WASTE ANALYSIS PLAN

FOR

TRADE WASTE INCINERATION

WASTE ANALYSIS PLAN

OUTLINE

ATTACHMENTS

WASTE ANALYSIS PLAN

In accordance with the regulatory requirements set forth in 40 CFR 264.13 and 35 IAC 724.113, Chemical Waste Management, Inc. (CWM) has developed this Waste Analysis Plan as an integral part of the RCRA Part B Permit Application for its Trade Waste Incineration (TWI) facility located in Sauget (St. Clair County), Illinois. The procedures set forth in this plan ensure that this facility will be in compliance with all requirements of 40 CFR 264.13 and 35 IAC 724.113. A copy of this plan will be available at the facility at all times.

1.0 INTRODUCTION

The purpose of this Waste Analysis Plan (WAP) is to describe and document the necessary sampling methodologies, analytical techniques and overall procedures used to determine the acceptability and management of all wastes which enter this facility for treatment or storage. These procedures shall apply to all hazardous and nonhazardous wastes (hereafter referred to as "waste") received by the facility, except samples as identified and defined in 40 CFR 261.4(d), (e), and (f). Specifically, the plan delineates the following:

- Analytical Parameters, Rationale and Techniques to identify wastes or determine information so that treatment and storage techniques can be utilized.
- Sampling Methodology to ensure that adequate and representative samples are taken.
- Profiling Procedures to determine the acceptability of a particular waste stream pursuant to facility permit conditions and operating capabilities prior to acceptance of the waste at the facility.
- Incoming Waste Shipment Procedures to identify that the delivered waste conforms to the accompanying manifest, profile documents, and the conditions of the facility permit.
- Process Operations Procedures to maintain safe and appropriate methods of storage, treatment, disposal or movement of wastes within the facility.
- Residue(s) resulting from on-site treatment of land disposal restricted wastes will be evaluated, as needed, against the appropriate treatment standard or prohibition.
- Quality Control Policy the facility laboratory follows to achieve high quality analytical results.

The forms shown within this WAP are typical forms currently used by the existing facility. These forms may require updating to equivalent or alternate forms based upon changes in regulations, customer needs, facility operations, or company policies. TWI will provide notification to the IEPA-DLPC Permit Section as required by 35 IAC 703.280.

For purposes of implementation and performance of this WAP, "TWI Laboratory" means the TWI laboratory or any CWM laboratory, any CWM subsidiary laboratory, or any CWM designated contract laboratory, in addition, the use of TWI means CWM or WMX Technologies.

The Laboratory, Technical, Operations, Environmental, and General Managers or their designees hereinafter are collectively referred to as "Facility Management", or individually referred to as the Laboratory, Technical, Operations, Environmental, or General Manager.

All wastes handled by this facility will be subjected to these procedures. This is to help ensure that this facility will be in compliance with applicable permits and regulations.

The company strives to maintain, at all times, complete compliance with the hazardous waste regulations. Because new requirements, such as those promulgated under the land disposal restrictions, often become effective prior to the time WAP revisions can be formally made and approved by all appropriate agencies, it is impossible to have in place an approved WAP meeting all the conditions of immediately effective regulatory requirements.

In light of these facts, the facility will have in place a written protocol specifying the new requirements such as testing and frequency prior to receipt and/or processing of the regulated waste. The facility may also periodically revise the protocol to reflect scientific advances or additional regulatory requirements. If WAP revisions are necessary because of a new regulatory rule, they will be submitted within 60 days after the effective date of the rule.

2.0 SAMPLING METHODOLOGY

Sampling is performed at the facility to identify waste shipments and by the waste generator to make the initial waste determination at their location. Specific sampling procedures are dependent on both the nature of the material and the type of containment. A full-depth representative sample will be obtained from each container and tank truck unless the physical properties (i.e., heterogenous debris, extremely hard material, or high shear force) preclude obtaining a full-depth representative sample. Exceptions to obtaining full-depth samples are noted in Section 2.1 and do not apply to frozen or chilled material.

This section presents sampling methodologies to be utilized on-site by personnel in accordance with 40 CFR 264.13(c)(2) and/or 35 IAC 724.113(c)(2). Waste generators are referred to 40 CFR 261, Appendix I and/or Appendix A of 35 IAC 721 for sampling procedures. In the case where the generator submits a sample for initial profile approval, TWI requires the generator to certify that the sample submitted is representative.

The sampling equipment and procedures described in this WAP represent the facility's recommended sampling protocol for general types of waste material and containment. All methodologies will be updated and revised as the references are updated and revised.

2.1 Materials

At a minimum, the methodologies utilized for specific materials correspond to those referenced in 40 CFR 261, Appendix I and/or 35 IAC 721, Appendix A. The sampling methods and the equipment utilized for these and any different materials are presented in Table 2-1. This table is a simplified summary of data excerpted from 40 CFR 261, Appendix I and/or 35 IAC 721, Appendix A.

Care must be taken when collecting samples to ensure that excessive loss of volatile organic compounds does not occur during sample handling and storage. Sample containers must not be left opened except when preparing for the addition or removal of the sample, and sample jars must be filled as completely as practicable.

Certain waste materials will require deviations from the these protocols. When deviations are necessary to sample materials which cannot be sampled using the recommended protocol (for example, debris, extremely hard materials, or other high shear force materials), the facility will obtain a representative sample, based on the circumstances preventing a vertical section, knowledge of the waste, and the container size and shape. For example, debris and like material will be sampled with scissors, tongs, hammer and/or chisel. Adhesives or other highly elastic substances will be sampled with a scoop or shovel and scissors or tongs. Resins and other extremely hard materials will be sampled with a hammer and a chisel.
(See Appendix WAP-E).

2.2 Type of Containment

In addition to American Society for Testing Materials (ASTM) and other EPA-approved sampling procedures, TWI has instituted specific methodologies for ensuring that samples taken from various types of containers are representative. The type of container may be transportable such as drums, portable transport units (e.g. small tanks, roll off boxes), and tanker trucks; or stationary (e.g., tanks) and in-process sources. The sampling devices are selected, depending on the size and type of containment and on the specific material involved.

Because there is a much greater tendency for heterogeneity in a vertical plane rather than a horizontal, sampling will be performed to address this concern (e.g., full-depth vertical samples will be taken when possible). When samples are collected which consist of multiple phases, analysis will be conducted on the sample as a whole. In addition, access to a container (i.e., drum bungs, tank truck domes, and large tanks with sampling ports) will influence the location from which samples can be taken.

2.2.1 Containers and Tanks

Sampling of small containers (e.g., drums, cartons, and other small units) varies with the nature of the waste material. For flowable materials, the sampling device to be used is either a Coliwasa unit or tube sampler to draw a full vertical axis sample of the flowable material (or other appropriate device as listed in Table 2-1). For nonflowable wastes, a tube sampler or a trier is used to obtain a sample (or other appropriate device as listed in Table 2-1).

Large containers and tanks for flowable materials and bulk containers for solid materials may be either stationary or mobile. Liquids are sampled with a Coliwasa or tube sampler to obtain a vertical section (or other appropriate device as listed in Table 2-1). Light, dry powders and granules are sampled with a tube sampler to obtain a vertical core (or other appropriate device as listed in Table 2-1). Heavier solids are sampled by trier or shovel, or by coring with a tube sampler (or other appropriate device as listed in Table 2-1). Stationary tanks for blending of liquids for feeding the incinerator are sampled with a bacon bomb (or other appropriate device as listed in Table 2-1). In addition, tanks may be sampled from tank sampling ports or taps through tank inlets or outlets.

TABLE 2-1

SAMPLING METHODS AND EQUIPMENT

MATERIAL	METHOD	EQUIPMENT[c]
Extremely viscous liquid	ASTM D 140-70[a] or ASTM E 300[a]	Tube sampler[d], thief, or Coliwasa
Crushed or powdered	ASTM D 346-75[a] or ASTM E 300[a]	Tube sampler[d], trier, scoop, or shovel
Soil	ASTM D 420-69[a] or ASTM E 300[a]	Tube sampler[d], trier, auger, scoop, or shovel
Soil-like material	ASTM D 1452-65[a] or ASTM E 300[a]	Tube sampler[d], trier, auger, scoop, or shovel
Fly ash-like material	ASTM D 2234-76[a] or ASTM E 300[a]	Tube sampler[d], trier, auger, scoop, or shovel
Containerized liquids	SW-846[b] or ASTM E 300[a]	Coliwasa/tube sampler[d], weighted bottle, bomb, or tank sampling ports

[a] -- American Society for Testing Materials, 1982. Annual Book of ASTM Standards, Philadelphia, PA, or most recent edition.

[b] -- "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, September 1986 as amended by Update I (July 1992), U.S. Environmental Protection Agency, Office of Solid Waste (NTIS, 5285 Port Royal Road, Springfield, VA 22161) or more recent edition or revision (GPO, Supt. of Documents, Washington, DC 20402).

[c] -- The specific equipment is dependent on the type of container. See SW-846 for specific examples. See also Section 2.2.

[d] -- Personal Protection and Safety Training Manual (Cincinnati, Ohio: U.S. Environmental Protection Agency, National Training and Operational Technology Center, 1981) pp. 3-1 and 3-4, or current revision.

3.0 ANALYTICAL RATIONALE

In accordance with 40 CFR 264.13(b)(5) and/or 35 IAC 724.113(b)(5), a pre-existing waste characterization is supplied to TWI by the waste generator on the Waste Profile Sheet (WPS, Figure 4-1). The generator supplies TWI with all the information required to characterize, treat, store or dispose of his waste, as defined in 40 CFR 264.13(a)(1) and/or 35 IAC 724.113(a)(1). [ref: 40 CFR 264.13(a)(2) comment and/or 35 IAC 724.113(a)(2) Board Note]. See Section 4.1 for a discussion regarding the information and data to be supplied by the generator. The analyses if necessary, are provided by the generator or TWI's laboratory to evaluate the pre-existing waste characterizations and to comply with facility acceptance criteria.

Analytical methods are classified as Mandatory Analyses, Blend Analyses, and Supplemental Analyses. This arrangement allows a tiered approach to waste identification, enabling TWI to structure the analyses to adequately identify the waste or to define operational parameters for various treatment processes.

At a minimum, all incoming wastes are subjected to the Mandatory Analyses as a first step in the analytical scheme (except as noted in Section 4.1.4). Supplemental Analyses are performed as specified in Section 3.3. The Blend Analyses are used to determine the liquid blend characteristics in order to maintain a steady state (normal) operation of the incinerator (see Section 6.3). Facility Management will perform additional analyses to augment the mandatory screening or to provide operational control as prescribed in Section 3.3, Supplemental Analyses. The parameters which constitute these categories are described below. The methods to be utilized in determining these parameters are identified in Appendix WAP-A (as required by 40 CFR 264.13(c)(1) and/or 35 IAC 724.113(c)(1)). Facility Management may waive specific Mandatory or Supplemental Analyses if performing the analysis presents a safety hazard in the laboratory as specified in Section 4.1.4.

A summary of the analytical parameters within each category and their usage is provided herein. Analyses are not repeated for sequential activities or movement of the same waste within the facility unless required by changes in the waste's character. See Section 6.0 for a complete description of parameters performed in conjunction with process operations. The results of all tests and inspections described below will be maintained at the facility as part of its operating record for a minimum of three years after the testing has been performed.

3.1 Mandatory Analyses

Mandatory Analyses are basic fingerprinting procedures (key parameters) which are used to identify a waste and to ensure that the appropriate waste management technique can be utilized. In addition, they aid in liquid blending decisions and to determine the proper solid waste feed sequence prior to incineration. Mandatory Analyses:

- Provide the information concerning the waste which is pertinent to the safe storage, processing and incineration of the waste;

-- Provide Facility Management with data which can be used to evaluate the consistency of information provided by the generator.

Incoming Mandatory Analyses are performed on the incoming waste shipment samples in order to make the final decision of whether or not the facility can manage a particular waste stream shipment (except as noted in Section 4.1.4) and determine if the waste shipment conforms to the identity of the waste as identified on the waste shipment manifest, and to the profile information.

When necessary for profile purposes, select Mandatory Analyses may also be performed on a generator supplied sample if the generator supplied information is not sufficient (See Section 4.1.1). If an incoming waste conforms to the information provided in the profile, then the information gathered can be used to safely manage the waste.

