameters, so that fingerprint results can be compared to the expected characteristic ranges indicated in the pre-acceptance characterization. The focus should be on fingerprint parameters which can give reliable indications that an incoming shipment is or is not the waste expected.

The number of fingerprint parameters specified in the WAP can be considered a function of the quality of the pre-acceptance data acquired. When the TSDF collects analytical data or thoroughly documented generator knowledge for a waste stream, a less rigorous fingerprinting program may be acceptable. The level of information obtained within certain fingerprinting programs may resemble a complete laboratory analysis in situations involving a generator with a history of mis-characterizing their waste.

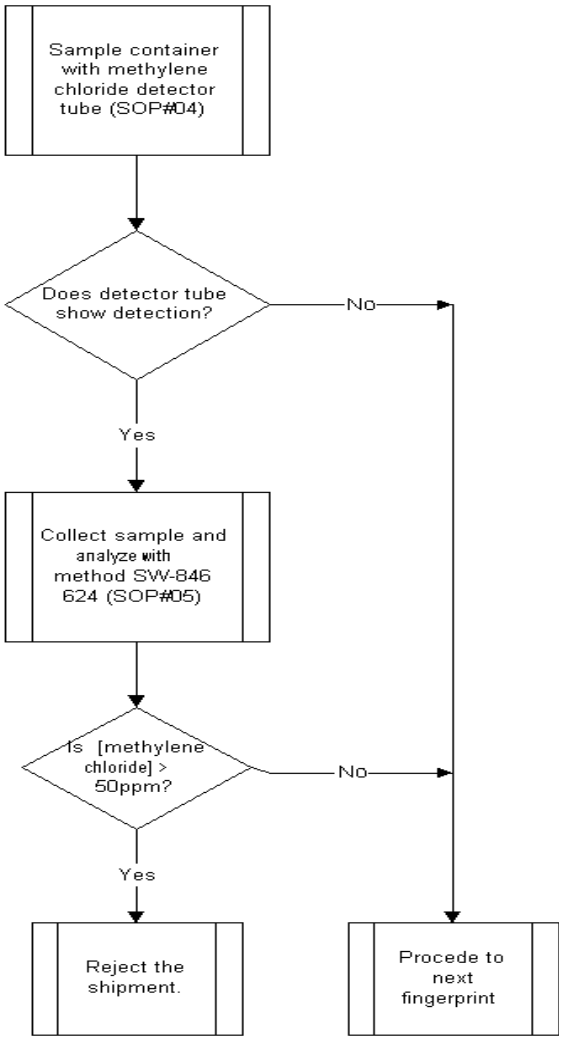
4.2.3 "Mandatory" and "Supplemental" Parameters

In some instances, TSDFs have listed "mandatory" and "supplemental" parameters for their waste streams in the WAP. This may be especially useful when the mandatory analysis is used as a screen to determine the need for more accurate supplemental

analysis. An example of this is the use of detector tubes to screen incoming waste shipments for methylene chloride. If the detector-tubes indicates the presence of methylene chloride above a pre-determined action level, then the supplemental analysis is performed, consisting of a traditional analytical laboratory technique. The use of these "mandatory" and "supplemental" analysis can save time and money when compared to straight laboratory analysis.

Where a facility elects to specify "Mandatory" and "Supplemental" analyses, the specific circumstances when each analysis will be performed must be included in the WAP in an "If X then Y" format. Using the above detector tube example, the WAP could state *"Wastes containing methylene chloride greater than 50 ppm cannot be accepted at this facility, therefore, all incoming waste streams will be screened using a detector tube capable of detecting methylene chloride in concentrations from 5 to 100 ppm. If the detector tube indicates a methylene chloride concentration above the action level of 25 ppm, then a full laboratory analysis of the sample using SW-846 method 624 will be performed. If the detector -tube does not exceed the action level of 25 ppm, then no further methylene chloride analysis is necessary"*. Note how the rationale, action level, and the next steps in the process are clearly stated. Also, note that the action level must be below the tolerance limit for that characteristic / parameter, and be conservative enough to account for sampling and instrument error. For additional clarity, it is suggested that the decision logic be presented in a flow chart format, such as the example in Figure 4.1.

Figure 4.1. Example Flowchart Showing Mandatory and Supplemental Analysis.



4.3 Sampling Procedures OAC Rule 3745-54-13(B)(3)

When sampling and laboratory analysis is used to determine the physical and chemical characteristics of a waste, the methods to obtain a representative sample must be provided. A representative sample is defined as a sample of a universe or whole *(e.g. waste pile, lagoon, groundwater)* which can be expected to exhibit the average properties of the universe or whole. Two options available for collecting a representative sample include use of the methods listed in the Appendix I to OAC Rule 3745-51-20, or use of an equivalent method. Methods listed in the Appendix I to OAC Rule 3745-51-20 include:

Material Type	Method
extremely viscous liquid	ASTM D140-70 (revised to D140-88)
crushed or powdered material	ASTM D346-75 (revised to D346-90)
soil or rock-like material	ASTM D420-69 (revised to D420-93)
soil-like material	ASTM D1452-65 (revised to D1452-80)
fly-ash like material	ASTM D2234-76 (revised to D2234-89)
containerized liquid waste	SW-846 “COLIWASA”
liquid waste in pits, ponds, lagoons, or similar reservoirs	SW-846 “Pond Sampler”

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Samples collected using the sampling protocols listed above, for sampling waste with properties similar to the indicated materials, will be considered by Ohio EPA to be representative of the waste.

When using the above methods, modifications to the method may be required to meet other sampling requirements. For example, changes to allow use of proper container type, size, and preservative for the selected laboratory analysis may be required. These changes must be reflected in the WAP, preferably by documentation in a standard operating procedure (SOP). Also, additional standard methods may be available for use from organizations such as ASTM. These methods may be appropriate and should be

referenced in the plan when used.

Whether or not standard sampling methods are used, important aspects of the sampling to be performed by the TSDF should be described in the WAP. The purpose of including this information is to describe how representative samples are collected. This description should include a discussion of sampling strategies, sampling equipment, maintenance and decontamination of sampling equipment, sample preservation and storage, quality assurance and quality control, and health and safety considerations. Off-site TSDFs which accept sampling and laboratory analysis data from generators should encourage generators to use sound sampling and analysis procedures. Specific technical adequacy for each of these areas is currently beyond the scope of this document. For additional information on sampling, ASTM offers several sampling related guides which may be appropriate, SW-846 contains RCRA sampling guidance, or consult the DHWM sampling manual.

When specifying sampling procedures for off-site facilities, the WAP must include information for both pre-acceptance sampling and fingerprint sampling, when used. On-site facilities must describe how they collect samples, when sampling is used.

4.3.1 Sampling Strategies

A description of the sampling approach, i.e. random or judgmental, and sample type, i.e. grab or composite, should be provided in the plan. The sampling objective, sample location, and number of samples should also be provided. For example, a decription of fingerprint sampling may read:"For waste shipments which arrive in lots of X drums or less, Y drums will be selected at random and grab samples will be collected for fingerprint analysis".

The evaluation of the appropriateness of various sampling strategies is beyond the scope of this document. Further guidance may be found in the DHWM sampling manual or various texts on sampling. Facilities may also consider using the Data Quality Objective (DQO) process in design of a sampling strategy to comply with the requirements of this rule.

4.3.2 Sampling Equipment

The WAP should clearly list all sampling equipment to be used for collection of each sample. The equipment chosen should be appropriate based on physical and chemical characteristics of the waste, the sampling method, and any additional waste-specific or

site-specific factors. Descriptions of sampling equipment and their applicability are provided in chapter nine of SW-846.

4.3.3 Maintaining and Decontaminating Sampling Equipment

Maintenance and decontamination procedures for all sampling equipment should be described. Decontamination must be such that sample cross-contamination from equipment re-use is eliminated. Facilities should specify a standard method *(e.g., ASTM)* and/or provide a standard operating procedure for decontamination of sampling equipment between samples. Equipment maintenance should generally follow the equipment manufacturer's specifications. Additionally, field equipment calibration procedures should be discussed, if applicable.

4.3.4 Sample Preservation, Holding Times, and Containers

All sample preservation methods and holding times should be provided, as well as type of sample containers used. Typically sample preservation and holding times will not be necessary for samples which will be analyzed immediately, for example, fingerprint samples. Preservation methods, holding times, and sample containers must be consistent with the analytical method requirements. Table 7-1 from chapter seven of the DHWM sampling manual has been included as Appendix II to this document for use in determining proper containers, holding times, and preservation methods for samples to be analyzed with SW-846 methods. Commercial laboratories may also provide information regarding container selection, and sample preservation and holding times.

4.3.5 Sampling Quality Assurance and Quality Control Procedures

Quality assurance and quality control procedures for each sample collected should be specified. The WAP portion dealing with QA of sampling should include information on chain of custody procedures, personnel training, and use of standardized sampling procedures.

QC during the sampling process includes the collection of blank, duplicate, and split

samples to measure the effectiveness of the QA program. The WAP should specify QC sample number, location, objective, and frequency, when applicable. Typically, blank, duplicate, or split samples will not be collected for fingerprint samples. They also may not be necessary for all pre-acceptance samples. Procedures for documenting deviations from the sampling QA/QC procedures should also be specified. More information about sampling QA/QC can be found in chapter one of SW-846 or other sampling guidance.

4.3.6 Health and Safety Protocols

While not trying to integrate health and safety requirements into the WAP, it should be recognized that these are important considerations when developing sampling procedures. When the WAP is used as an operational manual at the facility, it makes sense that sampling SOPs provided in the WAP include health and safety protocols. This may include use of personal protective equipment, lock-out tag-out procedures, or confined space entry procedures. These provisions will not be reviewed for compliance with applicable laws or regulations by Ohio EPA, however, permit writers should not require their removal if the facility chooses to incorporate health and safety protocols into the sampling SOPs. The Occupational Safety and Health Administration (OSHA) regulates worker health and safety and should be consulted for specific requirements.

4.4 Testing and Analytical Methods OAC Rule 3745-54-13(B)(2)

4.4.1 Laboratory

The WAP should specify if the laboratory chosen to perform analytical services is on-site or a commercial environmental testing laboratory. If the facility elects to utilize an off-site commercial laboratory, laboratory selection should be based on the following:

- ❑ laboratory's comprehensive QA/QC program, including chain-of-custody procedures and treatment of blanks, spikes, and duplicate samples used to measure precision and accuracy;

- ❑ the laboratory's technical analytical expertise in achieving required detection limits and using quality technicians and equipment;

- and effective information management providing clear, concise, and accurate data reports and QA/QC documentation for data validation.

When using an off-site laboratory, the WAP should state that the off-site laboratory will utilize the analytical methods specified in the WAP and appropriate QA/QC procedures.

4.4.2 Testing and Analytical Methods

Testing and analytical methods for each parameter must be specified. Analytical methods should be chosen by considering the physical state of the waste, analyses of interest, and required detection limits. Sample preparation and clean-up methods should also be specified, if required.

Generally, all testing and analytical methods should be standard methods, such as ASTM or U.S. EPA SW-846 methods. When this is the case, it is sufficient to only reference the method by name, number, and source. However, any changes to the standard methods, or other methods used *(e.g., facility specific methods)*, must be accompanied with a standard operating procedure for the method in the waste analysis plan or the laboratory quality document. Deviations from the methods presented in the WAP should be documented in the operating record. Table 7-1 included in Appendix II to this document contains analytical method numbers of some common SW-846 analytical methods.

4.4.3 Laboratory Quality Assurance and Quality Control Procedures
OAC Rule 3745-50-58(E)

To ensure that waste analysis decisions are based on data of known quality, and to document that appropriate laboratory quality assurance/quality control (QA/QC) procedures are used, each WAP must include or incorporate by reference a laboratory quality assurance plan which contains the elements of appropriate laboratory QA/QC procedures. Where QA/QC for sampling operations are provided elsewhere *(e.g., in the sampling procedures section of the WAP)* only the elements relating to laboratory QA/QC need to be presented here. Additionally, analytical method-specific QA/QC should be discussed, either in the laboratory quality assurance plan or included in standard operating procedures (SOPs) for each method. General elements relating to appropriate laboratory

operations include at least the following:

- ***facilities*** - a general description of the laboratory facility should be provided, and should address any items which may affect analytical data quality

- ***equipment and instrumentation*** - a list of available equipment and the method capabilities for the equipment

- ***operating procedures*** - all activities in the laboratory should be described, preferably in the form of SOPs. SOPs to be documented might include sample management, preparation of reagents or standards, general lab techniques, test methods, equipment and calibration, QC samples, corrective action, data validation, reporting, records management, and laboratory waste disposal.

- ***laboratory QA/QC procedures*** a description of how laboratory QA/QC procedures are implemented should be provided, including method proficiency, control limits, lab control procedures, deviations, corrective action, and data handling.

- ***quality assurance review*** - provide a description of internal and external review of laboratory QA/QC procedures. This includes a complete description of responsibility for data quality assurance review conducted by the laboratory.

- ***laboratory records***- a description of the management system in place for the storage and handling of sampling and analysis records should be provided. This should include custody procedures for shipping samples to an off-site laboratory. Also, in accordance with OAC Rule 3745-50-58(J)(2), a statement should be included which provides for a minimum three year retention of these records in the operating record.

Addressing only the six elements listed above may not be sufficient detail to meet the requirements for use of appropriate laboratory QA/QC. TSDFs are strongly urged to consult appropriate guidance when preparing a quality assurance plan to determine the complete scope required for their facility. Such guidance may include chapter one of SW-846, or Chapter five “Quality Systems” of the National Environmental Laboratory Accreditation Conference guidance document.

4.4.4 Use of Acceptable Generator Knowledge in TSDF

Waste Analysis

TSDFs must obtain a detailed chemical and physical analysis of a representative sample of a waste. The analysis must contain all the information necessary for the TSDF to treat, store, or dispose of the waste in accordance with the hazardous waste rules, OAC chapters 3745-54 to 57 and 3745-59, and the conditions of the facility permit. Such an analysis can consist of representative waste sampling and laboratory analysis, and/or detailed waste specific information provided to the TSDF by the waste generator. This latter waste analysis method is commonly known as "acceptable generator knowledge".

DHWM prefers that a TSDF use representative sampling and laboratory analysis to meet waste analysis requirements. This is because analytical data provides the most definitive information regarding the concentration levels of hazardous constituents in a waste and other characteristics of a waste when waste sampling and laboratory analysis are done appropriately.

However, a TSDF's waste analysis to comply with OAC Rule 3745-54-13 can be based, in whole or in part, on detailed waste specific information the TSDF obtains from the generator of the waste. If a TSDF uses acceptable generator knowledge to accomplish any part of its requirement to perform waste analysis, the TSDF needs to list, in its WAP, all the types and sources of information and documentation it may obtain from a generator for evaluation.

A TSDF's waste analysis can consist of a combined use of acceptable generator knowledge and waste sampling/laboratory analysis by the facility. The TSDF can use the information obtained from the generator to determine what hazardous constituents and characteristics could not be present or exhibited by the waste, and then sample and analyze the waste for the hazardous constituents and/or characteristic(s) that could be present.

In addition, the information and documentation comprising the acceptable generator knowledge needs to be accurate and complete in order to correctly identify the waste. The TSDF must objectively review the information provided by the generator. Therefore, it is recommended that the TSDF explain in its WAP how it will ensure the generator's information is valid.

Types and Sources of Information

The types and sources of information listed below can be obtained from a generator and used by a TSDF to substantiate and document a waste analysis that is based in part or in whole on acceptable generator knowledge. Generally, a combination of the following types of information to make a waste analysis should be used. The information that can be used for waste analysis is not limited to this list; but these are the more common forms

of information that should be collected from generators.

- ❏ Laboratory analysis data of a representative sample of the waste;
- ❏ Description of the process that generated the waste;
- ❏ Applicable waste identification codes and waste codes for the purposes of complying with LDR requirements;
- ❏ Applicable LDR treatment standards;
- ❏ Facility specific process flow diagram of the process generating the waste;
- ❏ Chemical makeup of all ingredients or materials used in the process that generates the waste;
- ❏ List of constituents which the generator knows or has reason to believe are byproducts or side reactions to the process that produces the waste;
- ❏ MSDS sheet and/or product label of substances used in a process that generates the waste;
- ❏ Data obtained from properly performed representative sampling and laboratory analysis of wastes generated from same process using same ingredients/materials;
- ❏ Data obtained from literature regarding waste produced from same process using same ingredients or materials; and
- ❏ Documentation of product specifications of input materials and output products.

OAC Rules 3745-52-40 and 3745-59-07 require generators to retain records and documentation of waste analyses for a period of three years from the last date that the waste was sent to an on-site or off-site treatment, storage, or disposal facility. Furthermore, the generator is required to submit waste analysis data, where available, to the TSDF. This submittal is in addition to completing a TSDF's waste profile sheet. DHWM takes the position that a profile sheet is only summary of a waste analysis. In order to complete a profile sheet, specific information regarding the waste must be developed. It is this information that is the waste analysis data. Therefore, a TSDF should

require generators' records of waste analyses (when available) as a condition of pre-acceptance. The evaluations should be kept in the facility's file for each generator and updated in accordance with the frequency specified in the waste analysis plan.

4.5 Waste Re-evaluation Frequencies OAC Rule 3745-54-13(B)(4)

The frequency with which the initial waste analysis will be reviewed or repeated to ensure accuracy must be specified in the WAP for each waste stream. At a minimum, the waste analysis must be reviewed or repeated when the generating process changes, or when the waste arriving at the TSDF does not match the pre-approved waste characterization information supplied by the generator.

For off site facilities which accept generator knowledge as waste analysis, the waste analysis plan must specify the mechanism to ensure that updated information (*process information, etc.*) is received from the generator each time the waste must be re-evaluated. This includes regular re-evaluations to ensure that the waste analysis is accurate and up to date.

When initial shipments of a waste stream include laboratory analysis, each subsequent re-evaluation does not necessarily require a new laboratory analysis. The generator and/or TSDF must re-evaluate the waste stream as necessary, which may only include a review of the generating process for changes. Significant changes that may impact waste stream characteristics could be further evaluated through sampling and laboratory analysis.

4.6 Special Procedural Requirements

Facilities may have special procedural requirements which must be discussed in the WAP. These may include procedures for wastes generated off-site, waste incineration facilities, ignitable, reactive, and incompatible wastes, and provisions for complying with LDR requirements.

4.6.1 Procedures for Off-Site Facilities OAC Rule 3745-54-13(C); OAC Rule 3745-54-13(B)(5)

Off-site facilities have additional waste analysis requirements which must be addressed in the WAP. The WAP must specify what waste analysis information the generator has agreed to supply, and also must specify the procedures used to confirm the identity of waste arriving on-site.

When collecting waste analysis information from generators, TSDFs should remember that the information collected must include a detailed chemical and physical analysis of a representative sample of the waste, including all the information required to treat, store, or dispose of the waste in accordance with OAC Chapters 3745-54 to 57 and 3745-59. TSDFs should require generators to submit, at a minimum, the following information: description of the waste generating process, a chemical and physical description of the waste, laboratory analytical procedures and results (or acceptable generator knowledge) used to characterize the waste, OEPA hazardous waste codes, and all LDR information required under OAC Chapter 3745-59. When a generator uses sampling and laboratory analysis to meet the requirements of OAC Chapter 3745-59, the generator is required to submit the results of the analysis to the TSDF, in accordance with OAC Rule 3745-59-07(A)(1)(d) . When a generator bases the analysis on knowledge of the waste, all supporting information must be retained in the generator's file, in accordance with OAC Rule 3745-59-07(A)(5). The TSDF WAP should specify that when a generator performs laboratory analysis or uses knowledge of the waste to comply with OAC Chapter 3745-59, that analysis or documentation of generator knowledge will be supplied to the TSDF as part of pre-acceptance.

Typically, waste analysis information is provided to the TSDF by use of a waste profile sheet. A waste profile sheet is a written form summarizing detailed information on the physical and chemical characteristics of the waste. It is commonly completed by the generator as a waste pre-acceptance condition with the TSDF. It should be noted that a waste profile sheet is not a substitute for waste analysis. The waste profile sheet simply summarizes relevant information for ease of use. The underlying information, for example laboratory analysis results or documentation supporting generator knowledge, that was used to complete the form is the actual waste analysis. When waste profile sheets are used to collect information from generators, the TSDF may either provide a blank waste profile sheet in the WAP showing all the information collected, or may list in the WAP all the information collected. When a blank waste profile sheet is included in the WAP, all changes (format and content) will be considered permit modifications. When the information is listed in the WAP, only changes to the content will be permit modifications. Completed waste profile sheets for each waste managed from each generator must be kept in the facilities operating record or generator file.

The WAP must specify the procedures used to inspect, and if necessary, analyze

each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the manifest and agreed to during pre-acceptance. Typically, this is done by fingerprinting as discussed in section 4.2. Fingerprint sampling, or another identification procedure, must be described in the waste analysis plan.

4.6.2 Procedures for Ignitable, Reactive, and Incompatible Wastes OAC Rule 3745-54-17

When using waste analysis to document compliance with the general requirements for ignitable, reactive, or incompatible (IRI) wastes, that waste analysis information must appear in the WAP. If a waste will be mixed with any other waste or material, a TSDF has the responsibility to obtain enough information to evaluate all such wastes and/or mixtures for potential incompatibilities. There are several sources of information for identifying IRI wastes. Ignitable wastes must be identified by one of the methods listed in OAC Rule 3745-51-21. Reactivity and compatibility have no specified testing methods, however there is guidance available. *Design and Development of a Hazardous Waste Reactivity Protocol* may be used to aid in identifying reactive wastes. Guidance for determining hazardous waste compatibilities may be found in *A Method of Determining the Compatibility of Hazardous Waste* or *Standard Test Methods for Compatibility of Screening Analysis of Waste*. TSDFs should either reference standard test methods or supply standard operating procedures for test methods specified in the WAP.

4.6.3 Provisions for Complying with LDR waste analysis requirements OAC Rule 3745-59-07

Both Generators and TSD facilities are subject to additional waste analysis requirements to satisfy land disposal restriction rules. The WAP for any facility must include all the information required to meet land disposal restriction requirements. The specific information required will vary dependant upon the type of facility *(i.e., on-site storage facility or land disposal facility)*. The discussion below is intended to briefly touch on some basic requirements of waste analysis as it pertains to the LDRs. Please note that subsequent to the last Ohio EPA LDR rule revisions (1992) the U.S. EPA has revised and promulgated additional LDR requirements. Facilities are required to follow these new/revised requirements where they are more stringent than the current state rules. Clarification on the applicability of specific portions of the LDR rules should be directed to

the Ohio EPA DHWM Technical Support Unit, Central Office.