In accordance with 40 CFR 264.13(c)(1) and/or 35 IAC 724.113(c)(1), the parameters and associated rationale for the Mandatory Analyses are as follows:

1. Physical Description (appearance) is used to determine the general physical properties of the waste (color, physical state, layering, turbidity, viscosity). This facilitates visual comparison of the sampled waste with prior waste descriptions or samples.
2. Heating Value (BTU) is used to establish the proper blend characteristics, evaluate its suitability for incineration and develop appropriate packaging requirements. There are no minimum or maximum acceptance limits for incoming waste shipments based on heating value. Heating value of a particular blend is controlled by the incinerator feed blend (see Section 6.3). This testing does not apply to liquid decant drums which will be blended prior to incineration.
3. Chlorine Content (Cl) is used to establish the proper blend characteristics, appropriate container packaging requirements and/or evaluate potential impacts on the incinerator and/or pollution control equipment. This testing does not apply to liquid decant drums which will be blended prior to incineration.
4. Radioactivity Screening is performed to detect radioactive materials above background levels (greater than 0.5 millirads per hour) and to ensure that mixed waste, as defined in the TWI Part B RCRA Permit is not accepted by the facility.
5. Flammability Potential Screening is used to indicate the fire-producing potential of the waste. This testing can be applied to all wastes, liquids, semi-solids or solids. All incoming liquid material indicating a positive flammability potential will be stored as Class I flammable liquids, unless closed cup flash point is performed showing a flash point of greater than 100°F.
6. Water Mix Screening is used to determine whether the waste has a potential to vigorously react when mixed with water, to form gases or other products, or whether it generates significant heat. This testing does not apply to wastes that are already in contact with excess water.

7. Cyanides Screening indicates whether the waste has the potential to produce hydrogen cyanide upon acidification below pH 2.0. It is not required if the pH of the waste is less than or equal to 2.0.
8. Oxidizer Screening is used to indicate the absence or presence of strong oxidizing material.
9. pH Screening is undertaken to indicate the pH and, in general, the corrosive nature of the waste. Full range paper is used for the initial screening of wastes. Waste accepted by the facility will, generally, be in the range of 2.0 to 12.5 pH units. Liquid waste outside of this range may be analyzed for alkalinity/acidity. Based on the results or the chemical composition, the appropriate process code is specified. If the material exhibits corrosive properties as identified in technical literature vs. tank farm material of construction, corrosion testing may be performed to allow for storage, or it will be accepted as specialty feed material and injected directly into the incinerator without blending.
10. Paint Filter Test is used to determine whether free liquids are present in a waste. It is not performed on free flowing materials.
11. Sulfide Screening indicates whether the waste has the potential to produce hydrogen sulfide upon acidification below pH 2.0. It is not required if the pH of the waste is less than or equal to 2.0.

3.2 Non-hazardous Waste Analyses

Non-hazardous wastes will be sampled as described in Section 5.1 and tested for physical description, radioactivity screening, flammability potential screening, water mix screening, and pH screening (if liquid). Non-hazardous solid wastes will be sampled and analyzed, as described above, for heat content and chlorine content. Non-hazardous liquid waste streams will be sampled and analyzed, as described above, for compatibility testing prior to management in bulk storage tanks. If any of these screens are positive the material will be considered discrepant and all mandatory analyses completed (see Mandatory Analysis, Section 3.1).

3.3 Supplemental Analyses

Supplemental Analyses are performed to further identify wastes and will be performed when needed as directed by Facility Management or as specified in the following rationale.

Supplemental Analyses are conducted when the Mandatory Analyses indicate that further information is needed to confirm the waste or to properly store and/or process the waste. The analyses are performed as directed by Facility Management. The results of these analyses provide Facility Management with another level of confidence concerning the proper means of storage and/or processing.

Some of these additional analyses utilize unique procedures and protocols formulated by TWI, which have been found to be preferable for waste identification. These analyses will meet CWM performance standards. Others are standard analytical techniques recognized by the U.S. EPA and ASTM. The parameters

which constitute the Supplemental Analyses are identified below, the methods to be utilized in determining these parameters are in Appendix WAP-A.

1. Containerized Storage Compatibility is used to ensure proper compatibility within containerized storage buildings. This testing applies only to containerized wastes which do not pass the paint filter test. The testing program will not apply to small quantity packaged chemicals, material repackaged or solidified, or other material exempted under 4.1.4 and 5.1.1. In the event that a compatibility is performed on materials which are indicated as incompatible per DOT HM181, the compatibility test will take precedence over the DOT hazard class grouping.
2. Tank Farm Compatibility will be assessed by performing a liquid waste compatibility on the liquid waste received for bulk storage with a composite of the tanks and storage container within the containment system to which the new waste will be added. Containment area master composite will be made up once per week. The incoming material will be checked against this master composite.
3. Gas Chromatography Scan is used to separate and identify certain organic compounds.
4. Metals (e.g., As, Be, Cd, Cr, Ni, K, Na, Tl, Pb, Hg, Se) identifies heavy metals concentrations in wastes to determine regulatory status of the waste. Inorganic mercury waste as specified in 35 IAC 728. Table D, mercury high subcategory streams will be analyzed to ensure the mercury concentration is less than the LDR regulatory limit.
5. Closed Cup Flash Point identifies ignitable liquid wastes for storage purposes. This test will be performed when the generator has not provided analytical data with the WPS. This test will also be performed to resolve non-conformance issues when;
    a) An incoming waste indicates a positive flammability potential; and
    b) Profile information indicates that the material should not exhibit a flammability potential; and
    c) The discrepancy cannot be resolved through discussions with the generator.
6. Acidity/Alkalinity may be performed on liquid inorganic waste which exhibits a pH greater that 12.5 or less than 2.0 to evaluate the processability of these wastes.
7. Apparent Viscosity is an indicator of one of the feed characteristics to the incinerator. It is determined during profiling on liquids when the Physical Description indicates the waste is viscous or when analytical data is not provided by the generator on the WPS.
8. Confinement Test is used to measure the magnitude and rate of heat generation from a material subjected to a programmed temperature increase under confined conditions. This test will be used as an indicator of the waste's explosion potential. For materials for which the Facility Management lacks explosivity information, either as provided by the generator, through the facility's previous experiences with the material, or in a review of standard reference materials (a bibliography of standard references available to the site is included as Appendix WAP-F) and Facility Management's

evaluation of the chemical structure of the compound fails to preclude an explosion potential for the material, the suspect material will be subjected to a Confinement Test.

9. Liquid Waste Compatibility is used to determine if waste streams can be blended without causing a release to the environment. This test will be performed on all liquid wastes received for bulk storage, decant to bulk storage, or blending prior to incineration with all tanks within the containment system to which the new waste will be added.

10. PCBs are run to indicate whether PCBs are present in wastes and to ascertain their concentration. PCB analysis will be provided by the generator or analysis will be performed prior to profile decision approval. Incoming waste shipments will be subjected to PCB testing based on the criteria defined in CWM's PCB Suspect Analysis Policy. Materials containing PCBs above 50 ppm will not be accepted. Organic extractions will not be performed on oxidizing wastes because of the safety hazard involved.

11. Chlorophenoxy Herbicides by HPLC is used to determine the presence of dioxin suspect compounds Silvex and 2,4,5-T (see Appendix WAP-C) at a level of 0.01% or greater subject to detection level/matrix interference. Suspect waste streams are identified by the TWI Dioxin Suspect Analysis Policy.

12. Phenol Screening is used to determine the presence of dioxin suspect compounds pentachlorophenol (see Appendix WAP-C) at levels greater than 0.01% or greater, subject to detection level/matrix interference. Suspect waste streams are identified by the TWI Dioxin Suspect Analysis Policy.

13. Ash Content is used to determine the percent ash in waste feeds to the secondary combustion chamber. This test is performed on liquid blends for injection in the SCC burners.

14. Fluorine Content is used to determine the percent fluorine in waste feeds to the secondary combustion chamber. This test is performed on liquid blends for injection in the SCC burners.

15. Bromine Content is used to determine the percent bromine in waste feeds to the secondary combustion chamber. This test is performed on liquid blends for injection in the SCC burners.

16. Specific Gravity/Density indicates the density of the waste. This information is used to assure that the specific gravity of bulk liquids is less than the design specific gravity for the storage tanks (1.5).

Other parameters not listed here may be added as required by changes in regulations, company policy, etc. See Figure 3.1 for a summary of analytical requirements.

FIGURE 3-1
SUMMARY OF ANALYSIS

PARAMETER	PROFILE	INCOMING WASTE
Physical Description		X
pH Screen	X	X
Cyanide Screen (1)		X
Oxidizer Screen		X
Radioactivity Screen	X	X
Flammability Potential Screen		X
Water Mix Screen (2)		X
Paint Filter Test		X
Heat Value (BTU)		X(4)
Chlorine Content		X(4)
Ash Content		S(5)
Specific Gravity		S(6)
PCBs (3)	X	S
GC Scan (3)		S
Flash Point (5)	X	S
Acidity/Alkalinity		S
Sulfide Screen (1)		X
Liquid Waste Compatibility		S
Apparent Viscosity (5)	X	S
Pentachlorophenol Screening (3)		S
Chlorophenoxy Herbicides HPLC (3)		S
Mercury		S
Fluorine		S
Bromine		S
Metals		S
Confinement Test		S

X = Mandatory Analysis
S = Supplemental Analysis

(1) Does not apply to waste with pH < or = 2
(2) Does not apply to waste already in contact with excess water.
(3) Not performed on oxidizing waste.
(4) Not performed on liquid decant drums.
(5) Liquids only.
(6) Bulk liquids only.

4.0 PROFILING PROCEDURES

TWI has developed a series of control procedures to determine the acceptability of specific wastes for management at the facility. The profiling procedure dictates what information a potential customer must provide to enable TWI to carry out its responsibility to obtain information necessary to manage the waste. In accordance with 40 CFR 264.13(b)(5) and/or 35 Ill. Adm. Code 724.113(b)(5) this facility requires, at a minimum, the generator to supply all the information required by 40 CFR 264.13(a)(1) and/or 35 Ill. Adm. Code 724.113(a)(1) (see Section 4.1 for a discussion regarding the information and data to be supplied by the generator) necessary to characterize, treat, store or dispose of each waste stream.

Profiling is the mechanism for deciding to reject or accept a particular type of waste--prior to its acceptance at the facility--based on the conditions necessary to maintain incinerator operations at a (normal) steady state, the limitations of existing permits, and its compatibility with other wastes being treated, stored or disposed at the facility.

Prior to accepting a waste at the TWI facility for treatment, storage or disposal, a determination has previously been made by the generator (and reviewed by TWI) that the waste is either:

- a characteristic waste as defined in subpart C of 40 CFR 261 and/or subpart C, 35 Ill. Adm. Code 721,
- a listed hazardous waste as defined in subpart D of 40 CFR 261 and/or subpart B, 35 Ill. Adm. Code 721,
- a solid waste which is not a hazardous waste as defined in 40 CFR 261.4(b) and/or 35 Ill. Adm. Code 721.104(b).

The generator's supplied characterization (Waste Profile Sheet (WPS), Figure 4-1 in Section 4.1) provides TWI with information concerning the distribution of waste components as well as the nature of the waste components.

4.1 Procedural Requirements

For each new waste stream that is a candidate for delivery to the facility, except for those special materials noted below in Section 4.1.4, the following procedures are implemented:

4.1.1 Information Provided by Generator

The generator will provide TWI with:

(1) chemical and physical data requested on the Waste Profile Sheet (WPS), typical form shown as Figure 4-1. This information will be based on the following:

- Analytical Data; the generator must provide any available analytical data to support the information provided on the WPS. At a minimum, the generator must provide the following;

  Flash Point (liquids only)

PCB

Apparent Viscosity (liquids only)

pH

Radioactivity Screen

Where the generator does not provide analytical data, for the above items, the data will be developed by TWI prior to waste profile approval.

- o For waste code information, existing or published data on the waste or on waste generated from similar processes;
- o Process and ingredient information.

(2) a representative sample; if required (a representative sample may not be required by TWI if Facility Management determines that the profile documentation supplied by the generator gives sufficient information to maintain compliance with permit and operational constraints and that submittal of a sample would not aid in the disposal decision process. Also see Sections 4.1.4 and 4.1.5). Non-hazardous waste profiles for which the generator has provided analytical data to support this determination will not require a sample.

(3) Certification that the representative sample when required for approval (see above) has been obtained using procedures identified in 40 CFR 261, Appendix I and/or 35 Ill. Adm. Code 721, Appendix A or equivalent methods.

(4) Land Disposal Restriction (LDR) Notification/Certification Information and/or Data (40 CFR Part 268):

(5) Material Safety Data Sheets, where available;

(6) While not specifically required, generators are encouraged to provide other supporting documentation, including additional analytical results, product ingredients, etc. which will assist in the approval process.

CWM maintains as part of its profiling information generator-supplied and CWM-developed information. This information may be accessed electronically or via hard copy.

4.1.2 Waste Management Decision

After evaluating the data supplied by the generator, Facility Management will determine the acceptability of the waste based on: (1) permit conditions; (2) the availability of proper waste management techniques and operational conditions necessary to maintain a steady state (normal) operation of the incinerator; and (3) storage and compatibility concerns. See Section 4.2 for a detailed discussion of the decision evaluation logic for profiling procedures.

4.1.3 Waste Re-evaluation

In accordance with 40 CFR 264.13 and/or 35 Ill. Adm. Code 724.113, a waste profile re-evaluation will be conducted when one of the following occurs:

- o A generator notifies TWI that the process generating the waste has changed;
- o The results of inspection or analysis indicate that the waste received at the facility does not match the identity of the waste designated on the accompanying manifest (or shipping paper) or profile documentation (See Section 5.2.3); or
- o Every five years. A waste profile re-evaluation along with a vigilant incoming load screening program is sufficient to ensure that wastes continue to be properly managed at the facility.

For bullet items one and three above, this re-evaluation process consists of a review of the paperwork to ascertain that the analytical data is accurate and current and that it is sufficient to properly manage the waste as intended. The procedure typically involves comparing the current waste profile to the available results of routine inspection, sampling, and analysis obtained upon receipt of an incoming load of the waste stream. To augment this review, if existing analytical is not sufficient, the generator may be asked to review the current waste profile, to supply a new profile, and/or to submit a sample for analysis, or TWI may obtain a sample from a shipment of the waste.

4.1.4 Exceptions to the Foregoing Requirements

Exceptions to the foregoing requirements include the following special materials as determined by Facility Management:

(1) Packaged chemicals and debris (e.g., glassware, syringe, lab coats, etc.), from laboratories, hospitals, household clean sweeps, manufacturing facilities, etc., including scintillation vials packed in accordance with Small Quantity Chemical Guidelines (SQCG's). Scintillation vials as certified by the generator to exhibit less than 0.05 microcurie/gram radioactivity (scintillation vials at this level may exhibit radioactivity above background but less than 0.5 millirads per hour). For packaged chemicals, the generator will supply a packing list (Inventory) for each container (e.g., drums) specifying type and quantity of chemicals contained within. Compliance with the SQCG's and accuracy of the drum inventory provided to TWI for review must be certified by the technician packaging the waste through completion of the drum inventory sheet. This drum inventory sheet must be reviewed and approved for each container by the TWI Facility Management prior to acceptance at the facility. TWI will open and inspect the contents of randomly selected direct charge containers received from each packing organization to verify that the contents conform to the drum inventory. Drums containing scintillation vials will be screened to verify that they are not radioactive (as noted above). See Section 5.1.1(1) for a complete description of Incoming Waste Shipment procedures for small quantity chemical drums. Occasionally, TWI

determines that a particular material is not acceptable and so notifies the customer. If the customer agrees with TWI's determination the unacceptable material is removed from the container. These drums will be tracked on-site for the purposes of determining waste storage compatibility by manifest/profile/unique drum identification combination.

(2) Empty containers as defined at 35 IAC 721.107(b), (e.g. empty fiber, steel or plastic drums or bags). These wastes will be visually inspected upon receipt. In addition to differences in physical appearance, these wastes will be determined to be nonconforming when they contain material in quantities greater than 3% of the total volume of the container or more than one inch of residue remains on the bottom of the container.

(3) Pharmaceutical and other commercial products packaged in consumer quantities in their original untampered packaging.

(4) Commercial products or chemicals: off-specification, outdated, unused or banned. These materials must be received in the original container or packaged as designated by TWI.

(5) Aerosol cans and Lecture Bottles.

(6) Controlled substances defined in 21 U.S.C. Section 802 regulated by the Federal Government such as cocaine and other drugs. These are typically generated by a pharmaceutical company, health care agencies or state or federal agency.

(7) Potentially Infectious Medical Waste (PIMW) as defined by IEPA.

(8) Wastes which are visually identifiable through an inspection process. Examples of these types of wastes are, batteries, cathode ray tubes, crushed glass, piping, filters and filter cartridges, wire or tubing, paper products, syringes, metal sheeting and parts, explosive components and devises. This list is not meant to be all inclusive, and may be expanded with IEPA approval.

(9) Prior Agency Approval: Materials which do not fall into one of the other exemption categories, but present impractical sampling or analysis complications. Use of this exemption will be granted on a profile specific basis, with initial review by the IEPA field office (Collinsville). Profile approval will be subject to IEPA-DLPC Permit Section written (e.g. fax) approval.

The requirement that a generator provide a representative sample is waived for these materials because they exhibit unusual or impractical sampling and analytical complications and are of such a nature that their contents are known in sufficient and reliable chemical and physical detail that sampling and analysis is not warranted. For these exceptions, the generator will supply TWI with chemical and physical characteristic information necessary for proper management of the waste and sampling is not required. The above wastes will be described on a WPS as shown in Figure 4-1 and accompanied by supporting documentation (e.g., drum inventory, Material Safety Data Sheets (where available), and other data made available by the generator), including information as to whether the waste is subject to the Land Disposal Restrictions of 40 CFR Part 268.

4.1.5 Standard Profiles

Standard Profiles may be used for waste streams which are similar in physical and chemical characteristics, generated by similar industries or processes, consistent with the USEPA approach of assigning a listed waste code to similar process wastes.

An analytical database will be developed for a specific Standard Profile based on analytical data from waste streams that are representative of wastes from similar industries, processes or historical data. CWM will review the database and determine whether the individual waste streams are sufficiently similar in physical and chemical characteristics to an established Standard Profile. The analytical database developed as discussed above will replace the requirement for a profiling sample (see Section 4.1.1) for each individual waste stream.

Specific candidate waste streams which are identified as conforming to an existing IEPA approved Standard Profile will be managed under the existing disposal decision specific for that Standard Profile.

4.2 Decision Evaluation Logic for Profiling Procedures

The Facility Management is responsible for the profile evaluation decision (e.g., whether to approve the candidate waste for acceptance). The data obtained from the WPS (Figure 4-1), any analysis performed by the CWM Laboratory, and any other information provided by the generator or developed during the assessment of the waste is evaluated by Facility Management. The facility General Manager will designate written authority for profile decision approval to qualified individuals based on training, experience, and supervised decision reviews. See Figure 4-2 for required waste management decision information.

Facility Management will apply technical experience and judgement to all the available information in order to reach a technical profile approval decision. At a minimum, the following criteria will be assessed:

- Management methods available;
- Conditions or limitations of existing permits and regulations;
- Capability to manage the waste in a safe and environmentally sound manner;
- WPS description of the process generating the waste;
- WPS description of the chemical and physical properties of the waste;
- Any additional documentation supplied by the generator, including information that the waste is subject to a Land Disposal Restriction of 40 CFR Part 268;
- Results of Mandatory Analyses if applicable (see Section 4.1.1);
- Results of Supplemental Analyses, as required.
- MSDS recommendations (when available).

A summary of particular data which, when observed on the WPS or during the Profiling phase, will subject the candidate waste stream to restrictions, special packaging requirements, or outright rejection from further consideration is provided as Appendix WAP-C.

A waste stream will be rejected during the profiling phase for the following reasons:

- Incomplete or outdated information supplied by the waste generator which cannot be supplemented by the generator.
- WPS information is inconsistent and the discrepancy cannot be resolved with the generator. Inconsistent information is that which is mutually exclusive based on scientific facts and principles (for example, WPS indicates that a waste containing 50% acetone is nonflammable).
- Sample analyses and WPS information are inconsistent and the discrepancy cannot be resolved with the generator.
- The facility is not permitted to treat, store, or dispose of the particular waste in question (for example, the waste is radioactive).
- The facility does not have the capacity to treat, store, or dispose of the waste stream in question.
- Facility experience with similar materials or standard reference materials (See Appendix WAP-F) indicates that this material cannot safely be incinerated by limiting size of charges or other processing controls. See Appendix WAP-C for Waste Acceptability Criteria.
- Facility Management is not assured of the ability of the facility to safely treat and store the waste.

The profile evaluation is concluded with documentation of the decision regarding the acceptability of the waste and the proposed method of management, including such special packaging requirements as may be required of the generator. The acceptability decision is embodied within the waste management decision. A master Waste Receipt Analysis Document (WRAD)(See Figure 5-1) will also be prepared by completing those sections of the form which require information gathered during the profile process (generator name, profile number, results of profile analyses, decisions restrictions, etc.). A copy of this master WRAD will be made at the time the waste is scheduled to transmit profile information to operations and the laboratory for the Incoming Waste Acceptance process.

FIGURE 4-1
GENERATOR'S WASTE MATERIAL PROFILE SHEET

Date Printed _____ Chemical Waste Management, Inc. ____ _____

WASTE PROFILE Profile #

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

GENERAL INFORMATION

1. Generator Name: _____ Generator USEPA ID: _____

2. Generator Address: _____ Billing Address: _____
(_) Same

_____ _____

_____ _____

3. Technical Contact/Phone: _____ _____

4. Alternate Contact/Phone: _____ Billing Contact/Phone: _____

PROPERTIES AND COMPOSITION

5. Process Generating Waste: _____

6. Waste Name: _____

7A. Is this a USEPA hazardous waste (40 CFR Part 261)? Yes (_) No (_)

B. Identify ALL USEPA listed and characteristic waste code numbers (D,F,K,P,U): _____

_____ State Waste Codes: _____

8. Physical State @ 70F: A. Solid(_) Liquid(_) Both(_) Gas(_) B. Single Layer (_) Multilayer (_) C. Free liq. range ___ to ___%

9A. pH: Range _____ or Not applicable (_) B. Strong Odor (_);describe _____

10. Liquid Flash Point: < 73F (_) 73-99F (_) 100-139F (_) 140-199F (_) >= 200F (_) N.A. (_) Closed Cup (_) Open Cup (_)

11. CHEMICAL COMPOSITION: List ALL constituents (incl. halogenated organics) present in any concentration and forward analysis

Constituents	Range		Unit Description
_____	_____	to	_____
_____	_____	to	_____
_____	_____	to	_____
_____	_____	to	_____
_____	_____	to	_____
_____	_____	to	_____
TOTAL COMPOSITION (MUST EQUAL OR EXCEED 100%):	_____		

12. OTHER: PCBs if yes, concentration _ _____ ppm, PCBs regulated by 40 CFR 761 (_). Pyrophoric (_) Explosive (_)
Radioactive (_) Benzene if yes, concentration _ _____ ppm. Shock Sensitive (_) Oxidizer (_)
Carcinogen (_) Infectious (_) Other Air Reactive ( ) Water Reactive ( )

13. If waste subject to the land ban & meets treatment standards, check here: _ & supply analytical results where applicable.

SHIPPING INFORMATION

14. PACKAGING: Bulk Solid (_) Bulk Liquid (_) Drum (_) Type/Size: _____ Other _____

15. ANTICIPATED ANNUAL VOLUME: _____ Units: _____ Shipping Frequency: _____

SAMPLING INFORMATION Sample Tracking Number: _____

16a. Sample source (drum, lagoon, pond, tank, vat, etc.): _____

Date Sampled: _____ Sampler's Name/Company: _____

16b. Generator's Agent Supervising Sampling: _____ 17. (_) No sample required (See instructions.)

GENERATOR'S CERTIFICATION

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

_____ _____ _____

Signature Name and Title Date

FIGURE 4-2

WASTE MANAGEMENT DECISION

Location of original _____

I. Generator and Facility Information

Tracking #: _____ Priority : _____
Profile # : _____ Date Received: _____
Effective Date: _____
Decision Site _____ Generator : _____
Proposed Management Facility _____ Waste Category Code: _____
Description : _____

II. Decision to Deny Approval for Management of Waste

Reason for Denying Approval

Initial Approval _____ Name (print) _____ Date _____

Final Approval _____ Name (print) _____ Date _____

b) Precaution Conditions or Limitations on Approval

(2) Contracting Conditions

(3) Site and Contracting Conditions

c) Analytical Requirements for Each Load

d) Decision Expiration Date _____

Initial Approval _____ Name (print) _____ Date _____

IV. Final Decision

State any Additional Precautions, Conditions, or Limitations

Final Approval _____ Name (print) _____ Date _____

5.0 INCOMING WASTE SHIPMENT PROCEDURES

In accordance with 264.13(c) and/or 35 Ill. Adm. Code 724.113(c), each shipment of waste, upon arrival at the facility, will be inspected as defined herein before the initiation of any further activity. This serves two purposes. First, it compares the actual waste identity with that determined in the profile process and that listed on the waste manifest. If the waste conforms to the expected descriptions and properties as determined during the profile review, then the information obtained during profiling can reasonably be used as the basis for managing the waste which arrives at the facility. Secondly, it provides a second level of assurance that the contemplated waste management technique can be utilized. Other CWM personnel (or a CWM-approved laboratory) can provide the Mandatory and/or Supplemental Analyses required prior to or concurrent with the arrival of the load. Waste shipments that have arrived at the facility are considered to be in the receiving process until such time that Facility Management makes a final decision regarding waste acceptability; at such time the wastes are considered accepted.