Generators of listed hazardous wastes must test their waste, or waste extract using the TCLP, or use knowledge of the waste to determine if the waste is restricted from land disposal. Generators of characteristic hazardous wastes must test their wastes using EP toxicity test, or use knowledge of the waste to determine if the waste is restricted from land disposal. If the generator determines that the waste is restricted from land disposal (a "restricted" waste) and does not meet applicable treatment standards under OAC Rule 3745-59-40 to 44 or prohibition levels under OAC Rule 3745-59-32, then they must fulfill certain notification requirements to the TSDF with each shipment of the waste (see OAC Rule 3745-59-07(A)(1)). This notification must include the treatment standard or prohibition level, or the specified treatment technology if listed in Table 1 of OAC Rule 3745-59-42, and waste analysis data, if available. If the generator determines that the waste is restricted but does meet the treatment standard or prohibition level, then they must fulfill certain notification and certification requirements with each shipment of the waste (see OAC Rule 3745-59-07(A)(2)). This notification must also include the specified treatment standard, prohibition level, or specified treatment technology and any available waste analysis data. All notifications, certifications, waste analysis data, and information supporting knowledge of any waste treated, stored or disposed of on-site or off-site must be maintained in the facility file for at least five years.

There are a few additional waste analysis requirements for generators of liquid wastes Generators must test or use knowledge of the waste to determine if the pH is less than or equal to 2. If the pH is less than or equal to 2, it is restricted from land disposal. If a generators liquid waste contains polychlorinated biphynels (PCBs) or is primarily water containing hazardous organic constituents (HOCs) listed in the Appendix to OAC Rule 3745-59-32, the generator must test the waste or use knowledge of the waste to determine if it equals or exceeds prohibition levels.

Treatment facilities must test their treatment residues in accordance with the frequency specified in the WAP. Pursuant to OAC Rule 3745-59-07(B), for wastes with treatment standards expressed as concentrations in the waste extract, the facility must test the treatment residue with the TCLP to determine if the treatment residue or extract meet treatment standards. For wastes with treatment standards expressed as concentrations in the waste, the facility must test treatment residues to ensure treatment standards are meet. For wastes prohibited under OAC Rule 3745-59-32 but without treatment standards under OAC Rule 3745-59-40 to 44, the facility must test the treatment residue in accordance with the generator testing requirements in OAC Rule 3745-59-32 to determine if the treatment residues meet treatment standards of OAC Rule 3745-59-32. If the waste is to be further managed at another treatment or storage facility, the original treatment facility must fulfill the notification and certification requirements of the generator. If the

waste is sent to a land disposal facility, the treatment facility must fulfill certain notification requirements, including applicable treatment standards and waste analysis data, if available (see OAC Rule 3745-59-07(B)(4)). The treatment facility must also certify that the waste has been treated in accordance with the treatment standards of OAC Rule 3745-59-40 to 44 and the applicable prohibitions in OAC Rule 3745-59-32.

Land disposal facilities disposing of restricted waste must retain copies of the notifications and certifications required under paragraphs A and B of OAC Rule 3745-59-07. Land disposal facilities must also test the waste, or the treatment residue, or an extract of the waste or treatment residue using the TCLP, or any methods in OAC Rule 3745-59-32, to ensure that it meets applicable treatment standards in OAC Rule 3745-59-40 to 44 or prohibition levels in OAC Rule 3745-59-32. Testing must be done in accordance with the frequency specified in the WAP.

4.6.4 Special Requirements for Bulk and Containerized Liquids OAC Rule 3745-54-13(C)(3); OAC Rule 3745-57-14

Off-site landfills must specify in the WAP the procedures in place to determine if a generator has added a biodegradable sorbent to waste liquids in containers. The methods to determine if a sorbent is biodegradable must also be specified, if testing is used. The WAP must also describe how the facility will determine, by use of SW-846 method 9095 “Paint Filter Liquids Test”, if free liquids are being placed in the landfill. Each of these determinations should be discussed in terms of the entire waste analysis plan requirements *(i.e., parameters, rationale, sampling methods, sampling frequencies, etc.)*.

4.6.5 Waste Analysis for Incineration Facilities OAC Rule 3745-57-41

Incineration facilities must provide in the WAP all information on routine analysis required by the trial burn. Through the trial burn process facility specific waste analysis parameters are established which must appear in the WAP. For example, BTU or ash content of the waste feed may need to fall within an acceptable range to meet both permit and process conditions established in the trial burn plan. This information is developed on a facility-specific basis and is beyond the scope of this document.

4.6.6 Surface Impoundments OAC Rule 3745-54-13 (B)(7)

Surface impoundments which have been exempted from land disposal restrictions under paragraph (A) of OAC Rule 3745-59-04 must include the procedures and schedules required under OAC Rule 3745-54-13 (B)(7) in the waste analysis plan.

Section 5.0 List of References

Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste. EPA\530-R-94-024,U.S. EPA, Washington, DC,1994.

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. SW-846,. EPA SW-846.3.3 (*most recent revision)*

Design and Development of a Hazardous Waste Reactivity Testing Protocol. EPA-600/52-84-057, U.S. EPA, Municipal Environmental Research Laboratory, Cincinnati, OH, 1984.

A Method for Determining the Compatibility of Hazardous Wastes. EPA-600/2-80-076, U.S. EPA, Cincinnati, OH, 1980.

Standard Practice for Sampling Bituminous Materials, D140-88, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

Standard practice for Collection and Preparation of Coke Samples for Laboratory Analysis, D346-90, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

Standard Guide to Site Characterization for Engineering Design, and Construction Purposes, D420-93, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

Standard Practice for Soil Investigation and Sampling by Auger Borings, D1452-80, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

Standard Practice for Collection of a Gross Sample of Coal, D2234-97a, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

Standard Test Methods for Compatibility of Screening Analysis of Waste, D5058-90, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

Standards Chapter 5:Qualtiy Systems, National Environmental Laboratory Accreditation Conference, Revision 12, July 1, 1999.

Appendix I. Waste Analysis Plan Checklist

How to Use this checklist

The WAP checklist is intended to be used in the actual review of the WAP. Checklist use is similar to other checklists developed to review portions of the Part B application. Next to each of the questions, mark either yes, no, or not applicable, depending on the content of the WAP being reviewed. Note that when information is provided, it is the responsibility of the WAP reviewer to ensure the information is technically adequate. For example, OEPA waste codes must be checked to ensure they are the correct code for that waste stream.

PART B REVIEW CHECKLIST

Section C - WASTE CHARACTERISTICS

Facility/ID#		**Date**	
Reviewer		**DO**	

Relevant Guidance Documents - WAP Advisory - OEPA/DHWM (draft - 4/98); Federal Waste Analysis guidance manual (4/94)

	YES	NO	NA	Page#	Notes - NOD Comment #
C-1 Chemical and Physical analyses: OAC 3745-50-44(A)(2), 3745-54-13					
Before hazardous waste is stored, treated or disposed at the facility, are there procedures in place to describe the waste, identify the hazard characteristics, and give the basis for hazard designation ?					
Does the WAP contain a complete description of the chemical and physical analyses of representative samples of waste that will be conducted and/or obtained by the facility, in order to treat, store, or dispose of the waste in accordance with Ohio regulations and terms and conditions of an Ohio hazardous waste permit?					
Are all wastes listed in the part A permit addressed in the WAP?					
C-1a Containerized Waste: OAC 3745-50-44(C)(1)(b)(i)					

	YES	NO	NA	Page#	Notes - NOD Comment #
Do owners and operators, that store containers of wastes in storage areas without secondary containment systems, provide the test procedures and results, or other documentation or information, which show that the wastes do not contain free liquids [see D-1b(1)]? A suggested test for free liquids is the Paint Filter Liquids Test, Method 9095 in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication No. SW-846 as well as visual inspection upon arrival.					
C-1b Waste in Tank Systems: OAC 3745-55-91(B)(2), 3745-55-92(A)(2)					
Are the wastes placed for storage or treatment in tanks compatible with the tank materials (including, gaskets, valves, welds, etc.)? If there is the potential for incompatibility what screening tests are in place (eg., pH, corrosivity, gas generation, etc.)?					
C-1d Landfilled Wastes: OAC 3745-57-14(B)					
Does the WAP provide the results from the Paint Filter Liquids Test (Method 9095 in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Method," EPA Publication No. SW-846) showing that containerized or bulk wastes do not contain free liquids?					
C-1e Wastes Incinerated and Wastes Used in Performance Tests: OAC (C)(8)(c)(i), (iii),(vii), and (viii)					
If the applicant opts to not conduct a trial burn, are analyses provided for each waste or waste mixture to be burned including:					

	YES	NO	NA	Page#	Notes - NOD Comment #
a) heat value of the waste in the form it will be burned;					
b) viscosity of liquids or description of the physical form of non-liquids;					
c) identification of any Appendix to OAC 3745-51-11 hazardous constituents reasonably expected to be present;					
d) identification of and the basis for exclusion from analysis those constituents that are not expected to be present;					
e) an approximate quantification of hazardous constituents in the waste, including those that may be POHCs based on data from other trial or operational burns?					
If data is submitted to support the claim that a trial burn is not needed, are analyses provided that compare the waste to be burned with data from wastes burned in operational or trial burns, noting POHCs identified in the waste and any differences from the POHCs in the waste for which burn data are provided?					
Is waste analysis data submitted that is sufficient to allow the specification as permit POHCs those constituents for which destruction and removal efficiencies will be required?					
C-1f <u>Wastes to be Land Treated:</u> OAC 3745-50-44(C)(5)(d)					
TBD					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-1g Waste in Miscellaneous Treatment Units: OAC 3745-50-44(C)(9)(d)					
For any miscellaneous unit treating hazardous waste, does the WAP provide a report on a demonstration of the effectiveness of the treatment based on laboratory or field data?					
C-2 Waste Analysis Plan: OAC 3745-50-44(A)(3), 3745-54-13(A),(B) & (C)					
Has the facility provided a copy of the waste analysis plan (WAP) that describes the methodologies for conducting the analyses required to properly treat, store, or dispose of hazardous wastes and to comply with the land disposal restriction program?					
It is anticipated the following facility description information would be contained in other sections of the part B application, however if the WAP is a stand alone document, it should be included:					
As part of the waste profiling process, are brief descriptions of off-site hazardous waste generating processes obtained, updated, and kept at the facility as part of the operating record?					
Are all hazardous wastes generated or managed at the facility adequately described, including identity of hazardous waste, approximate quantities managed, process generating the waste, rationale for identifying the waste as hazardous, and other appropriate Ohio EPA waste classifications?					
C-2a Parameters and Rationale: OAC 3745-54-13(B)(1)					
Does the WAP list parameters chosen for analysis?					