If the waste does not conform to the expected descriptions and properties as determined during the profile review (is found to be nonconforming), then the information obtained using the Mandatory Analyses and any Supplemental Analyses performed, will be utilized to manage the waste.

All waste shipments which are subject to the Land Disposal Restrictions of 40 CFR Part 268 and have been treated, exempted, varianced, or meet the appropriate treatment standard or prohibition without treatment must be accompanied by a form from the treater or generator, certifying that the treated, exempted, or varianced waste meets the appropriate treatment standard, prohibition, or variance (or that the untreated waste naturally meets the treatment standard or prohibition) and includes any applicable analytical data or reference to such data or documentation (in accordance with 40 CFR 268). Furthermore, all wastes which are subject to the land disposal restrictions and require treatment must be accompanied by a form from the generator (or treater) that (1) notifies that the waste contains prohibited constituents; (2) identifies the appropriate treatment standards associated with the material; and (3) includes any applicable analytical data or reference to such data (in accordance with 40 CFR 268). See Section 4.1.1 for a discussion regarding the information and data to be supplied by the generator.

5.1 Receiving Procedures

Incoming waste shipment identification begins upon arrival of the waste at the facility. The inspection, sampling and analysis of the incoming waste will be performed in accordance with the methods/parameters described in Sections 2.0 and 3.0.

In the case of container shipments not covered in the exceptions, each container in the shipment will have its contents visually inspected by obtaining a full depth vertical sample to verify that the contents are similar prior to compositing. The receiving technician will note physical state for each drum on the receiving documents (see Figure 5-1, Physical Description Worksheet), which the lab will compare to the profiled physical description of the waste. Incoming wastes will have its full depth vertical sample visually inspected for color and phase (liquid, solid, semi-solid). Drums of packaged chemicals will be randomly opened and inspected to verify that the drum is packed as identified in Section 5.1.1.

Upon delivery, 10 percent of the containers from each waste profile within a shipment, will be randomly selected and sampled, according to Section 2.0. In the event that a single drum of a specific waste profile is received, that drum will be sampled. A maximum of five containerized shipment samples from the same waste profile may be composited prior to analysis, provided the individual samples are similar in physical appearance.

For waste receivers over 80 drums, an additional single drum grab sample will be taken as part of the incoming analysis. The grab sample will be subject to normal receiving mandatory analysis. This grab will be compared to the profile data.

Where containers are to be randomly selected for sampling or inspection (including packaged chemical drum inspection), the containers to be evaluated will be selected using a random number table, or a random number generator on a personal computer or programmable calculator. Drum numbers will be assigned to the drums in a shipment upon off-loading prior to inspection or sampling. The random numbers will be generated to establish which containers will be evaluated at this time.

Container samples will be composited only with samples from the same profile which are of similar color and phase. In addition, if wastes from the same profile exhibit differences in physical appearance during the Mandatory Analyses and these cannot be resolved, (See 5.2.4) then all remaining containers will be sampled to determine which drums are conforming, unless a determination can be made from the container visual inspection.

Samples from incoming waste shipments will be subjected to Mandatory Analyses (see section 3.0). All such samples will be retained for a period required to approve the waste for incineration.

The results of the visual inspections and Mandatory Analyses will be documented on the waste receipt analysis document (WRAD), typical form attached as Figure 5-1. This form is used to document the profile evaluation data, the results of the Mandatory Analyses (see Section 3.1), and the determination of conformance/non-conformance (see Section 5.2).

5.1.1 Exceptions to Incoming Waste Analysis Procedures

The following materials, which are defined in Section 4.1.4, will not be sampled upon arrival but, at a minimum, will be subjected to a visual inspection as described below. These materials are not sampled because they exhibit unusual or impractical sampling and analytical complications and because sufficient chemical and physical data has previously been obtained:

1) Packaged chemicals and debris (see Section 4.1.4 for description). This inspection procedure will apply to those drums which are selected for verification of the drum inventory sheets (DIS). During the verification, these drums will be identified as conforming, non-conforming and processable, or non-conforming and discrepant. The definitions and responses will be as follows:

Conforming Drums: A drum that meets guidelines and all material is identified and corresponds with DIS. Conforming drums will be processed.

Processable Drums: A drum that is not conforming but sufficient information is available to determine its acceptability. The following are examples of processable drums:

1. Missing DIS but DIS available in approval package;
2. Material identified on DIS but not present in the drum;
3. Broken bottle(s) with legible labels(s);
4. Broken bottle(s) and label(s) destroyed, but material identifiable with logical deduction and DIS review;
5. Extra containers of identified material;
6. Extra identifiable and acceptable material;
7. Extra materials consisting of PPE and job supplies (e.g., markers, absorbent bags, cardboard);
8. Material on DIS present but quantities are incorrectly identified;
9. Non-containerized compound but identifiable from DIS;
10. Missing label but container type/size match DIS.

Processable drums will be accepted and processed. The generator or packer of processable drums will be notified of the inaccuracies associated with the processable drum. The generator or packer will also be notified that the continued receipt of processable materials versus conforming, will not be tolerated and will result in the issuance of deterrent measures, up to and including banning the generator/packer from sending hazardous waste to TWI for treatment.

Discrepant Drums: A drum where insufficient information is available to determine acceptability of the drum or the drum contains unacceptable material. The following are examples of discrepant drums:

1. One or more broken bottles where the contents cannot be determined;
2. Unidentifiable material;
3. Missing label and container does not match anything on the DIS;
4. Unacceptable material in drum;
5. DIS not available.

The portion of the drum which is discrepant will be rejected. All non direct charge drums will be inspected during processing in the Specialty Processing Building.

2) Empty containers as defined at 35 IAC 721.107(b). These wastes will be visually inspected upon receipt. In addition to differences in physical appearance, these wastes will be determined to be nonconforming when they contain material in quantities greater than 3% of the total volume of the container or more than one inch of residue remains on the bottom of the container or when the shipping container (overpack) has free liquids in more than the above quantities.

3) Pharmaceutical and other commercial products packaged in consumer quantities in their original untampered packaging. TWI will open and visually inspect 5% of the incoming outer containers of these materials to verify that the shipment contains consumer packages.

4) Commercial products or chemicals. TWI will open 5% but not less than one of the incoming containers of each incoming profile to ensure that the material is as described on the WPS.

5) Aerosol cans and Lecture Bottles: These wastes will be visually inspected upon processing into burnable charges.

6) Controlled substances defined in 21 U.S.C. Section 802. These types of materials will not be opened or sampled by TWI due to the regulations governing these materials. TWI will require an inventory from the packer of these materials as specified in the procedures outlined in Section 4.1.4. These materials are generated by a pharmaceutical company or health care agencies or state or federal agency.

7) Potentially Infectious Medical Waste (PIMW) as defined by IEPA.

8) Wastes which are visually identifiable through an inspection process. Wastes in original packaging will be subject to 5% inspection as per 5.1.1.4 above. Wastes which are not in original packaging will be subject to 100% visual inspection. Examples of these types of wastes are, batteries, cathode ray tubes, crushed glass, piping, filters and filter cartridges, wire or tubing, paper products, syringes, metal sheeting and parts, explosive components and devises. This list is not meant to be all inclusive, and may be expanded with local IEPA approval.

9) Prior Agency Approval: Materials which do not fall into one of the other exemption categories, but present impractical sampling or analysis complications. Use of this exemption will be granted on a profile specific basis, with initial review by the IEPA field office (Collinsville). Profile approval will be subject to IEPA-DLPC Permit Section written (e.g. fax) approval.

5.2 Incoming Waste Shipment Decision Evaluation Logic

After a waste has been received by the facility, inspected, sampled, and analyzed in accordance with Sections 5.1, 2.0, and 3.0, Facility Management will review the profile information, the Mandatory Analyses, and the manifest to determine whether the material received conforms with the profile information and the manifest, and whether it can be safely managed at the facility. The major functions in the process are as follows:

5.2.1 Waste Identification

Facility Management will rely on one or more of the following sources of information to determine the identity of the incoming material together with any other available information:

- Visual Inspection of the container contents.
- Sampling.
- Results of Mandatory Analyses.
- Appropriate Land Disposal Restriction Notification/Certification Form.
- Waste Manifest.

The information gathered from the above sources will be compared with information taken from the following sources developed during profiling (see Section 4.1):

- Waste Profile Sheet.
- Results of any analyses.
- Any additional documentation supplied by the generator, such as a Material Safety Data Sheet, product ingredient, etc.

Specific criteria for waste comparison are shown on the WRAD (Figure 5-1). Comparisons will be documented on the WRAD. Determination of conformance with specific parameters will be determined as described in Appendix WAP-D.

5.2.2 The Need for Additional Analyses

Facility Management will perform additional analyses according to the criteria in Section 3.3 when manifest information or results of the Mandatory Analyses do not conform or are inconsistent with profile information (i.e., if a waste is nonconforming as described in Appendix WAP-D or information gathered is mutually exclusive based on scientific facts and principles).

5.2.3 An Evaluation of Whether a Waste is Found to be in Conformance or Non-conformance

The Facility Management must classify the waste as being in non-conformance if it is significantly different from the information shown in the profile paperwork or on the manifest, or differs in quantity from that indicated on the manifest, in accordance with 40 CFR 264.72 and/or 35 Ill. Adm. Code 724.172.

Three major criteria are used to arrive at this decision. They are:

- o For bulk wastes, variations greater than 10% in volume or,
- o For batch wastes (e.g., drums, bags, etc.), any variation in piece count (i.e., the number of pieces listed on the manifest or drum inventory does not agree with the number of pieces received) or,
- o If inspection or analysis of any waste determines significant differences exist between the physical properties of the waste and the descriptions on the profile and/or shipping paperwork. Significant differences are:
  1) Variations from conformance criteria as described in Appendix WAP-D or;
  2) Analytical results which are mutually exclusive based on scientific facts and principles from the waste description on the manifest or profile paperwork.

5.2.4 An Evaluation of Whether Wastes Found to be in Non-conformance can be Accepted or will be Rejected

If the information collected in (1) and (2) above indicates that one or more of the incoming waste evaluation criteria is significantly different from the manifest or profile information, Facility Management must undertake to account for the apparent observed difference. This evaluation will include one or more of the following:

- o Review of sampling methods to verify representative sampling;
- o Supplemental Analysis, as specified in Section 3.3;
- o Further evaluation of the waste profile and incoming analytical or discussions with the generator.

If information gathered during this evaluation can resolve the discrepancy, the resolution of the discrepancy will be documented on the WRAD along with the results of the incoming waste analysis.

If discrepancies in incoming waste evaluation criteria cannot be resolved, the waste will be considered non-conforming and the results documented on the WRAD along with the results of the incoming waste analyses.

Wastes found to be in non-conformance will either be rejected or re-profiled for possible acceptance by the facility despite the variance.

Wastes that are rejected during unloading may be placed back on the truck for transportation, as arranged with the generator. Wastes that are rejected after the transporter has departed the facility are held

in a storage area holding only compatible materials, based on the Mandatory Analyses results. A record is kept of the location of all drums on-site at all times.

Alternatively, TWI may re-evaluate the waste to determine whether the waste material as shipped (i.e., inconsistent with WPS and/or manifest data) can be handled at the Facility. If the facility determines that the waste can be managed consistent with permit requirements, the shipment will be managed. The profile information will be amended prior to acceptance of the next shipment. Wastes to be re-profiled will be subject to the profile process requirements as set forth in Section 4.0.

If the re-evaluation procedure indicates that the waste can be accepted and the generator concurs, a revised waste management decision will be prepared by Facility Management, if the method of management changes.