	YES	NO	NA	Page#	Notes - NOD Comment #
Are parameters for determining if a waste is hazardous or not (e.g. flash point at 140 degrees, pH > 12.5 < 2, etc.) listed for each waste stream managed?					
Are there parameters used to ensure that wastes are within physical and chemical operating and permit acceptance limits of the waste management units (e.g. corrosives in steel tanks or containers)?					
Are potential changes in waste characteristics accounted for in all phases of the treatment process?					
Are rationales provided for each parameter selected?					
Are sampling, analytical, and procedural methods to identify ignitable, incompatible, and reactive wastes provided (this would include for the purposes of storage, handling, treatment and disposal)?					
Does the WAP describe the parameters and rationale for testing waste before treatment to ensure the appropriateness of that treatment?					
Does the WAP describe the parameters and rationale for testing waste after treatment to make sure it was effective?					
Some listed wastes are listed for additional hazards besides toxicity (for example U223 is listed for reactivity as well as toxicity, will the facility screen for reactivity as well). The facility may need to determine if the additional hazard codes apply. Do listed wastes have more than one waste hazard that need to be analyzed for and, therefore, are the appropriate parameters selected for these wastes?					
C-2b Test Methods: OAC 3745-54-13(B)(2)					

	YES	NO	NA	Page#	Notes - NOD Comment #
Does the WAP identify and reference (e.g., EPA Test No.) the test methods used to test for parameters chosen?					
Are the analytical methods approved methods, as found in SW-846 or ASTM standards?					
Are modifications to the approved methods or alternate methods fully described in the permit application and is the modified or alternate method equivalent to an approved method?					
Does the WAP specify if the laboratory used is an on-site or off-site laboratory?					
If the permittee indicates they will use an off site laboratory do they state in the WAP they will ensure that the off site laboratory will utilize the methods (SW-846 or equivalent method) in the facility WAP including all QA/QC procedures?					
Does the WAP include a quality assurance plan in accordance with SW-846 chapter one or other appropriate guidance that includes the following?					
1) A statement of project objectives?					
2) The WAP shall ensure that the detection limits are in accordance with SW-846 methods or methods approved under the WAP.					
3) A description of handling and storage of sampling and analysis records (including custody procedures for shipping to other labs). A statement must be in the WAP that these records will be part of the facility operating record.					

	YES	NO	NA	Page#	Notes - NOD Comment #
4) A description of organizational structure, functional responsibilities, and lines of communications for the facility's lab personnel. This should describe who is responsible for QA and how others report to him/her (this should include who is responsible for QA of off-site labs as well).					
5) Is s description of the training required for those involved in QA/QC located in the application (this may also be covered in section H of the application)?					
6) A description of performance evaluation. The WAP should define how often this will occur, and what will be done if problems are found.					
7) A description of how QA/QC will be ensured for field activities. The WAP must specify that this will include the checks on the completeness of field reports, validation of sampling methods, and determination of representativeness. The WAP must also specify how often these activities will occur.					

	YES	NO	NA	Page#	Notes - NOD Comment #
8) A description of how QA/QC will be ensured for lab activities. The WAP should specify that the following will occur at a specified time frame; a) a check for completeness of records b) evaluation of data with respect to detection and quantitation limits c) evaluation of data with respect to control limits d) review of holding time data e) correlation of lab data with related tests f) calibration of instruments.					
9) A description of QA reports. The WAP must specify how often these are generated, that they will report on measurement quality indicators, QA assessments, including defined operating standards. The WAP must also specify who will be responsible and how and what corrective action will be taken.					
10) Are quality control methods presented, including analysis of method blanks, matrix spikes, surrogate spikes, and duplicate samples which are used to measure laboratory precision and accuracy?					
Are analytical methods for each parameter to be analyzed specified?					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-2c Sampling Methods: OAC 3745-54-13(B)(3)					
Does the WAP identify and reference (e.g., ASTM) the sampling methods used to obtain a representative sample of each waste to be analyzed and document that the chosen method is appropriate for the type and nature of the waste? Does this include selection of the appropriate type of equipment for the waste?					
Are sampling methods used from Appendix I of OAC 3745-51-20 (most recent version), or are they approved equivalent method?					
Is there a clearly defined sampling approach that includes a) the objectives of sampling, b) types of samples needed, c) sampling locations, d) number of samples, e) sampling frequency, f) collection techniques, g) and handling techniques?					
Is the sampling equipment to be used to collect each sample clearly identified as well as the procedure to use that equipment?					

	YES	NO	NA	Page#	Notes - NOD Comment #
Is the sampling equipment chosen appropriate based on criteria of physical parameters, chemical parameters, and waste-specific or site specific factors?					
Are appropriate maintenance and decontamination procedures specified for each piece of sampling equipment?					
Are field calibration procedures for sampling equipment specified (as applicable)?					
Are samples properly preserved and stored in accordance with SW-846?					
Are holding times specified for each sample?					
Are appropriate sample containers used?					
Does the WAP describe a method for documenting and justifying deviations from the WAP?					
Are QC measures to be taken clearly identified?					
Are QC procedures identified adequate to measure attainment of QA objectives, including use of field blanks, trip blanks, equipment blanks, split samples, and field duplicates?					
Are proper chain of custody procedures to be followed identified?					

	YES	NO	NA	Page#	Notes - NOD Comment #
Is adequate sample information collected and recorded, including type of waste collected, names and signatures of samplers, sample number, site map (if needed),date and time of collection, designation as grab or composite, names and signatures of any persons handling the samples, and the shipping number if sample are sent to an off-site laboratory (does the facility include the form in the WAP)?					
Are health and safety protocols clearly identified?					
Does section H include training requirements for personnel collecting samples specified?					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-2d Frequency of Analyses: OAC 3745-54-13(A)(3) & (B)(4)					
Does the WAP describe the frequency at which the analyses will be repeated for each waste stream?					
Are wastes re-evaluated when waste generating processes are changed?					
Are wastes re-evaluated when wastes characterized by the TSDF do not match the pre-approved waste analysis or manifest?					
Are waste re-evaluation frequencies adequate to ensure compliance with permit conditions and other regulatory requirements?					
For incineration facilities, is waste analyzed prior to burning each batch to verify that the permit conditions will be met and that prohibited constituents (e.g. PCBS, dioxins, reactive wastes) and other specific constituents are not present (see page 2-48, 4/94 federal WAP guidance)?					
C-2e Additional Requirements for Wastes Generated Off-Site: OAC 3745-54-13(B)(5) & (C)					
Does the WAP describe the procedures used to inspect and/or analyze a representative portion of wastes generated off-site when they arrive at the facility?					
Are statistical methods used to determine a representative sample of the incoming wastes (e.g., number of drums to be sampled) described?					

	YES	NO	NA	Page#	Notes - NOD Comment #
Is there a statement in the WAP that describes the minimum amount of waste to be sampled (eg. no less than 10 percent of containers for an incoming waste stream)?					
Is the waste analysis data that the generator agrees to provide specified?					
Are procedures to determine how well the generators data represents the waste to be managed provided?					
Are procedures to handle wastes which are significantly different than waste characterized previously specified?					
Is the method used to identify each movement of hazardous waste at the facility specified (examples include bar code tracking, inventory sheets, etc.)?					
If fingerprint analysis is used, are methods used for obtaining a representative sample provided?					
If fingerprint analysis is used, are parameters each waste will be analyzed for, rationale for parameters selected, and acceptance and rejection criteria for each parameter specified?					
Are there procedures in place to determine if a biodegradable sorbent has been added to the waste in containers?					
C-2f Additional Requirements for Ignitable, Reactive or Incompatible Wastes: OAC 3745-54-13(B)(6), 3745-54-17					
Does the facility define what is incompatible (e.g. storing acids and organic ignitables, etc)?					

	YES	NO	NA	Page#	Notes - NOD Comment #
Does the WAP describe the methods used to meet additional waste analysis requirements necessary for treating, storing, or disposing of ignitable, reactive or incompatible wastes?					
Are procedures in place to identify ignitable, reactive, or incompatible wastes and are those SOPs included in the WAP?					
If testing is used, are testing or analytical methods provided for ignitable, reactive or incompatible wastes?					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3 Waste Analysis Requirements Pertaining to Land Disposal Restrictions:					
C-3a Waste Characterization: OAC 3745-54-13(A)					
For each hazardous waste stored, treated, or disposed at the facility, does the facility obtain analytical data necessary to determine if the waste is a restricted waste in accordance with OAC Chapter 3745-59? Alternatively, is information provided from knowledge of the waste to determine if the waste is restricted?					
Where generator knowledge is used to make this determination, does the WAP specify that all supporting data will be maintained in the operating record?					
C-3a(1) Waste Characteristics: Solvent Wastes and Dioxin-Containing Wastes: OAC 3745-59-30&31					
Does the facility document or state that F001-F005 spent solvent wastes and F020-F023 and F026-F028 dioxin-containing wastes are prohibited from land disposal unless: 1) the wastes meet the treatment standards in OAC 3745-59-41 to 44, or 2) an exemption has been granted pursuant to OAC 3745-59-06, or 3) a case-by-case extension has been granted pursuant to OAC 3745-59-05?					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3a(2) <u>Waste Characteristics: California List Waste:</u> OAC 3745-59-32					
Does the facility document or state that the following wastes are California list wastes and are prohibited from land disposal: 1) liquid hazardous wastes with a pH less than or equal to 2.0; 2) liquid hazardous wastes containing PCBs at concentrations greater than or equal to 50 ppm; 3) liquid hazardous wastes that are primarily water and contain HOCs in total concentrations greater than or equal to 1,000 mg/1 and less than 10,00 mg/l; 4) non-liquid hazardous wastes containing HOCs in total concentrations greater than or equal to 1,000 mg/kg; 5) liquid hazardous wastes, including free liquids associated with any solid or sludge, containing free cyanides in concentrations greater than or equal to 1,000 mg/1?					
Does the facility specify any applicable exceptions to the prohibitions in OAC 3745-59-32(F)?					
C-3a(3) <u>Waste Characteristics: First Third Wastes with Treatment Standards:</u> OAC 3745-59-33, 3745-59-40 through 3745-59-43					

	YES	NO	NA	Page#	Notes - NOD Comment #
The First Third wastes for which treatment standards have been promulgated are listed in OAC 3745-59-33. Does the facility document or state that wastes which do not meet the treatment standards in OAC 3745-59-41 through OAC 3745-59-43 are prohibited from land disposal unless (1) an exemption has been granted pursuant to OAC 3745-59-06; or (2) a case-by-case extension has been granted pursuant to OAC 3745-59-05?					
To determine whether a First Third waste exceeds the applicable treatment standards in OAC 3745-59-41 through OAC 3745-59-43, the initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste. Alternatively, the generator may use knowledge of the physical and chemical characteristics of the waste to determine whether it is restricted. Does the facility document this?					
C-3a(4) Waste Characteristics: Second Third Wastes with Treatment Standards: OAC 3745-59-34					
The Second Third wastes for which treatment standards have been promulgated are listed in OAC 3745-59-34. Does the facility document or state that wastes which do not meet the treatment standards in OAC 3745-59-41 through OAC 3745-59-43 are prohibited from land disposal unless (1) an exemption has been granted pursuant to OAC 3745-59-06; or (2) a case-by-case extension has been granted pursuant to OAC 3745-59-05?					

	YES	NO	NA	Page#	Notes - NOD Comment #
To determine whether a Second Third waste exceeds the applicable treatment standards in OAC 3745-59-41 through OAC 3745-59-43, the initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste. Alternatively, the generator may use knowledge of the physical and chemical characteristics of the waste to determine whether it is restricted. Does the facility obtain the supporting documentation to determine that the waste exceeds the applicable treatment standards?					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3a(5) Waste Characteristics: Third Third Wastes with Treatment Standards: OAC 3745-59-35					
The Third Third wastes for which treatment standards have been promulgated are listed in OAC 3745-59-35. Wastes which do not meet the treatment standards in OAC 3745-59-41 through OAC 3745-59-43 are prohibited from land disposal unless (1) an exemption has been granted pursuant to OAC 3745-59-06; (2) the waste meets alternative treatment standards in OAC 3745-59-44; or (3) a case-by-case extension has been granted pursuant to OAC 3745-59-05.					
To determine whether a Third Third waste exceeds the applicable treatment standards in OAC 3745-59-41 through 3745-59-43, the initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste. Alternatively, the generator may use knowledge of the physical and chemical characteristics of the waste to determine whether it is restricted. Does the facility obtain the supporting documentation to determine that the waste exceeds the applicable treatment standards?					
C-3a(6) Other Sampling and Analytical Requirements-: OAC 3745-59-30 to 35					
Does the WAP specify the sampling and analytical procedures to be followed in characterizing wastes to determine if they are restricted from land disposal?					
Does the WAP indicate that the Toxicity Characteristic Leaching Procedure (TCLP) described in Appendix to OAC 3745-59-07 must be used to develop extract of solvent or dioxin wastes?					