If a discrepancy cannot be resolved within 15 days of shipment receipt, the IEPA will be notified, in writing, of the discrepancy and of attempts to reconcile it. Waste will be rejected for the following reasons:

- Facility Management for any reason determines that it cannot manage the material in compliance with all regulations, permit requirements, and standards of health and safety.
- A manifest discrepancy (or non-conformance) cannot be resolved to the generator's and TWI's satisfaction using the procedures outlined above.
- The generator's/transporter's paperwork is not in order and the problems cannot be corrected upon arrival.
- Storage space in container storage areas or in on-site bulk liquid storage tanks is not available to provide segregation of incompatible materials.
- A liquid waste is not compatible (per the Liquid Waste Compatibility Test) with waste already in storage and no segregation or other management method is available.

Rejected wastes will be picked-up by the generator or by a permitted transporter to be returned to the generator's facility or transported to an alternate hazardous waste treatment, storage, or disposal facility.

FIGURE 5-1

PHYSICAL DESCRIPTION WORKSHEET

AND

WASTE RECEIPT ANALYSIS DOCUMENT

T W I LABORATORY ANALYSIS REPORT

PROCESS CODE: _____

( ) PCB ANALYSIS REQUIRED
( ) VERIFY BURNABLE CONTAINERS
( ) VISUAL INSPECTION ONLY
( ) MERCURY ANALYSIS REQUIRED
( ) DIOXIN PRECURSOR ANAL. REQUIRED

RECEIVER No. _____

MANIFEST No. _____

No. of DRUMS: _____

DATE: _____

SAMPLER SIGN: _____

DRUM STORAGE COMPATABILITY
PROFILED DOT HAZARD CLASS: _____
RESULTS: PASS:_____ FAIL:_____

SAMPLE NUMBER		PROFILE	CONFORMS			
Drum No.			YES	NO	DATE	ANALYST
No. of layers						
Free Liquid (%)						
Pumpable						
Color						
Turbidity						
Apparent Viscosity						
Physical State						
Water Reactivity						
Water Solubility						
Radiation Screen						
Oxidizer Screen						
Cyanide Screen						
Sulfide Screen						
Flam. Pot. Screen						
pH Screen						
Specific Gravity						
Incidental Odor						
Paint Filter Test						
BTU/LB						
% Chlorine						
PCB's GC						
PCB's Screen						
Mercury						
Flash Point CCFP						

ACCEPT / REJECT

_____

ANALYTICAL COMMENTS: _____

PROFILE REVIEWED FOR APPENDIX WAP-C CONSTITUENTS BY: _____ DATE: _____

PROFILE & HANDLING COMMENTS: _____

PHYSICAL DESCRIPTION WORKSHEET

RECEIVER #_____ DATE _____

PROFILE #_____ # OF CONTAINERS_____

DRUM #	SIZE	COLOR/DESCRIPTION	%FULL	%SOL	%LIQ
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

6.0 PROCESS OPERATIONS PROCEDURES

Each movement of a waste within the facility, during which any change in its characteristics may occur, makes it subject to additional inspection, sampling and analyses to determine appropriate handling and management of the waste. Many of the analyses needed for the treatment, storage, and disposal functions are performed during incoming waste shipment identification. These are not repeated unless it is known or believed that the waste characteristics have changed during storage.

Existing and anticipated operations at the facility, for which current and periodic sampling and analyses is important, include the following:

-- Storage/Blending

-- Decanting

-- Incineration

The analytical procedures for each of these are described separately below.

6.1 Storage

Before any wastes are placed into a storage unit, Facility Management will assess the compatibility of the waste with the storage unit materials of construction and with wastes already stored therein.

6.1.1 Waste in Containers

Containerized wastes are stored with respect to ignitibility, reactivity and compatibility. Compatibility shall be determined consistent with DOT HM-181 guidelines as summarized in the "Segregation Table for Hazardous Materials" listed in 49 CFR 177.848 (see Appendix WAP-G). Based on the initial DOT hazard class determination and analysis of the waste, the drummed waste will be segregated according to compatibility. These materials will be separated from incompatible materials by storage in segregated bays within the drum storage buildings. This is accomplished by the data from the WPS, Mandatory Analyses, and Supplementary Analyses requested by the Facility Management. Compatibility segregation will not apply to material which have been repackaged, generated, or solidified at TWI.

To further verify that wastes are being properly categorized, TWI will institute a program of Containerized Storage Compatibility Testing. Compatibility will be assessed by performing a liquid waste compatibility on the waste received for container storage as outlined in Appendix WAP-A. The testing program will not apply to small quantity packaged chemicals or other material exempted under 4.1.4 and 5.1.1. In the event that a compatibility is performed on materials which are indicated as incompatible per DOT, the compatibility test will take precedence over the DOT segregation system.

6.1.2 Waste in Tanks

Liquid wastes delivered in bulk form (e.g., tank trucks, railroad tank cars), or pumped from drums, are typically placed in bulk storage tanks prior to incineration. Prior to transferring any waste into a storage

tank, the compatibility of the waste with the material already in the tank and the tank materials of construction will be determined by a liquid waste compatibility test (see Appendix WAP-A). In addition, tank farm compatibility will be assessed by performing a liquid waste compatibility test on the liquid waste received for bulk storage with a running composite of the tanks within the containment system to which the new waste will be added.

6.1.3 Bulk Solids Storage

Bulk solids will be managed as follows for unloading into the bulk solids pits:

1) Only material which passes the paint filter test can be placed into the storage pits.
2) The BTU and chlorine contents used will be either: (a) The higher value of the current pit or the incoming material, or (b) The material will be sampled after mixing and the sample will be analyzed for BTU and chlorine.

6.2 Decanting

In the decanting process, liquid wastes are decanted from drums or other small containers into larger bulk storage units. The applicable Mandatory Analyses will be performed on wastes to be decanted.

Prior to decanting, a Liquid Waste Compatibility Test and specific gravity test on a volume weighted sample will be performed to ensure that wastes to be bulked together are compatible. A volume weighted sample is a volume proportionate composite of the intended decant liquids.

6.3 Incineration

In the incineration process, liquid, semi-solid and solid wastes are destroyed by high temperature thermal oxidation. The resulting streams include combustion gases that are scrubbed to remove HCl and particulates, and other treatment residues (i.e., ash, slag and scrubber sludge, scrubber solids (bag house dust) that are further managed.

The treatment sampling/analysis program for incineration may be divided into two segments, each with a specific purpose:

- Pre-treatment analyses confirm that the waste falls within the facility permit and operating constraints and allow fine tuning of the process operational constraints;
- Treatment Residue Evaluations confirm successful treatment and that the characteristics of the process effluent are such that it can be sent to the next step (discharge, disposal, or further treatment) based upon permit or process constraints. Residues from on-site treatment of land disposal restricted wastes will be analyzed and/or evaluated, as needed, against the appropriate treatment standards or prohibitions. Any residues or wastes sent off site for storage, further treatment, and/or disposal will have appropriate notification forms (in accordance with 40 CFR Part 268).

The application of these segments is discussed below.

The application of these segments is discussed below.

6.3.1 Pre-treatment Analyses

All wastes fed to the incinerator are blended to meet permit constraints and to maintain steady state (normal) operation of the incinerator. Liquid waste is blended in bulk tanks prior to incineration. Pre-treatment Analyses (6.3.1 numbers 1-6) are optional for liquid waste in tanks which will undergo further blending prior to incineration. Prior to incineration, a sample is drawn from the tank to be fed and analyzed for the following parameters:

1. Heat Value - Heat value is measured to control the feed rates of waste fed into the incinerators. The maximum heat value which can be burned per hour is established in the operating permit.
2. Ash Content - Ash content is measured to control percent ash of waste fed into the secondary chamber waste burners of the incinerators. The maximum ash content for waste fed into the secondary chamber is established in the operating permit. Where the permit has not established a limit, this analysis will not be performed.
3. Total Chlorine Content - Chlorine content is measured to control the percent chlorine in waste fed into the incinerators. The maximum chlorine content for waste fed into the incinerator is established in the operating permit.
4. Fluorine Content is measured and used in conjunction with chlorine and bromine content to determine the halogen content in waste feeds to the secondary chamber waste burners of the incinerators. The maximum halogen content for waste fed into the secondary chamber is established in the operating permit.
5. Bromine Content is measured and used in conjunction with chlorine and fluorine content to determine the halogen content in waste feeds to the secondary chamber waste burners of the incinerators. The maximum halogen content for waste fed into the secondary chamber is established in the operating permit.
6. pH Screen is used to protect the integrity of tank farm materials of construction and provide management data for proper blending.
7. Specific Gravity - This information is used to assure that the specific gravity of bulk or decant composite liquid is less than the design specific gravity for the storage tanks (s.g. = 1.5).

The permit operating values were established through a trial burn. The permit operating values may be changed if it is demonstrated through a trial burn that the new permit guidelines allow the incinerator to operate within the permit constraint and at a steady state (normal) operation.

The Facility Management will review the blend analyses to assure permit compliance and to assure that the blend will allow steady state (normal) operation of the incinerator. The blend will be readjusted whenever necessary to meet all permit specifications. This is accomplished through tank-to-tank blending with additional wastes. A Liquid Waste Compatibility Test will be performed prior to all tank-to-tank transfers of liquid waste. This new blend is then tested for the blend parameters, which are used to determine optimum blend characteristics as mentioned in the previous paragraph.

Containerized waste is sequenced for incineration through careful indexing of container feed. The parameters necessary for selection of proper feed sequence (Heat Value, Chlorine Content) are evaluated based on the Mandatory Analyses. For the materials identified in Section 5.1.1, the values of the above parameters are categorized based on physical and chemical composition information obtained per Section 4.1 and 5.1. Container feed sequences reflect an ongoing evaluation of operating experience.

6.3.2 Treatment Residue Evaluation

Post-treatment analyses and evaluation will confirm successful treatment and that the characteristics of the process effluent are such that it can be sent to the next step (discharge, disposal or further treatment) based on permit or process constraints. In accordance with 40 CFR 268.7(b), residues (or wastes) resulting from on-site treatment of land disposal restricted wastes are analyzed and/or evaluated, as needed, against the appropriate treatment standard (e.g., Constituent Concentration in Waste Extract (CCWE) values) or prohibition. The incineration process results in the generation of the following residues: ash, slag and scrubber system solids. Each residue has been thoroughly evaluated to develop a sampling frequency that is consistent and independent of the original wastes accepted for incineration. Wastes or treatment residues sent off-site for further treatment will be accompanied by the appropriate notification (or certification) forms.

Incinerator ash and slag generated in the rotary kiln and dry scrubber solids generated in incineration units numbers 2, 3 or 4 are sampled, analyzed and evaluated on a regular basis (See Appendix WAP-B, Section 2.2.1) in accordance with analytical procedures required to analyze against the appropriate treatment standard or prohibition (See Appendix WAP-B).

Incinerator ash generated in the fixed hearth incineration units is either sampled, analyzed and evaluated on a load-by-load basis or is retreated and subsequently evaluated.

The Facility Management will review the analytical results and determine the disposition of the treatment residue. If the analytical results meet the appropriate treatment standard (e.g., CCWE value), the treatment residue is then approved for shipment. Each shipment is accompanied with the following documentation:

- Waste Manifest;
- Land Disposal Restriction Treatment Certification;
- Analytical Report or reference to such analytical data.

In the event that the analysis does not meet the appropriate treatment standard (i.e., CCWE values), the Facility Management will investigate the sampling procedure and the analytical procedure to ensure no contamination. Two additional samples will be submitted for analysis of the parameters which exceeded treatment standards in the first round of analysis. If the second analyses pass, the residue will be approved for disposal. If the source of the contamination can be determined, it will be documented. However, if the second analyses does not meet the appropriate treatment standard (i.e., CCWE values), TWI will retreat the residues in order to meet the appropriate treatment standard (i.e., CCWE values). Alternatively, TWI may forego additional sampling and analysis and choose to retreat the residue which did not initially meet the treatment standard.

7.0 QUALITY CONTROL POLICY

TWI has developed a program of quality control practices and procedures to ensure that precision and accuracy are maintained throughout all of its laboratories. All site laboratories are required to participate in this program. Contract laboratories employed by the company are subject to inspection and audit while performing analysis for CWM. A review of the contract laboratory is conducted to ensure that the quality control of CWM data is maintained.