	YES	NO	NA	Page#	Notes - NOD Comment #
Does the WAP specify that the actual liquid waste, not an extract or a filtrate, must be tested when measuring pH, PCB, and HOC concentrations in making California list restriction determinations?					
Does the WAP specify that the Paint Filter Test, as described in SW-846, must be used to determine if wastes are liquids?					
C-3a(7) Sampling and Analytical Requirements for Treatment Residues: OAC 3745-59-07(B)					
C-3a(7)(a) Wastes with Treatment Standards Expressed as Concentrations in the Waste: OAC 3745-59-07(B)(3)					
For wastes with treatment standards expressed as concentrations in the waste [OAC 3745-59-07(B)(3)] does the WAP for the treatment facility provide procedures for testing the treatment residues (not an extract of such residues) to assure that the treatment residues meet the applicable treatment standards?					
C-3a(7)(b) Analysis of treatment Residues: OAC 3745-59-07(B)(1)					
Does the WAP specify procedures for analyzing treatment residues to determine if treatment has achieved the required levels? Note that this requirement does not include those wastes for which treatment technologies have been specified (liquid wastes with PCB concentrations greater than or equal to 50 ppm; liquid and non-liquid wastes with HOC concentrations greater than or equal to 1000 mg/kg).					

	YES	NO	NA	Page#	Notes - NOD Comment #
Does the WAP provide procedures for testing treatment residues of solvent and dioxin-containing wastes, or an extract of such residues developed using the TCLP, to determine if it meets applicable treatment standards in OAC 3745-59-41.					
Does the WAP provide procedures for testing the waste residue (not a filtrate or an extract) of California list restricted waste to determine if the pH is less than or equal to 2.0 or if the concentration of California list constituents is at or below levels specified in Section 3004(d).					
C-3a(7)(c) Wastes with Treatment Standards Expressed as Concentrations in the Waste Extract: OAC 3745-59-07(B)(1)					
For wastes with treatment standards expressed as concentrations in the waste extract, does the WAP specify that the treatment facilities will provide procedures for testing the treatment residues or an extract of such residues developed using the TCLP, to assure that the treatment residues meet the applicable treatment standards?					
C-3a(7)(d) Sampling and Analytical Procedures: Appendix to OAC 3745-59-07(B)					
Does the WAP specify the sampling and analytical procedures to be followed in testing the treatment residues?					
C-3a(7)(e) California List Wastes Not Subject to Treatment Standards: OAC 3745-59-07(B)(2)					

	YES	NO	NA	Page#	Notes - NOD Comment #
For California List Wastes not subject to treatment standards, does the WAP for the treatment facility provide procedures for testing the treatment residues according to the generator testing requirements in OAC 3745-59-32 (see C-3a(2)) to assure that the treatment residues comply with the applicable prohibitions?					
C-3a(7)(f) Frequency of Analysis: OAC 3745-54-13(A)(3), OAC 3745-59-07(B)					
Does the WAP describe the frequency at which analysis of treatment residues will be repeated? Does the frequency chosen take into account the variability of the waste(s) and treatment process? Analysis must be performed if there is any reason to believe that the composition of the waste or the treatment process has changed.					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3b Notification and Certification Requirements: OAC 3745-59-07					
C-3b(1) Retention of Generator Notices and Certifications: OAC 3745-59-07(A)					
Does the WAP specify that the owner/operator of a treatment, storage, or disposal facility managing any waste subject to restrictions will review and maintain notices and certifications submitted by the initial generator of the waste (where applicable)?					
C-3b(2) Notification and Certification for Wastes to be Further Managed: OAC 3745-59-07(B)(6)					
Does the WAP specify that for treatment residues of restricted wastes that will be further managed at a different treatment, storage, or disposal facility, the owner/operator of the facility sending the waste off-site will submit a notice and certification in compliance with the notice and certification requirements applicable to generators under OAC 3745-59-07?					
C-3b(3) Additional Notification and Certification Requirements for Treatment Facilities: OAC 3745-59-07(B)					
C-3b(3)(a) Wastes with Treatment Standards Expressed as Concentrations: OAC 3745-59-07(B)(5)(a)					
For wastes with treatment standards expressed as concentrations in the waste extract or in the waste (OAC 3745-59-41 and 43), does the treatment facility state that it will submit a certification to the land disposal facility in accordance with OAC 3745-59-07(B)(5)(a)?					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3b(3)(b) Waste with Treatment Standards Expressed as Technologies: OAC 3745-59-07(B)(5)(b)					
For wastes with treatment standards expressed as technologies (OAC 3745-59-42), does the treatment facility state it will submit a certification to the land disposal facility in accordance with OAC 3745-59-07(B)(5)(b)?					
C-3b(3)(c) California List Wastes Not Subject to Treatment standards: OAC 3745-59-07(B)(5)(a)					
For California list wastes which are not subject to treatment standards, does the treatment facility state it will submit a certification to the land disposal facility in accordance with OAC 3745-59-07(B)(5)(a)?					
C-3b(3)(d) Recyclable Materials used in a Manner Constituting Disposal: OAC 3745-59-07(B)(7)					
For wastes which are recyclable materials used in a manner constituting disposal, in accordance with OAC 3745-58-30, does the owner/operator of a treatment facility state it will submit a notice and certification to the Director in accordance with OAC 3745-59-07(B)(7)?					
C-3b(4) Additional Notification and Certification Requirements for Disposal facilities: OAC 3745-59-07(C)(1)					
Does the owner/operator of a land disposal facility disposing any waste subject to restrictions state that it will maintain copies of the notice and certifications submitted by the generator and the treatment or storage facilities, if applicable?					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3c <u>Additional Requirements Pertaining to Storage of Restricted Wastes:</u> OAC 3745-59-50(A), (D), & (F)					
Do owner/operators of treatment, storage, or disposal facilities storing hazardous wastes that are restricted from land disposal demonstrate that (1) they are storing such wastes in tanks or containers and (2) such storage is solely for the purpose of accumulating sufficient quantities of waste to facilitate proper treatment, recovery, or disposal? NOTE. These requirements do not apply to wastes that: 1) meet the applicable treatment standards or prohibition levels, or 2) are the subject of an approved petition under OAC 3745-59-06, or 3) have received a nationwide variance under OAC 3745-59-44, or 4) have received a case-by-case extension under OAC 3745-59-05.					
C-3c(1) <u>Restricted Wastes Stored in Containers:</u> OAC 3745-59-50(A)(2)(a)					
If wastes are stored in containers, does the owner/operator demonstrate that each container will be clearly marked to identify its contents and the date each period of accumulation begins?.					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3c(2) Restricted Wastes Stored in Tanks: OAC 3745-59-50(A)(2)(b)					
If wastes are stored in tanks, does the owner/operator demonstrate that each tank will be clearly marked with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins?. Alternatively, does the owner/operator ~~may~~ demonstrate that such information for each tank will be recorded and maintained in the operating record at the facility?.					
C-3c(3) Storage of liquid PCB Wastes: OAC 3745-59-50(F)					
If liquid hazardous wastes containing concentrations of PCBs greater than or equal to 50 ppm will be stored at the facility, does the owner/operator demonstrate that the facility meets the requirements of 40 CFR 761.65(b)?. The owner/operator must describe procedures for removal of these wastes from storage within one year and treatment or disposal of the wastes in compliance with land disposal restrictions.					
C-3d Additional Requirements for Land Disposal Facilities: OAC 3745-54-13(A)(1) and OAC 3745-59-07(C)					
Does the owner/operator of a land disposal facility provide procedures for testing the waste or an extract of the waste or treatment residue or using any methods required for generators under OAC 3745-59-32 to ensure that the wastes or treatment residues comply with applicable treatment standards and California list prohibitions?					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3d(1) Off-site Facilities: OAC 3745-59-07(C)(1) & (2)					
If wastes or treatment residues are received from an off-site generator or treatment facility, does the WAP specify procedures which assure that wastes will not be disposed without receipt of proper notice and certification as specified in OAC 3745-59-07(A) and (B)?. If the treatment standard for the waste is a specified treatment method (liquid and non-liquid HOC wastes and liquid PCB wastes), certification must be received to ensure that the waste has been treated using the specified technology.					
C-3e Additional Requirements for Surface Impoundments Exempted from Land Disposal Restrictions:					
For surface impoundments exempted from land disposal restrictions under OAC 3745-59-04(A), does the owner/operator demonstrate the following?:					
C-3e(1) Case-by-Case Extensions to an Effective Date: OAC 3745-59-05					
That the treatment, storage, or disposal facility has requested an extension to the effective date of any restriction in Subpart C of 40 CFR 268, has submitted an application to the Regional Administrator, U.S. EPA, containing the information and certification described in 40 CFR 268.5(a) and (b), and has received U.S. EPA approval of the extension. The Director will recognize a denial by the U.S. EPA or an approval by the U.S. EPA.					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3e(2) Exemption from a Prohibition: OAC 3745-59-04					
That the treatment, storage, or disposal facility requesting an exemption from a prohibition for the disposal of a particular restricted waste in a particular unit or units has submitted a petition to the Director demonstrating that there will be no migration of hazardous constituents from the disposal unit or injection zone for as long as the wastes remain hazardous. The petition must include the demonstration and certification specified in 40 CFR 268.6(a) through (d).					
If a petition has been approved under 40 CFR 268.6, has the owner/operator must provide a copy of the Notice of Approval?					
C-3e(3) Variance from a Treatment Standard: OAC 3745-59-44					
That the treatment facility has petitioned the Regional Administrator, U.S. EPA, for a site-specific variance from the treatment standard if a waste cannot be treated to the specified level or where the treatment technology is not appropriate to the waste. Has the applicant demonstrated that, because the physical or chemical properties of the waste differ significantly from wastes analyzed in developing the treatment standard, the waste cannot be treated to specified levels or by the specified methods?					
C-3e(4) Additional Requirements for Surface Impoundments Exempted from Land Disposal Restrictions: OAC 3745-59-04(A)					
For treatment surface impoundments exempted from land disposal restrictions under OAC 3745-59-04(A), the owner/operator must meet the following requirements:					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3e(4)(a) Treatment of Wastes: OAC 3745-59-04(A)(1)					
Does the owner/operator demonstrate that treatment of wastes otherwise prohibited from land disposal occurs in the surface impoundment?					
C-3e(4)(b) Sampling and Testing: OAC 3745-59-04(A)(2)(a)					
Does the facility's waste analysis plan include the procedures and schedules for sampling and analysis of treatment residues and the analysis of test data to determine if the residues meet the applicable treatment standards or prohibitions?					
C-3e(4)(c) Annual Removal of Residues: OAC 3745-59-04(A)(2)(b)					
Does the owner/operator provide procedures and schedules for annual removal from the surface impoundment of treatment residues (including any liquid waste) that: 1) do not meet treatment standards or prohibition levels, or 2) are residues of wastes prohibited from land disposal where no treatment standards or prohibitions apply, or 3) are residues from listed wastes that are not delisted under OAC 3745-50-221, or 4) are wastes that exhibit a characteristic of hazardous waste.					

	YES	NO	NA	Page#	Notes - NOD Comment #
C-3e(4)(d) Recordkeeping Requirements: OAC 3745-59-04(A)(2)(c)					
Does the owner/operator provide procedures and schedules for sampling impoundment contents, analyzing test data, and annually removing any treatment residues that do not meet treatment standards or prohibition levels or are from the treatment of wastes prohibited from land disposal in OAC 3745-59-30 to 35?					
C-3e(4)(e) Design Requirements: OAC 3745-59-04(A)(3) & OAC 3745-56-21					
Does the owner or operator of the facility ~~must~~ demonstrate that the design requirements of OAC 3745-56-21(C) have been met or that an exemption, waiver, or modification has been granted under OAC 3745-59-04(A)(3)?					
C-3f Requirements for Land Disposal Facilities with an approved Exemption or Extension: OAC 3745-59-05, 3745-59-06					
If a case by case extension has been approved under OAC 3745-59-05 or a petition has been approved under OAC 3745-59-06, has the facility provided a copy of the Notice of Approval?					

Appendix II. Table 7-1 from DHWM Sampling Manual

The attached table is taken from the DHWM Sampling Manual. It is provided here as a reference only and should not be relied upon as a sole information source for determining sample containers, preservation techniques, or holding times. Users of this table are encouraged to contact the laboratory for help in identifying sample requirements.

Table 7-1
Parameters, Method, Preservation, Holding Times
Sample Volume, and Containers

PARAMETERS	METHOD	MINIMUM SAMPLE VOLUME	HOLDING TIME	CONTAINER	CLEANED TO EPA PROTOCOL	PRESERVATIVE	SAMPLE TYPE
Acid Only	8270	*30 grams **1 liter	7 Days to ext 40 Days aft ext	*8 oz CWM **2.5 liter A.J.	*A **A	Cool 4°C Dark	
Antimony	6010	*2 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Arsenic	7000	*2 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Arsenic	6010	*2 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Barium	6010	*2 grams ** 200 ml	6 Months	*3 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Base Neutral Acid	8270	*30 grams **l liter	7 Days to ext 40 Days aft ext	*8 oz CWM **2.5 liter A.J.	*A **A	.008% $Na_2S_2O_3$ Cool 4°C pH = 4 Dark	
Base Neutrals Only	8080	*30 grams **l liter	7 Days to ext 40 Days aft ext	*8 oz CWM **2.5 liter A.J.	*A **A	.008% $Na_2S_2O_3$ Cool 4°C pH = 4 Dark	
Beryllium	6010	*2 grams ** 200 ml	6 Months	*3 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Chromium VI	*7196/7197 **218.4 218.5	*10 grams **200 ml	24 Hours	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G
Dissolved Mercury	*7470/7471 **245	*10 grams **100 ml	38 Days in glass 13 Days in plastic	38 Days in glass 13 Days in plastic	*A **C	Filter pH < 2 HNO_3 Cool 4°C	
Hazardous Waste Corrosivity	*1110	* **2 liter	7 Days	* **2.5 liter A.J.	**A	None	G/C

Table 7.1 (cont'd)
Parameters, Method, Preservation, Holding Times
Sample Volume, and Containers

PARAMETERS	METHOD	MINIMUM SAMPLE VOLUME	HOLDING TIME	CONTAINER	CLEANED TO EPA PROTOCOL	PRESERVATIVE	SAMPLE TYPE
Hazardous Waste Ignitability	*1010/1020	* **100 ml	7 Days	* **500 ml B.R.	*A **C	None	G/C
Hazardous Waste Toxicity	*1311	*100 grams	7 Days to ext 40 Days aft ext	*2.5 liter CWM	*A	None	G/C
Hazardous Waste Reactivity	*7.3.3.2 7.3.4.2	*20 grams **500 ml	7 Days	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C Dark	G/C
Hexavalent Chromium	*7196/7197 **218.4 218.5	*10 grams **200 ml	24 Hours	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G
Hydrogen Ion	*9040/9045 **150	*20 grams **25 ml	Immediately	*4 oz CWM **60 ml HDPE	*A **C	None	G
Lead	7000	*2 grams ** 200 ml	6 Months	*3 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Lead	6010	*2 grams ** 200 ml	6 Months	*3 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Mercury, Dissolved	*7470/7471 **245	*10 grams **100 ml	38 Days in glass 13 Days in plastic	38 Days in glass 13 Days in plastic	*A **C	Filter pH<2 HNO_3 Cool 4°C	
Mercury, Total	*7470/7471 **245	*10 grams **100 ml	38 Days in glass 13 Days in plastic	38 Days in glass 13 Days in plastic	*A **C	pH<2 HNO_3 Cool 4°C	
Total Recoverable Metals (except chromium and mercury)	*7000 series 6010 **200 series 200.7	*10 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	pH<2 HNO_3 Cool 4°C	
Metals, Total Recoverable (except chromium and mercury)	*7000 series 6010 **200 series 200.7	*10 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	pH<2 HNO_3 Cool 4°C	

Table 7.1 (cont'd)
Parameters, Method, Preservation, Holding Times
Sample Volume, and Containers

PARAMETERS	METHOD	MINIMUM SAMPLE VOLUME	HOLDING TIME	CONTAINER	CLEANED TO EPA PROTOCOL	PRESERVATIVE	SAMPLE TYPE
Dissolved Metals (except chromium and mercury)	*7000 series 6010 **200 series 200.7	*10 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	Filter on site pH<2 HNO_3 Cool 4°C	
Metals, Dissolved (except chromium and mercury)	*7000 series 6010 **200 series 200.7	*10 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	Filter on site pH<2 HNO_3 Cool 4°C	
Suspended Metals (except chromium and mercury)	*7000 series 6010 **200 series 200.7	*10 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	Filter on site pH<2 HNO_3 Cool 4°C	
Metals, Suspended (except chromium and mercury)	*7000 series 6010 **200 series 200.7	*10 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	Filter on site pH<2 HNO_3 Cool 4°C	
Total Metals (except chromium and mercury)	*7000 series 6010 **200 series 200.7	*10 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	pH<2 HNO_3 Cool 4°C	
Metals Total (except chromium and mercury)	*7000 series 6010 **200 series 200.7	*10 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	pH<2 HNO_3 Cool 4°C	G
Metals - TAL (23)	6010/7000	*2 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Metals - RCRA (8)	6010/7000	*2 grams **200 ml	6 Months	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Organochlorine Pesticides	8080	*30 grams **1 liter	14 Days to ext 40 Days aft ext	*8 oz CWM **2.5 liter A.J.	*A **A	Cool 4°C	

Table 7.1 (cont'd)
Parameters, Method, Preservation, Holding Times
Sample Volume, and Containers

PARAMETERS	METHOD	MINIMUM SAMPLE VOLUME	HOLDING TIME	CONTAINER	CLEANED TO EPA PROTOCOL	PRESERVATIVE	SAMPLE TYPE
Paint Filter Liquid Test	9095	100 grams 100 ml		8 oz CWM	A	Cool 4°C	
PCB's	*8080 **608	*30 grams **l liter	7 Days to ext 40 Days aft ext	*8 oz CWM **2.5 liter A.J.	*A **A	Cool 4°C	G/C
pH	*9040/9045 **150	*20 grams **25 ml	Immediately	*4 oz CWM **60 ml HDPE	*A **C	None	G
Reactive Sulfide	*7.3.3.2 7.3.4.2	*10 grams **250 ml	7 Days	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C Dark	G
Reactive Cyanide	*7.3.3.2 7.3.4.2	*10 grams **250 ml	7 Days	*4 oz CWM **500 ml HDPE	*A **C	Cool 4°C Dark	G
Selenium	7000	*2 grams ** 200 ml	6 Months	*3 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Selenium	6010	*2 grams ** 200 ml	6 Months	*3 oz CWM **500 ml HDPE	*A **C	Cool 4°C	G/C
Semi-Volatile Organic	*8270 **625,1625	*30 grams **1 liter	7 Days to ext 40 Days aft ext	*8 oz CWM **2.5 liter A.J.	*A **A	.008% $Na_2S_2O_3$ Cool 4°C	
TCLP Extraction	*1311	*100 grams	7 Days to ext 40 Days aft ext	*2.5 liter CWM	*A	None	
TCLP Sample		*100 grams	7 Days to ext 40 Days aft ext	*16 oz CWM	*A	None	
Total Mercury	*7470/7471 **245	*10 grams **100 ml	38 Days in glass 13 Days in plastic	38 Days in glass 13 Days in plastic	*A **C	pH<2 HNO_3 Cool 4°C	
Volatile Organics	*8260 **624/1624	*5 grams **5 ml	14 Days	*4 oz CWM **40 ml Vial	*A **B	4 Drops HCl .008% $Na_2S_2O_3$ Cool 4°C	G

Environmental Sampling Guide, Eagle Picher, Environmental Services Department, 1993

*	=	Solid Waste Method (SW-846)
**	=	Water/Wastewater Method (EPA-600)

Sample Type
G - Grab
C - Composite

HDPE	=	High-Density Polyethylene Bottle
B.R.	=	Boston Round
CWM	=	Clear Wide Mouth
A.J.	=	Amber Jug
Vial	=	Teflon-lined Septum

A	=	Cleaned to Protocol A
B	=	Cleaned to Protocol B
C	=	Cleaned to Protocol C

Preservations listed are for liquid samples.
Solid samples are preserved by placing on ice.

HCL	=	Hydrochloric Acid	-	dilute 1:1
HNO_3	=	Nitric Acid	-	dilute 1:1
H_2SO_4	=	Sulfuric Acid	-	dilute 1:1
NaOH	=	Sodium Hydroxide	-	dilute 1:1
$Na_2S_2O_3$	=	Sodium Thiosulfate	-	for dechlorination

Refer to SOP -105 for a complete list of parameters.

Appendix III. Waste Analysis Regulations

The following regulations are provided for your convenience.

OAC rule 3745-54-13 General waste analysis.

(A)(1) Before an owner or operator treats, stores, or disposes of any hazardous waste, or nonhazardous waste if applicable under paragraph (D) of rule 3745-55-13 of the Administrative Code, he shall obtain a detailed chemical and physical analysis of a representative sample of the waste. At a minimum, this analysis shall contain all the information which must be known to treat, store, or dispose of the waste in accordance with the requirements of Chapters 3745-54 to 3745-57 and 3745-59 of the Administrative Code or with the terms and conditions of an Ohio hazardous waste permit.

(2) The analysis may include data developed under Chapter 3745-51 of the Administrative Code and existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes.

[Comment: For example, the facility's records of analyses performed on the waste before the effective date of this rule, or studies conducted on hazardous waste generated from processes similar to that which generated the waste to be managed at the facility, may be included in the data base required to comply with paragraph (A)(1) of this rule. The owner or operator of an off-site facility may arrange for the generator of the hazardous waste to supply part or all of the information required by paragraph (A)(1) of this rule, except as otherwise specified in paragraphs (B) and (C) of rule 3745-59-07 of the Administrative Code. If the generator does not supply the information, and the owner or operator chooses to accept a hazardous waste, the owner or operator is responsible for obtaining the information required to comply with this rule.]

(3) The analysis shall be repeated as necessary to ensure that it is accurate and up to date. At a minimum, the analysis shall be repeated:

(a) When the owner or operator is notified, or has reason to believe, that the process or operation generating the hazardous waste, or nonhazardous waste if applicable under paragraph (D) of rule 3745-55-13 of the Administrative Code, has changed; and

(b) For off-site facilities, when the results of the inspection required in paragraph (A)(4) of

this rule indicate that the hazardous waste received at the facility does not match the waste designated on the accompanying manifest or shipping paper.