The quality control program is based on "Handbook for Analytical Quality Control in Water and Wastewater Laboratories" EPA, March 1979. Good laboratory practices which encompass sampling, sample handling, housekeeping and safety are maintained at all laboratories. The following practices must be implemented at all site laboratories:

- All instrumentation must be evaluated through the use of an instrument check standard. Divergence from acceptable benchmark criteria requires correction. The instrument check standard results are recorded. The record may also contain evaluation parameters, benchmark criteria and maintenance records.
- Reagent blanks are typically prepared with each batch of samples and analyzed to ensure sample contamination has not occurred. If blank analyses do not fall within acceptable limits, modification of reagents or modification of the analytical method is implemented.
- A sample is analyzed in duplicate typically for each twenty samples being analyzed for a particular parameter. A blind duplicate sample will be submitted to the laboratory on a monthly basis. Results of these duplicate analyses will be reviewed for consistency.
- A quality control solution or sample material will be analyzed at least once for each day or each batch run to show that calibration and standardization of instrumentation is within acceptable limits. This procedure informs the laboratory that prescribed precision and accuracy are being maintained. Results of these analyses are reported for review.
- Fortifications are employed to monitor recoveries and maintain extraction and/or concentration techniques at acceptable levels. This procedure provides information about the effect of the sample matrix on the analyte in question. Typically, a ratio of one fortification for each twenty samples analyzed will be maintained. Usually, the same sample used for the duplicate analysis will be fortified.

-- When available, reference materials from the National Institute of Standards and Technology, or reference materials from any other recognized source, will be obtained and analyzed according to normal laboratory methodology to indicate accuracy of the methods. These materials will be analyzed at least quarterly if the parameter has been performed during that quarter. Reference materials are not required for screening methods.

-- All CWM laboratories participate in "round robin" sample analyses. These samples will be submitted by the QA/QC Group and will be for the analysis of normal parameters. Results must be reported to the group. Digressions from the norms established by the majority of laboratories participating will be investigated and corrected.

-- At least one sample per month is sent to a CWM designated laboratory or a designated and approved contract laboratory for parallel analyses. These split samples or a report of both results are sent to the Quality Control Unit when an outside laboratory is employed. Samples sent to the designated laboratory will be logged in and analyzed without analysts' knowledge of site lab results.

-- The facility reports the following information on a monthly basis:

- o Number of samples analyzed
- o Number and results of duplicates
- o Number and results of fortifications
- o Instrument used
- o Frequency of occurrence for quality control check sample within acceptable limits
- o Mean and standard deviation of analyte in question.

The facility also reports intra-lab and round robin results as they occur and references material analysis at least quarterly.

A written copy of any third party contract laboratory's quality control procedures is submitted to CWM prior to approval. A quality assurance inspection is conducted to ensure that proper records and documents are present and maintained. All laboratories are subject to inspection and audit of all procedures while under contract to CWM. A review of the contract laboratory is conducted to ensure that the quality control is being maintained.

APPENDIX WAP-A

ANALYTICAL PROCEDURES

APPENDIX WAP-A
ANALYTICAL PROCEDURES

The following analytical procedures are designed to identify or screen waste. They are used by CWM, based upon its operating experience, as rapid but effective means for establishing key decision parameters pertinent to proper waste management. The analyses described in the sections below are based on ASTM and "Standard Methods" approved by EPA or are based on procedures and protocol formulated by CWM and meet CWM performance standards. Analytical procedures not listed below may be added as necessary with prior IEPA approval.

It should be noted that the information presented in this appendix is generic in character. Therefore, certain test methods are discussed which may pertain to treatment or disposal processes that are excluded from the facility for which the foregoing waste analysis plan is presented.

I. UNIQUE ANALYTICAL PROCEDURES

The following analytical procedures have been found by CWM to provide important quantitative information pertinent to certain processes. In some cases, these tests have been developed by CWM to provide information not available from "Standard Methods" in Section II which follows. In other cases, these tests are substituted for "Standard Methods" where they provide sufficient equivalent information.

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

Chlorophenoxy Herbicides by High Performance Liquid Chromatography (HPLC) - This method (CWM 92-78) is for the analysis of 2,4-dichlorophenoxyacetic acid (2,4-D), 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), and 2,4,5-trichlorophenoxypropionic acid (Silvex) in liquids and solids using HPLC/UV. The chlorophenoxy acids and esters are hydrolyzed to their respective salts by heating and stirring the sample with aqueous alkali. The salts are then converted to their respective acids by the addition of HCL. The aqueous solutions of the free acids are then analyzed using HPLC using ultraviolet detection.

Dissolved Sulfides - An aliquot of waste is mixed with distilled water. The solution/slurry is filtered through filter paper and the resultant filtrate is then analyzed for sulfide. Saturated antimony potassium tartrate and 1:1 hydrochloric acid are added and the color produced is visually compared with standards.

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

Metals Screen by X-Ray Fluorescence (XRF) - Waste samples may be prepared, if necessary, by grinding to a specified mesh size. The prepared sample is placed in a sample holder and positioned for reading. Instrument output identifies the presence of several metals for screening purposes. Semi-quantification of selected metals is then possible relative to matrix matched standards.

Microwave Aided Digestion - A portion of sample is weighed into an appropriate microwave digestion vessel and digested using a mixture of nitric and hydrochloric acids. The vessel is heated in a microwave oven using programmed steps to minimize the possibility of venting. After cooling, the contents are diluted to volume, filtered and analyzed by the appropriate method.

Organics Screen by Immunoassay - A portion of the waste sample is prepared for immunoassay screening (SW-846 4010) by using appropriate separation procedures (e.g., extraction, filtration, and/or thin layer chromatography). The extract is then mixed and incubated in a step-wise process inside antibody-coated tubes. The mechanics of mixing, incubating and measuring takes about 30 minutes and results in a color change in each tube. The color development is inversely proportional to the concentration of the antibody-specific analyte(s) of interest, e.g., herbicides, pentachlorophenol (PCP), pesticides, polyaromatic hydrocarbons (PAHs), or total petroleum hydrocarbons (TPHs).

PCB Screen by Immunoassay - A portion of the waste sample is prepared for immunoassay screening (CWM 93-81 and 94-82) by performing an extraction with methanol followed by filtration. The sample extract is then mixed and incubated in a step-wise process inside the antibody-coated tubes. The mechanics of mixing, incubating and measuring takes about 30 minutes and results in a color change in each tube. The color development is inversely proportional to the concentration of PCBs and is detected by a photometer.

Percent Acidity - Results are reported as percent of $CaCO_3$ equivalent or the particular specific species if known.

Percent Alkalinity - Results are reported as a percent of the specific alkaline species (e.g., CaOH, NaOH, etc.).

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

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

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

Tank Farm Compatibility - Assessed by performing a Liquid Waste Compatibility Test on the liquid waste received for bulk storage with a composite sample of the tanks within the containment system to which the waste will be added. Containment area master composite will be made up once per week. The incoming material will be checked against this master composite.

Viscosity - The viscosity of the material is visually evaluated using water as a reference for low viscosity. Viscosity is reported as low, medium, high or non-flowable, etc.

Containerized Storage Compatibility - Will be assessed by performing a Liquid Waste Compatibility Test on the waste received for container storage as follows:

a. The test program applies only to material that fails the paint filter test.
b. A master composite for each of the DOT hazard class categories will be maintained at the site.
c. The master composite will be made up initially by adding 100 mil. of each receiver in the category to an appropriately sized container.
d. When the need for compatibility verification has been determined, a compatibility test will be performed with the appropriate DOT hazard class category.
e. The compatibility test will be performed as follows:
    1. In order to ensure that the master composite represents the actual plant-wide inventory in each category, the master composite will be maintained in an appropriately sized container.
    2. A 100 mil sample of the incoming receiver will be checked with a 100 mil sample of the appropriate DOT hazard class master composite using the liquid compatibility test.
    3. If the receiver passes the compatibility test, the entire 200 mil mixture is added to the master composite. The receiver is then approved to be stored within any of the existing bays containing drums of that DOT hazard class category.
    4. If the receiver fails the compatibility test, the sample will not be added to the master composite.
    5. The receiver will be re-tested against one of the remaining DOT hazard class categories.

6. If the receiver is not compatible with any existing DOT hazard class master composite, the drums will be segregated in storage until such time that they can be moved directly to a process area for treatment.

The testing program will not apply to small quantity packaged chemicals, material that has been repackaged or solidified, or other material exempted under 4.1.4 and 5.1.1. In the event that a compatibility is performed on materials which are indicated as incompatible per DOT hazard class, the compatibility test will take precedence over the DOT hazard class system.

II. STANDARD ANALYTICAL PROCEDURES

PARAMETER	METHOD REFERENCE
Sample Work Up Techniques:	
Inorganic Techniques	
Acid digestion procedure for flame atomic absorption spectroscopy	1-3010
Acid digestion procedure for furnace absorption spectroscopy	8-84-07; 1-3020
Acid (Parr) Bomb digestion	8-91-61; 3-E886; E926; 6-Bulletin 4745
Acid digestion of oils, greases, or waxes	1-3030
Dissolution procedure for oils, greases, or waxes	1-3040
Acid digestion of sludges	8-84-08; 1-3050
Alkaline digestion (for solids)	1-3060
Organic Techniques	
Separatory funnel liquid-liquid extraction	8-84-22; 1-3510
Continuous liquid-liquid extraction	1-3520
Acid-base clean-up extraction	1-3530
Soxhlet extraction	1-3540
Sonication extraction	1-3550
Alumina Column Clean-up and Separation of Petroleum Wastes	1-3611
Flurosil Column Clean-up	8-84-22; 1-3620
Silica Gel Clean-up	1-3630
Sulfur Clean-up	8-84-22; 1-3660
Inorganic Analytical Methods:	
Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP)	1-6010
Antimony	
Atomic absorption, direct aspiration method	1-7040; 4-204.1
Atomic absorption, furnace method	1-7041; 4-204.2
Arsenic	
Atomic absorption, furnace method	8-84-10; 1-7060; 4-206.2
Atomic absorption, gaseous hydride method	1-7061; 4-206.3

PARAMETER	METHOD REFERENCE
Barium	
Atomic absorption, direct aspiration method	1-7080; 4-208.1
Atomic absorption, furnace method	1-7081; 4-208.2
Beryllium	
Atomic absorption, direct aspiration method	1-7090; 4-210.1
Atomic absorption, furnace method	1-7091; 4-210.2
Cadmium	
Atomic absorption, direct aspiration method	1-7130; 4-213.1
Atomic absorption, furnace method	1-7131; 4-213.2
Calcium	
Atomic absorption, direct aspiration method	1-7140; 4-215.1
Atomic absorption, furnace method	4-215.2
Chromium	
Atomic absorption, direct aspiration method	1-7190; 4-218.1
Atomic absorption, furnace method	1-7191; 4-218.2
Hexavalent chromium: Co-precipitation	1-7195
Hexavalent chromium: Colorimetric	1-7196; 2-3500CrD
Hexavalent chromium: Chelation-extraction	1-7197; 4-218.4
Copper	
Atomic absorption, direct aspiration method	1-7210; 4-220.1
Atomic absorption, furnace method	4-220.2
Iron	
Atomic absorption, direct aspiration method	1-7380; 4-236.1
Atomic absorption, furnace method	4-236.2
Phenanthroline method (ferrous)	2-3500FeD
Lead	
Atomic absorption, direct aspiration method	1-7420; 4-239.1
Atomic absorption, furnace method	1-7421; 4-239.2
Magnesium	
Atomic absorption, direct aspiration method	1-7450; 4-242.1
Manganese	
Atomic absorption, direct aspiration method	1-7460; 4-243.1
Atomic absorption, furnace method	4-243.2
Mercury (manual cold-vapor technique)	
In liquid waste	8-84-12; 1-7470
In solid or semi-solid waste	8-84-05; 8-84-12; 1-7471
Nickel	
Atomic absorption, direct aspiration method	1-7520; 4-249.1
Atomic absorption, furnace method	1-7521; 4-249.2
Selenium	
Atomic absorption, furnace method	8-84-13; 1-7740; 4-270.2
Atomic absorption, gaseous hydride method	1-7741; 4-270.3
Silver	
Atomic absorption, direct aspiration method	1-7760; 4-272.1
Atomic absorption, furnace method	1-7761; 4-272.2