(4) The owner or operator of an off-site facility shall inspect and, if necessary, analyze each hazardous waste movement received at the facility to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper.

(B) The owner or operator shall develop and follow a written waste analysis plan which describes the procedures to be implemented in order to comply with paragraph (A) of this rule. He shall keep this plan at the facility. At a minimum, the plan shall specify:

(1) The parameters for which each hazardous waste, or nonhazardous waste if applicable under paragraph (D) of rule 3745-55-13 of the Administrative Code, will be analyzed and the rationale for the selection of these parameters (i.e., how analysis for these parameters will provide sufficient information on the waste's properties to comply with paragraph (A) of this rule);

(2) The test methods which will be used to test for these parameters;

(3) The sampling method which will be used to obtain a representative sample of the waste to be analyzed. A representative sample may be obtained using either:

(a) One of the sampling methods described in appendix I of rule 3745-51-20 of the Administrative Code; or

(b) An equivalent sampling method.

(4) The frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date; and

(5) For off-site facilities, the waste analyses that hazardous waste generators have agreed to supply.

(6) Where applicable, the methods which will be used to meet the additional waste analysis requirements for specific waste management methods as specified in rules 3745-54-17, 3745-57-14, 3745-57-41, and 3745-59-07 of the Administrative Code.

(7) For surface impoundments exempted from land disposal restrictions under paragraph (A) of rule 3745-59-04 of the Administrative Code, the procedures and schedules for:

(a) The sampling of impoundment contents;
(b) The analysis of test data; and

(c) The annual removal of residues which are not delisted under rule 3745-50-221 of the Administrative Code or which exhibit a characteristic of hazardous waste and either:

(i) Do not meet the applicable treatment standards of rules 3745-59-40 to 3745-59-44 of the Administrative Code; or

(ii) Where no treatment standards have been established;

(a) Such residues are prohibited from land disposal under rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA; or

(b) Such residues are prohibited from land disposal under paragraph (F) of rule 3745-59-33 of the Administrative Code.

(C) For off-site facilities, the waste analysis plan required in paragraph (B) of this rule shall also specify the procedures which will be used to inspect and, if necessary, analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. At a minimum, the plan shall describe:

(1) The procedures which will be used to determine the identity of each movement of waste managed at the facility; and

(2) The sampling method which will be used to obtain a representative sample of the waste to be identified, if the identification method includes sampling.

[Comment: The waste analysis plan shall be submitted with "Part B" of the permit application.]

(3) The procedures that the owner or operator of an off-site landfill receiving containerized hazardous waste will use to determine whether a hazardous waste generator or treater has added a biodegradable sorbent to the waste in the container.

[Note: See rule 3745-57-14 of the Administrative Code.]

Effective: 9/2/97

Prior effective dates: 4/15/81, 1/7/83, 5/29/85 (Emer.), 8/29/85, 1/30/86, 12/30/89, 4/1/90, 2/11/92

119.032 review date: 4/30/98

OAC rule 3745-54-17 General requirements for ignitable, reactive, or incompatible wastes.

(A) The owner or operator must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste must be separated and protected from sources

of ignition or reaction including but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat. While ignitable or reactive waste is being handled, the owner or operator must confine smoking and open flame to specially designated locations. "No Smoking" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

(B) Where specifically required by the hazardous waste facility standards chapters, the owner or operator of a facility that treats, stores or disposes of ignitable or reactive waste, or mixes incompatible waste or incompatible wastes and other materials, must take precautions to prevent reactions which:

(1) Generate extreme heat or pressure, fire or explosions, or violent reactions;

(2) Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;

(3) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

(4) Damage the structural integrity of the device or facility;

(5) Through other like means threaten human health or the environment.

(C) When required to comply with paragraph (A) or (B) of this rule the owner or operator must document that compliance. This documentation may be based on references to published scientific or engineering literature, data from trial tests (e.g., bench scale or pilot scale tests), waste analyses (as specified in rule 3745-54-14 of the Administrative Code), or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

Effective: 1/7/83

Prior effective dates: None

OAC rule 3745-57-14 Special requirements for bulk and containerized liquids.

(A) The placement of bulk or non-containerized liquid hazardous waste or hazardous waste containing free liquids (whether or not sorbents have been added) in any landfill is prohibited.

(B) To demonstrate the absence or presence of free liquids in either a containerized or a bulk waste, the following test shall be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA publication SW-846, (incorporated by reference, see rule 3745-50-11 of the Administrative Code).

(C) Containers holding free liquids must not be placed in a landfill unless:

(1) All free-standing liquid:

(a) Has been removed by decanting or other methods; or

(b) Has been mixed with sorbent or solidified so that free-standing liquid is no longer observed; or

(c) Has been otherwise eliminated; or

(2) The container is very small, such as an ampule; or

(3) The container is designed to hold free liquids for use other than storage, such as a battery or capacitor; or

(4) The container is a lab pack as defined in rule 3745-57-16 of the Administrative Code and is disposed of in accordance with rule 3745-57-16 of the Administrative Code.

(D) Sorbents used to treat free liquids to be disposed of in landfills shall be nonbiodegradable. Nonbiodegradable sorbents are materials listed or described in paragraph (D)(1) of this rule; materials that pass one of the tests in (D)(2) of this rule; or materials that are determined by U.S.EPA to be nonbiodegradable through the petition process in 40 CFR Part 260.

(1) Nonbiodegradable sorbents.

(a) Inorganic minerals, other inorganic materials, and elemental carbon [e.g., aluminosilicates, clays, smectites, Fuller's earth, bentonite, calcium bentonite, montmorillonite, calcined montmorillonite, kaolinite, micas (illite), vermiculites, zeolites; calcium carbonate (organic free limestone); oxides/hydroxides, alumina lime silica (sand), diatomaceous earth; perlite (volcanic glass); expanded volcanic rock; volcanic ash; cement

kiln dust; fly ash; rice hull ash; activated charcoal/activated carbon]; or

(b) High molecular weight synthetic polymers [e.g., polyethylene, high density polyethylene (HDPE), polypropylene, polystyrene, polyurethane, polyacrylate, polynorborene, polyisobutylene, ground synthetic rubber, cross-linked allylstyrene and tertiary butyl copolymers]. This does not include polymers derived from biological material or polymers specifically designed to be degradable; or

(c) Mixtures of these nonbiodegradable materials.

(2) Tests for nonbiodegradable sorbents.

(a) The sorbent material is determined to be nonbiodegradable under ASTM Method G21-70(1984a)- Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi; or

(b) The sorbent material is determined to be nonbiodegradable under ASTM Method G22-76(1984b)- Standard Practice for Determining Resistance of Plastics to Bacteria; or

(c) The sorbent material is determined to be nonbiodegradable under the Organization for Economic Cooperation and Development (OECD) test 301B- CO2 Evolution (Modified Sturm Test).

(E) The placement of any liquid which is not a hazardous waste in a landfill is prohibited unless the owner or operator of such landfill demonstrates to the director, or the director determines, that:

(1) The only reasonably available alternative to the placement in such landfill is placement in a landfill or unlined surface impoundment, whether or not permitted or operating under authority or paragraph (C) of rule 3745-50-40 of the Administrative Code which contains, or may reasonably be anticipated to contain, hazardous waste; and

(2) Placement in such owner or operator's landfill will not present a risk of contamination of any underground source of drinking water (as that term is defined in rule 3745-34-01 of the Administrative Code).

Effective: 9/2/97

Prior effective dates: 8/30/84, 5/29/85 (Emer.), 8/29/85, 1/30/86, 12/30/89

119.032 review date: Exempt

OAC rule 3745-57-41 Waste analysis (Incinerators).

(A) As a portion of a trial burn plan required by the trial burn rules or with "Part B" of the permit application, the owner or operator must have included an analysis of his waste feed

sufficient to provide all information required by the trial burn rules. Owners or operators of new hazardous waste incinerators must provide the information required by the trial burn rules to the greatest extent possible.

(B) Throughout normal operation the owner or operator must conduct sufficient waste analysis to verify that waste feed to the incinerator is within the physical and chemical composition limits specified in his permit (under paragraph (B) of rule 3745-57-45 of the Administrative Code.

Effective: 11/29/83 Prior effective dates: 1/7/83

OAC rule 3745-59-07 Waste analysis and recordkeeping (LDR).

(A) Except as specified in rule 3745-59-32 of the Administrative Code, if a generator's waste is listed in rules 3745-51-30 to 3745-51-35 of the Administrative Code, the generator shall test his waste, or test an extract using the Toxicity Characteristic Leaching Procedure, Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846 (incorposated by reference, see rule 3745-50-11 of the Administrative Code), or use knowledge of the waste, to determine if the waste is restricted from land disposal under Chapter 3745-59 of the Administrative Code. Except as specified in rule 3745-59-32 of the Administrative Code, if a generator's waste exhibits one or more of the characteristics set forth in rules 3745-51-20 to 3745-51-24 of the Administrative Code, the generator shall test an extract using the Extraction Procedure Toxicity Test, Method 1310 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846 (incorposated by reference, see rule 3745-50-11 of the Administrative Code), or use knowledge of the waste, to determine if the waste is restricted from land disposal under Chapter 3745-59 of the Administrative Code.

(1) If a generator determines that he is managing a restricted waste under Chapter 3745-59 of the Administrative Code and the waste does not meet the applicable treatment standards set forth in rules 3745-59-40 to 3745-59-44 of the Administrative Code or exceeds the applicable prohibition levels set forth in rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA, with each shipment of waste the generator shall notify the treatment or storage facility in writing of the appropriate treatment standards set forth in rules 3745-59-40 to 3745-59-44 of the Administrative Code and any applicable prohibition levels set forth in rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA. The notice shall include the following information:

(a) U.S. EPA Hazardous Waste Number;

(b) The corresponding treatment standards for wastes F001 to F005, F039, and wastes prohibited pursuant to rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA. Treatment standards for all other restricted wastes must either be included, or be

referenced by including on the notification the applicable wastewater or nonwastewater (both terms as defined in rule 3745-59-02 of the Administrative Code) category, the applicable subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanides), and the rules in the Administrative Code where the applicable treatment standard appears. Where the applicable treatment standards are expressed as specified technologies in rule 3745-59-42 of the Administrative Code, the applicable five-letter treatment code found in Table 1 of rule 3745-59-42 of the Administrative Code (e.g., INCIN, WETOX) also must be listed on the notification;

(c) The manifest number associated with the shipment of waste; and

(d) Waste analysis data, where available.

(2) If a generator determines that he is managing a restricted waste under Chapter 3745-59 of the Administrative Code, and determines that the waste can be land disposed without further treatment, with each shipment of waste he shall submit, to the treatment, storage, or land disposal facility, a notice and a certification stating that the waste meets the applicable treatment standards set forth in rules 3745-59-40 to 3745-59-44 of the Administrative Code and the applicable prohibition levels set forth in rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA.

(a) The notice must include the following information:

(i) U.S. EPA Hazardous Waste Number;

(ii) The corresponding treatment standards for wastes F001 to F005, F039, and wastes prohibited pursuant to rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA. Treatment standards for all other restricted wastes must either be included, or be referenced by including on the notification the applicable wastewater or nonwastewater (both terms as defined in rule 3745-59-02 of the Administrative Code) category, the applicable subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanides), and the rules in the Administrative Code where the applicable treatment standard appears. Where the applicable treatment standards are expressed as specified technologies in rule 3745-59-42 of the Administrative Code, the applicable five-letter treatment code found in Table 1 of rule 3745-59-42 of the Administrative Code (e.g., INCIN, WETOX) also must be listed on the notification.