PARAMETER	METHOD REFERENCE
Thallium	
Atomic absorption, direct aspiration method	1-7840; 4-279.1
Atomic absorption, furnace method	1-7841; 4-279.2
Zinc	
Atomic absorption, direct aspiration method	1-7950; 4-289.1
Atomic absorption, furnace method	4-289.2
Organic Analytical Methods:	
Gas Chromatographic Methods	
Halogenated Volatile Organics	1-8010
Non-halogenated Volatile Organics	1-8015
Aromatic Volatile Organics	1-8020
Acrolein, Acrylonitrile, Acetonitrile	1-8030
Phenols	1-8040
Phthalate Esters	1-8060
Organochlorine Pesticides and PCBs	8-84-22; 1-8080
Nitroaromatics and Cyclic Ketones	1-8090
Polynuclear Aromatic Hydrocarbons	1-8100
Chlorinated Hydrocarbons	1-8120
Organophosphate Pesticides	1-8140
Chlorinated Herbicides	1-8150
GC Scans	8-86-02; 3-E260
Gas Chromatographic/Mass Spectroscopy Methods	
GC/MS Method for Dioxin	1-8280, 8290
GC/MS Method for Volatile Organics	1-8240; 7-624
GC/MS Method for Semi-Volatile Organics	1-8250; 8270; 7-625
Infrared Spectroscopy Methods	3-D2621, D4053; 5-
Screening Methods:	
Physical Description	3-D4979
Flammability Potential Screen	3-D4982
Water Compatibility	3-D5058C
pH Screen	3-D4980
Sulfide Screen	3-D4978
Cyanide Screen	3-D5049
Commingled Waste Compatibility	3-D5058A
Polymerization Potential	3-D5058B
Oxidizer Screen	3-D4981
Paint Filter Test	1-9095
Bulk Density and Apparent Specific Gravity Screen	3-D5057

PARAMETER	METHOD REFERENCE
Miscellaneous Analytical Methods:	
Acidity	8-91-68; 2-2310
Alkalinity	2-2320
Ammonia	4-350.3
Anions by Ion Chromatography	8-87-40; 3-D4327; 4-300.0
Ash Content	8-91-69; 3-D482, D3174
Bromides	2-4500Br^-; 4-300.0, 320.1
Chlorides	2-4500Cl^-; 4-300.0, 325.3
Conductivity/Conductance	3-D1125; 4-120.1
Extraction Procedure	1-1310
Flash point	
Pensky-Martens closed-cup method	8-84-19; 1-1010; 3-D93
Setaflash closed-cup method	1-1020; 3-D3278
Cleveland open-cup	3-D92
Fluoride	2-4500F^-; 4-300.0, 340.2, 340.3
Free Cyanides	2-4500CN^-H,I
Halogen Content	3-D808, D2361, D4327
Heat Value	8-87-37; 3-D240, D2015
Oil and Grease	2-5520; 4-413.1, 413.2
Oxidation-Reduction (Redox) Potential (ORP)	3-D1498
Petroleum Hydrocarbons, Total Recoverable	2-5520F; 4-418.1
Phenols	2-5530, 6420; 4-420.1
pH Measurement	1-9040, 9041, 9045; 2-4500H^+; 3-E70; 4-150.1
Phosphates	2-4500P; 4-300.0, 365.1-4
Radioactivity Screen	8-87-36
Solids	
Total (TS) at 103-105°C	2-2540B; 4-160.3
Dissolved (TDS) at 180°C	2-2540C; 4-160.1
Suspended, Total (TSS) at 103-105°C	2-2540D; 4-160.2
Fixed and Volatile at 500°C	2-2540E, 2540G; 4-160.4
Specific Gravity	2-2710F; 3-D70, D891, D1217, D1429
Sulfates	2-4500SO_4^{2-}; 4-300.0, 375.3
Sulfur	8-87-40; 3-D129, D3177, D4327
Total and Amenable Cyanides	1-9010A; 2-4500CN^-C,G; 4-335.1
Total Chlorine Content	3-D808, D4327
Total Organic Carbon	2-5310; 3-D2579
Total Sulfides	1-9030; 2-4500S^{2-}
Toxicity Characteristic Leaching Procedure (TCLP)	1-1311
Viscosity	8-86-35; 3-D88, D446, D2983
Water Content	3-D95, D3173, E203

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

1- "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986 as amended by Update I (July 1992), U.S. Environmental Protection Agency, Office of Solid Waste (NTIS, 5285 Port Royal Road, Springfield, VA 22161) or more recent edition or revision (GPO, Supt. of Documents, Washington, DC 20402).

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

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

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

5- Infrared Analysis Method in IERL-RTP Procedures Manual: Level 1 Environmental Assessment (2nd Edition), EPA-600/7-78-201, October, 1978, or more recent edition.

6- "Acid Digestion Bombs", Bulletin 4745, Parr Instrument Company (Moline, IL 61265), or more recent bulletin.

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

8- "CWM Analytical Methods Manual", Chemical Waste Management, Inc., Analytical Programs, September 1992.

Standard analytical procedures listed here which are revised can be implemented upon the effective date of the revision, with notification to the IEPA-DLPC Permit Section.

APPENDIX WAP-B

ASH AND DRY SCRUBBER SOLIDS

SAMPLING PROTOCOL

APPENDIX WAP-B
ASH AND DRY SCRUBBER SOLIDS
SAMPLING PROTOCOL

1.0 PURPOSE

The TWI Incinerators destroy hazardous wastes in high temperature thermal oxidation processes. This procedure provides assurance that a representative sample of ash or dry scrubber solids (DSS) is collected for analysis.

2.0 SAMPLING

2.1 Sample Identification

2.1.1 Each sample container is labeled with date, time of day, sampler, and container identification number. The samples are logged into the laboratory Production Chain-of-Custody logbook upon delivery to the laboratory.

2.2 Sample Collection

2.2.1 Ash and DSS samples are collected, analyzed and evaluated on a quarterly basis to ensure the residuals met the LDR treatment standards.

2.2.2 Samples are collected as outlined in Section 2.2.1 of the WAP. An auger is typically used to obtain a representative sample of the ash or DSS. Each sample jar must be filled with ash or DSS.

2.2.3 Trained operations personnel will collect the sample and subsequently acknowledge custody by completing applicable sections of the laboratory Production Chain-of-Custody logbook. Sample preparation and analysis will be performed as soon as practicable following which the disposition of the ash (Section 4.0) will be determined.

2.3 Sampling Personnel

2.3.1 It is the responsibility of Facility Management to assign only qualified personnel to perform the ash or DSS sampling. Personnel that have been trained in the implementation of this procedure are considered to be qualified.

3.0 SAMPLE ANALYSIS

3.1 Each sample will be sent to a CWM or CWM approved lab for analysis of LDR constituents by the appropriate method.

3.2 The tracking of waste codes through the incineration process to the incinerator residuals will be done in accordance with TWI Standard Division Practice 1651.

4.0 DISPOSITION OF ASH AND DRY SCRUBBER SOLIDS (DSS)

4.1 Any container of ash or DSS that was sampled for testing in accordance to the appropriate treatment standard or prohibition, will be retained by the facility until results are available for evaluation.

4.2 The analysis results are evaluated against the LDR treatment standards for the codes in the container. The container is released if all treatment standards are met.

4.3 The analysis results are evaluated against the LDR treatment standards for all codes accepted by TWI. Meeting the treatment standards is demonstrated through the process.

4.4 When compliance with the LDR standards has been demonstrated, the material will be stabilized and subsequently disposed of at CWM approved hazardous waste management facilities. The manifest and Land Disposal Restriction Treatment Certification will be completed prior to shipment.

APPENDIX WAP-C

WASTE ACCEPTABILITY CRITERIA

APPENDIX WAP-C

WASTE ACCEPTABILITY CRITERIA

The following restrictions apply to the acceptance of wastes exhibiting certain properties or specific wastes at TWI. Prior to acceptance (see Section 5.2), the Mandatory Analyses and the Waste Profile Sheet will be evaluated against this appendix. Any restrictions identified will be documented on the waste management decision. The list of items under each of these headings is not meant to be exhaustive. The profiling process will include a review of the MSDSs and a search of the other bibliographic resources (see Appendix WAP-F) for synonyms, product names, common names. The nature of the restrictions are as follows:

REJECT - These Materials may not be processed at the facility.

Radioactive Wastes

Thorium Compounds

Uranium Compounds

Radioactive materials as defined by the TWI Part B RCRA Permit, or greater than 0.5 millirads per hour (per Section 3.1.4)

Permit Limited Wastes

F020

F021

F022

F023

F026

F027

F028

PCBs > 50 ppm (or other TSCA regulated PCBs)

Regulatory Specified Treatment Technology other than Incineration

D006 NiCd Batteries

DOO8 Lead acid Batteries

K069 Non-Calcium Sulfate

Other Unacceptable Wastes

Asbestos

SPECIAL PACKAGING - Wastes exhibiting the properties listed below (water/air reactive, malodorous, rapid heat release) during the profiling process may be accepted if they are shipped in special packaging, repackaged on site or if the material conforms to specifications allowing processing in existing TWI facilities.

Water/Air Reactive Wastes

Isocyanates

Nitrates

Chlorates

Perchlorates

Thionyl chloride

Metal turnings

Phosphorous

Metal hydrides

Silanes

Chloroformates

Methylamine

Oleum

Other water or air reactive wastes

Malodorous Compounds

Mercaptans

Sulfides

Waste which exhibits energetic characteristics

Waste which exhibits energetic characteristics (e.g., propellants, explosives, pyrotechnics, flammable liquids, etc.) will either be accepted per the Small Quantity Chemical guidelines or will be accepted per the following procedure.

When the volume of a waste stream or changes in incinerator performance indicates that a larger charge size is warranted, TWI will follow the following procedure:

1) The material will be reviewed using reference information, MSDSs where available, generator discussions or previous experience. Based on this review, TWI will determine if a larger charge size is acceptable.

2) When it has been determined that a larger charge size is acceptable, TWI will either:

   a) Determine if this type of material has been previously processed at TWI in larger charge sizes and thereby establish a charge size; or

   b) Conduct a test burn of the material to determine what charge size would be acceptable. This test burn will start with the quantity specified in the SQCG's of the energetic component and be increased by no more than double the previous charge from this starting point based on the incinerator operations. The incinerator operations parameters which will be evaluated to determine if charge size can be increased will be as follows:

      > Vacuum decrease in the primary or secondary chamber.
      > Temperature increase in the primary chamber of > 100°F
      > Visual interruption of the primary flame
      > Non-steady state gas flow.

NOTE: This test protocol may be utilized to establish revised charge sizes for all materials previously limited in the SQCG's. Test burn documentation will be provided to the IEPA-DLPC prior to implementing larger charge sizes.

DIOXIN TESTING - Wastes which contain greater than 0.01% of these constituents require dioxin analysis at a 1 ppm threshold before acceptance.

Erbon (2-(2,4,5-trichlorophenoxy)-ethyl 2,2-dichloropropanate))

Hexachlorophene (2,2-methylene-bis [3,4,6-trichlorophenol])

2,4,5-trichlorophenol

2,4,6-trichlorophenol

2,4,5-T (2,4,5-trichlorophenoxy acetic acid)

2,4,5-TP (2-(2,4,5-trichlorophenoxy) propanoic acid, Silvex)

2,3,4,6-tetrachlorophenol

Pentachlorophenol (PCP)

Ronnel (O,O-dimethyl O-(2,4,5-trichlorophenyl)phosphorothioate)

Debris from fire involving PCBs or the compounds listed above

Some of these wastes (Silvex, 2,4,5-T, and PCP) are detected by the screening tests which will be employed on dioxin suspect waste streams per the TWI Dioxin Suspect Waste Policy. Additional wastes listed above, if indicated by the generator on the profile information, will be tested using gas chromatograph techniques. The following are brand name products which include the compounds listed above (this list is not intended to be all inclusive):

AMCHEM	FARMCO FENCE RIDER	SPONTOX
AMINE 2,4,5-T	FENOPROP	SUPER D WEEDONE
AQUA-VEX	FORRON	T-NOX
BRUSH-RHAP	FRUITONE T	TORMANA
BRUSHTOX	INVERTON 245	TRANSAMINE
DACINE	KURON	TRIBUTON
DED-WEED	KUROSAL	TRINOXOL
DOUBLE STRENGTH	LINE RIDER	U 46
DOWCIDE 3	PENCHLOR	VEON 245
DOWCIDE 6	PENTACON	VERTON 2T
DOWCIDE 2S	PENWAR	VISKO RHAP LOW
DOWCIDE EC-7	PRILTOX	VOLATILE ESTER
DOWCIDE G-ST	REDDON	WEEDAR
ENVERT DT	SANTOBRITE	WEED-B-GONE
ENVERT T	SANTOPHEN	WEEDBEADS
EMULSAMINE BK	SILVI-RAP	WEEDONE
ESTERONE	SINITUHO	

APPENDIX WAP-D

DETERMINATION OF INCOMING WASTE

CONFORMANCE/NONCONFORMANCE

APPENDIX WAP-D

INCOMING WASTE CONFORMANCE/NON-CONFORMANCE

Incoming waste may vary from the information determined during the profiling phase due to the variability in the process generating the waste or in collection of the waste material. In order to determine whether a particular incoming waste stream conforms to the profile, the following criteria will be used. All other Mandatory and Supplemental analysis data collected will be used to allow TWI to determine the best method for processing the waste material.