(iii) The manifest number associated with the shipment of waste;

(iv) Waste analysis data, where available.

(b) The certification shall be signed by an authorized representative and shall state the following:

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in rules 3745-59-40 to 3745-59-44 of the Administrative Code and all applicable prohibitions set forth in rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

(3) If a generator's waste is subject to an exemption from a prohibition on the type of land disposal method utilized for the waste (such as, but not limited to, a case-by-case extension under rule 3745-59-05 of the Administrative Code, an exemption under 3745-59-06 of the Administrative Code, or a nationwide capacity variance under rules 3745-59-30 to 3745-59-35 of the Administrative Code), with each shipment of waste he shall submit a notice to the facility receiving his waste stating that the waste is not prohibited from land disposal. The notice shall include the following information:

(a) U.S. EPA Hazardous Waste Number;

(b) The corresponding treatment standards for wastes F001 to F005, F039, and wastes prohibited pursuant to rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA. Treatment standards for all other restricted wastes must either be included, or be referenced by including on the notification the applicable wastewater or nonwastewater (both terms as defined in rule 3745-59-02 of the Administrative Code) category, the applicable subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanides), and the rules in the Administrative Code where the applicable treatment standard appears. Where the applicable treatment standards are expressed as specified technologies in rule 3745-59-42 of the Administrative Code, the applicable five-letter treatment code found in Table 1 of rule 3745-59-42 of the Administrative Code (e.g., INCIN, WETOX) also must be listed on the notification.

(c) The manifest number associated with the shipment of waste;

(d) Waste analysis data, where available; and

(e) The date the waste is subject to the prohibitions.

(4) If a generator within the iron and steel industry, SIC codes 331X and 332X, is managing prohibited waste resulting from the production of iron, steel, or coke, specified in paragraph (G)(9) of rule 3745-54-01 or paragraph (C)(12) of rule 3745-65-01 of the Administrative Code, in tanks or containers regulated under rule 3745-52-34 of the Administrative Code, and is treating such waste in such tanks or containers to meet applicable treatment standards under rules 3745-59-40 to 3745-59-44 of the Administrative Code, the generator must develop and follow a written waste analysis plan which

describes the procedures the generator will carry out to comply with the treatment standards. (Generators treating hazardous debris under the alternative treatment standards of Table 1 of 40 CFR section 268.45, However, are not subject to these waste analysis requirements.) The plan must be kept on site in the generator's records, and the following requirements must be met:

(a) The waste analysis plan must be based on a detailed chemical and physical analysis of a representative sample of the prohibited waste(s) being treated, and must contain all information necessary to treat the waste(s) in accordance with the requirements of Chapter 3745-59 of the Administrative Code, including the selected testing frequency.

(b) Such plan must be filed with the director, or his designated representative, a minimum of thirty days prior to the treatment activity, with delivery verified.

(c) Wastes shipped off-site pursuant to paragraph (A)(4) of this rule must comply with the notification requirements of paragraph (A)(2) of this rule.

(5) If a generator determines whether the waste is restricted based solely on his knowledge of the waste, all supporting data used to make this determination shall be retained on-site in the generator's files. If a generator determines whether the waste is restricted based on testing this waste or an extract developed using the test method described in the appendix to rule 3745-51-24 of the Administrative Code, all waste analysis data shall be retained on-site in the generator's files.

(6) If a generator determines that he is managing a restricted waste that is excluded from the definition of waste or hazardous waste or exempt from regulation under Chapters 3745-50 to 3745-69 of the Administrative Code, under rules 3745-51-02 to 3745-51-06 of the Administrative Code subsequent to the point of generation, he must place a one-time notice stating such generation, subsequent exclusion from the definition of waste or hazardous waste or exemption from regulation under Chapters 3745-50 to 3745-69 of the Administrative Code, and the disposition of the waste, in the facility's file.

(7) Generators shall retain on-site a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to this rule for at least five years from the date that the waste that is the subject of such documentation was last sent to on-site or off-site treatment, storage, or disposal. The five year record retention period is automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the director. The requirements of paragraphs (A) to (A)(10) of this rule apply to wastes even when the hazardous characteristic is removed prior to disposal, or when the waste is excluded from the definition of waste or hazardous waste under rules 3745-51-02 to 3745-51-06 of the Administrative Code, or exempted from
regulation under Chapters 3745-50 to 3745-69 of the Administrative Code, subsequent to the point of generation.

(8) If a generator is managing a lab pack that contains wastes identified in appendix I to rule 3745-59-42 of the Administrative Code and wishes to use the alternative treatment standard under rule 3745-59-42 of the Administrative Code, with each shipment of waste the generator shall submit a notice to the treatment facility in accordance with paragraph (A)(1) of this rule. The generator shall also comply with the requirements in paragraphs (A)(5) and (A)(6) of this rule, and shall submit the following certification, which must be signed by an authorized representative:

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste and that the lab pack contains only the wastes specified in appendix I to rule 3745-59-42 of the Administrative Code or wastes not subject to regulation under Chapter 3745-51 of the Administrative Code. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment."

(9) If a generator is managing a lab pack that contains wastes identified in appendix II to rule 3745-59-42 of the Administrative Code and wishes to use the
alternative treatment standard under rule 3745-59-42 of the Administrative Code, with each shipment of waste the generator shall submit a notice to the treatment facility in accordance with paragraph (A)(1) of this rule. The generator shall also comply with the requirements in paragraphs (A)(5) and (A)(6) of this rule, and shall submit the following certification, which must be signed by an authorized representative:

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste and that the lab pack contains only the wastes specified in appendix II to rule 3745-59-42 of the Administrative Code or wastes not subject to regulation under Chapter 3745-51 of the Administrative Code. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment."

(10) Small quantity generators with tolling agreements pursuant to paragraph (F) of rule

3745-52-20 of the Administrative Code shall comply with the applicable notification and certification requirements of paragraph (A) of this rule for the initial shipment of the waste subject to the agreement. Such generators shall retain on-site a copy of the notification and certification, together with the tolling agreement, for at least three years after termination or expiration of the agreement. The three-year record retention period is automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the director.

(B) Treatment facilities shall test their wastes according to the frequency specified in their waste analysis plans as required by rule 3745-54-13 or 3745-65-13 of the Administrative Code. Such testing shall be performed as provided in paragraphs (B)(1), (B)(2) and (B)(3) of this rule.

(1) For wastes with treatment standards expressed as concentrations in the waste extract (rule 3745-59-41 of the Administrative Code), the owner or operator of the treatment facility shall test the treatment residues, or an extract of such residues developed using the test method described in the appendix to rule 3745-51-24 of the Administrative Code, to assure that the treatment residues or extract meet the applicable treatment standards.

(2) For wastes that are prohibited under rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA but not subject to any treatment standards under rules 3745-59-40 to 3745-59-44 of the Administrative Code, the owner or operator of the treatment facility shall test the treatment residues according to the generator testing requirements specified in rule 3745-59-32 of the Administrative Code to assure that the treatment residues comply with the applicable prohibitions.

(3) For wastes with treatment standards expressed as concentrations in the waste (rule 3745-59-43 of the Administrative Code), the owner or operator of the treatment facility shall test the treatment residues (not an extract of such residues) to assure that the treatment residues meet the applicable treatment standards.

(4) A notice shall be sent with each waste shipment to the land disposal facility which includes the following information:

(a) U.S. EPA Hazardous Waste Number;

(b) The corresponding treatment standards for wastes F001 to F005, F039, and wastes prohibited pursuant to rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA. Treatment standards for all other restricted wastes must either be included, or be referenced by including on the notification the applicable wastewater or nonwastewater (both terms as defined in rule 3745-59-02 of the Administrative Code) category, the applicable subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanides), and the rules in the Administrative Code where the applicable treatment standard appears. Where the applicable treatment standards are expressed as

specified technologies in rule 3745-59-42 of the Administrative Code, the applicable five-letter treatment code found in Table 1 of rule 3745-59-42 of the Administrative Code (e.g., INCIN, WETOX) also must be included on the notification;

(c) The manifest number associated with the shipment of waste; and

(d) Waste analysis data, where available.

(5) The treatment facility shall submit a certification with each shipment of waste or treatment residue of a restricted waste to the land disposal facility stating that the waste or treatment residue has been treated in compliance with the applicable performance standards specified in rules 3745-59-40 to 3745-59-44 of the Administrative Code and the applicable prohibitions set forth in rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA.

(a) For wastes with treatment standards expressed as concentrations in the waste extract or in the waste (rule 3745-59-41 or 3745-59-43 of the Administrative Code), or for wastes prohibited under rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA which are not subject to any treatment standards under rules 3745-59-40 to 3745-59-44 of the Administrative Code, the certification shall be signed by an authorized representative and must state the following:

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information. I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in rules 3745-59-40 to 3745-59-44 of the Administrative Code, and all applicable prohibitions set forth in rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

(b) For wastes with treatment standards expressed as technologies (rule 3745-59-42 of the Administrative Code), the certification shall be signed by an authorized representative and shall state the following:

"I certify under penalty of law that the waste has been treated in accordance with the requirements of rule 3745-59-42 of the Administrative Code. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

(c) For wastes with treatment standards expressed as concentrations in the waste pursuant to rule 3745-59-43 of the Administrative Code, if compliance with the treatment

standards in rules 3745-59-40 to 3745-59-44 of the Administrative Code is based in part or in whole on the analytical detection limit alternative specified in paragraph (C) of rule 3745-59-43 of the Administrative Code, the certification also must state the following:

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with rules 3745-57-40 to 3745-57-51 of the Administrative Code, or rules 3745-68-40 to 3745-68-52 of the Administrative Code, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

(6) If the waste or treatment residue will be further managed at a different treatment or storage facility, the treatment, storage or disposal facility sending the waste or treatment residue off-site shall comply with the notice and certification requirements applicable to generators under this rule.

(7) Where the wastes are recyclable materials used in a manner constituting disposal subject to the provisions of paragraph (B) of rule 3745-58-30 of the
Administrative Code regarding treatment standards and prohibition levels, the owner or operator of a treatment facility (i.e., the recycler) is not required to notify the receiving facility, pursuant to paragraph (B)(4) of this rule. With each shipment of such wastes the owner or operator of the recycling facility shall submit a certification described in paragraph (B)(5) of this rule, and a notice which includes the information listed in paragraph (B)(4) of this rule (except the manifest number) to the director. The recycling facility also must keep records of the name and location of each entity receiving the hazardous waste-derived product.

(C) Except where the owner or operator is disposing of any waste that is a recyclable material used in a manner constituting disposal pursuant to paragraph (B) of rule 3745-58-30 of the Administrative Code, the owner or operator of any land disposal facility disposing any waste subject to restrictions under Chapter 3745-59 of the Administrative Code shall:

(1) Have copies of the notice and certifications specified in paragraph (A) or (B) of this rule; and

(2) Test the waste, or an extract of the waste or treatment residue developed using the test method described in the appendix to rule 3745-51-24 of the administrative Code or using any methods required by generators under rule 3745-59-32 of the Administrative Code,

to assure that the wastes or treatment residues are in compliance with the applicable treatment standards set forth in rules 3745-59-40 to 3745-59-44 of the Administrative Code and all applicable prohibitions set forth in rule 3745-59-32 of the Administrative Code or section 3004(d) of RCRA. Such testing shall be performed according to the frequency specified in the facility's waste analysis plan as required by rule 3745-54-13 or 3745-65-13 of the Administrative Code.

Effective: 9/2/97

Prior effective dates: 12/30/89, 2/11/92, 9/7/92

119.032 review date: 4/30/98