1. pH Screen: A variation in the pH from the range specified in the profile documents may indicate a change in the waste stream. If a pH variation beyond the range specified on the liquid profile sheet, the procedures outlined in Section 5.2.4 will be initiated (e.g., a waste which is normally neutral is found to be corrosive). Materials will be evaluated for conformance as follows:

Profiling Analytical Result	Acceptable Range
< 2	< 2
2-12.5	2-12.5
> 12.5	> 12.5

Wastes profiled as pH 2 to pH 12.5 but shipped with an accompanying LDR form for D002 will be considered conforming at pH < 2 or pH > 12.5 if supported by the profiled chemical constituents.

2. Flammability Potential Screen: A variation in the thermal activity from the indicators specified in the profile documents will indicate a change in the waste stream. If the variation causes a change in the hazard class of the waste, the procedures outlined in Section 5.2.4 will be initiated (e.g. a material which did not exhibit flammability potential in the profiling phase does during the incoming shipment procedures).

3. PCBs: The unexpected presence of PCBs > 50 ppm contrary to that specified in the profile documents will indicate a change in the waste stream, which would initiate the procedures outlined in Section 5.2.4. TWI is not permitted to accept PCBs > 50 ppm or TSCA derived PCB wastes.

4. Radioactivity Screen: The presence of radioactive materials as determined by the radioactivity screen (see Section 3.1.4) will initiate the procedures as outlined in Section 5.2.4, leading to rejection of the material.

5. Apparent Viscosity: A significant variation in the apparent viscosity from that specified in the profile documents will indicate a change in the waste stream that would initiate the procedures outlined in Section 5.2.4.

APPENDIX WAP-E

CONTAINERIZED WASTE: SPECIAL SAMPLING PROCEDURES

APPENDIX WAP-E

CONTAINERIZED WASTE: SPECIAL SAMPLING PROCEDURES

1.0 PURPOSE

This procedure provides assurance that representative samples of the following containerized wastes are collected for analysis. Specifically, these are containerized wastes of debris and like material, adhesives and other highly elastic substances, and resins and other hard materials. Representative samples are collected by using multipoint sampling.

2.0 DEFINITIONS

2.1 Debris and like material - includes wood, bricks, concrete, vegetation, plastic sheeting, protective clothing, etc.

2.2 Adhesives and other highly elastic materials - sticky, glue-like, gummy, stretchable materials.

2.3 Resins and other hard materials - plastics and plastic components, epoxies and other physically similar materials that have hardened or cured.

2.4 Multipoint sample - A sample composed of subsamples collected from the same container that is representative the contents of the container.

3.0 INSPECTION

Each container will be evaluated prior to opening to determine it's integrity. After opening, the container's contents will be visually inspected to determine whether or not it conforms with its profiled description.

4.0 PERCENT SAMPLED

See Waste Analysis Plan Section 5.1.

5.0 SAMPLING

Multipoint samples based on inspection will be collected from containers selected for sampling. Sampling equipment will be selected based on results of the inspection. Samples will be in CWM custody from sample collection until transfer of custody to the analytical laboratory. Sampling equipment will be decontaminated prior to and after sampling each waste stream.

5.1 HIGHLY ELASTIC SUBSTANCES

Adhesives and other highly elastic substances will be sampled with a scoop or shovel and scissors or tongs. The procedure is to:

5.1.1 dip the shovel or scoop into the material to the depth of the blade and rotate;

5.1.2 lift the scoop or shovel with the sample and cut with the scissors or tongs, as appropriate;

5.1.3 wind the hanging portion of the sample onto the scoop or shovel and transfer the sample to the sample container by scraping the material from the shovel or scoop into the sample container.

5.2 DEBRIS AND LIKE MATERIAL

Debris and like materials will be sampled with scissors, hammer, chisel and tongs as appropriate. The procedure is to:

5.2.1 use hammer and chisel to collect samples of wood, brick or other hard material from the top of the container and place in the sample container with tongs;

5.2.2 use scissors to cut sample of tyvek and other easily cutable materials (padding, rubber, plastic sheeting, etc.) and place in sample container with tongs.

5.3 RESINS AND/OR OTHER HARD MATERIALS

Resins and/or other hard materials will be sampled with a hammer, chisel and tongs or scoop. The procedure is to:

5.3.1 Use hammer and chisel to reduce material(s) size so that it can easily be placed in a sample container and place the sample in the container with tongs or scoop.

6.0 SAMPLING PERSONNEL

It is the responsibility of Facility Management to assign only qualified personnel to perform specialized sampling of containerized waste. Personnel that have been trained in the implementation of this procedure are considered to be qualified.

7.0 SAMPLE ANALYSIS

Samples will be analyzed as specified in Sections 3.1, 3.2, and 3.3, and Figure 3-1 of the WAP. Additional analysis will be performed at the request of the Facility Management.

APPENDIX WAP-F

BIBLIOGRAPHY OF STANDARD CHEMICAL REFERENCE MATERIALS

APPENDIX WAP-F

BIBLIOGRAPHY OF STANDARD CHEMICAL REFERENCE MATERIALS

1. The Merck Index, Current Edition, 1983 Merck & Co. Inc., Rahway, NJ.

2. Dangerous Properties of Industrial Chemicals, Current Edition 1989, Van Nostrand Reinhold, NY NY.

3. Handbook of Reactive Hazards, Current Edition, 1987, Butterworths, London.

4. Condensed Chemical Dictionary, Current Edition, 1987 Van Nostrand Reinhold,NY NY.

5. CWM AS-400 computerized MSDS system, current version.

6. Farm Chemicals '91, Meister Publishing Co.

7. Chemical Synonyms & Trade Names, Current Edition, 1987 Gower Technical Press.

8. Lange's Handbook of Chemistry, Current Edition, 1985 McGraw-Hill.

9. Handbook of Reactive Chemicals, Current Edition, 1985 L. Bretherick.

10. Handbook of Chemistry & Physics, Current Edition, 1976 CRC Press.

APPENDIX WAP-G

HM-181 COMPATIBILITY CLASSES

APPENDIX WAP - G

HM-181 COMPATIBILTIY CLASSES

DOT Class	NAME
1.1 - 1.6	Explosives
2.1 - 2.2	Aerosol Cans
3	Flammable Liquid
4.1	Flammable Solids
4.2	Spontaneously Combustibles
4.3	Dangerous When Wet
5.1	Oxidizers
5.2	Organic Peroxides
2.3	Poisonous Gas Zone A & B
6.1	Poisonous Liquid Zone A
8	Corrosives
9	Miscellaneous N.O.S. Debris Non-Hazardous Material

CHEMICAL WASTE MANAGEMENT

PCB SCREENING POLICY

Revision 1
October 1991

I. INTRODUCTION

The Toxic Substances Control Act (TSCA) is the primary source of federal regulations affecting the management of Polychlorinated Biphenyls (PCBs). Most of the provisions of the TSCA regulations specified in 40 CFR Part 761 apply to PCBs only if PCBs are present in concentrations above specified levels. The 40 CFR Part 761 subpart D Storage and Disposal provisions apply generally to material at concentrations of 50 parts per million (ppm) and above. However, no provision specifying a PCB concentration may be avoided by diluting PCB containing materials unless otherwise specifically provided.

Furthermore, the Resource Conservation and Recovery Act (RCRA) is an additional source of federal regulations affecting the management of hazardous waste containing PCBs. The land disposal of liquid hazardous wastes containing PCBs at concentrations greater than or equal to 50 ppm is prohibited under the provisions of 40 CFR Part 268.32 (a)(2). The land disposal of liquid or non-liquid hazardous waste containing halogenated organic compounds (HOCs) including PCBs (see 40 CFR Part 268 Appendix III for a listing of HOCs) at concentrations equal to or greater than 1000 mg/L or 1000 mg/kg, respectively, is prohibited under the provisions of 40 CFR Part 268.32 (a)(3), (e)(1), and (e)(2) the "California List." In addition, the management of liquid hazardous waste containing PCBs at concentrations of 50 ppm or above as well as liquid or non-liquid hazardous wastes containing HOCs including PCBs (see 40 CFR Part 268 Appendix III for list of HOCs) in total concentrations equal to or greater than 1000 mg/L or 1000 mg/kg for liquid or solid, respectively, are specified under the provisions of 40 CFR Part 268.42. Finally, the land disposal of hazardous waste containing PCBs and identified by the listed hazardous waste code numbers K085 and F039 (multi-source leachate) is regulated under Specific Land Disposal Restrictions (LDR) provisions under 40 CFR Part 268.43. These regulations require PCBs to be treated to the following levels (Table I) prior to land disposal.

TABLE I

K085 & F039	Waste Water mg/L	Non-Waste Water mg/kg
Aroclor 1016	0.013	0.92
Aroclor 1221	0.014	0.92
Aroclor 1232	0.013	0.92
Aroclor 1242	0.017	0.92
Aroclor 1248	0.013	0.92
Aroclor 1254	0.014	1.8
Aroclor 1260	0.014	1.8

State and local agencies and permits may also regulate the management of PCBs. Compliance with these regulations is required wherever they are more stringent than federal regulations (e.g., certain states require that the PCBs be reported on a dry weight basis).

Additionally, TSCA addresses PCBs, not Aroclors. This includes incidentally produced PCBs and foreign produced materials that include Clophen•, Phenoclor•, Pyralene•, Kanechlor•, and Fenclor•

In order to assure that the appropriate practices are being applied consistently throughout Chemical Waste Management, Inc. (CWM) regarding the management of wastes which may potentially contain PCBs, it is important to define procedures to be employed throughout the company. Therefore, the following Policy and Procedures has been developed.

II. POLICY

A. The treatment, storage, and disposal of any TSCA regulated waste shall occur only at a TSCA approved treatment, storage, or disposal facility.

B. All PCB analyses required as a result of the application of this policy shall be performed by a CWM laboratory or a CWM approved waste laboratory.

C. Any waste that will be analyzed for PCBs in accordance with this policy shall not be accepted for storage, treatment, or disposal until PCB analyses have been completed and evaluated.

D. Any non-TSCA waste which meets the following criteria shall be treated as a PCB suspect waste until demonstrated otherwise, through chemical analysis.

III. PCB SUSPECT WASTE CRITERIA

The following criteria have been developed by Chemical Waste Management, Inc. through its extensive operating experiences as well as through review of various sources of literature for defining a waste as being PCB Suspect. These criteria are intended to supplement existing requirements which may have been imposed through permit conditions, administrative orders, or other agreements with federal or state regulatory agencies.

A. Generator-Defined PCB Waste

Any waste for which the generator has indicated on the "Generator's Waste Material Profile Sheet" or any other supporting documentation that PCBs are present below regulated levels.

B. Oil Bearing Waste

NOTE: Oil bearing wastes are defined as any material (liquid, solid, organic, or aqueous) containing oil as described on the "Generator's Waste Material Profile Sheet" (other supporting documentation) OR any material which exhibits the visual presence of oil. The visual presence of oil may include, but is not limited to, an oil emulsion, oil film, oil phase, or water soluble oil. It is the responsibility of the Laboratory Manager at each division to use sound judgment based on their analytical experience to make the final determination if a waste stream exhibits the visual presence of oil.

C. Municipal Waste Water Treatment Facility Sludge

D. Bulk Laboratory Wastes

E. Baghouse Dusts from Secondary Smelters (e.g., copper, aluminum)

F. Any Waste as Designated by the Laboratory Manager

G. All Wastes, Liquids or Solids, from the following:

1. Electrical Utility Company
2. Natural Gas Pipeline Transmission Company
3. Solvent Recovery, Reuse or Recycling Unit
4. Oil Recovery, Reuse or Recycling Unit
5. Oil Maintenance Centers
6. Pond Closures (including Pond Sludges and Dredgings)
7. Remedial Action Superfund Sites
8. RCRA Corrective Action Project*
9. Timber/Lumber Treating Facility
10. Hydraulic Equipment
11. ENRAC Remedial Action Projects*

* Unless demonstrated non-TSCA

12. Heat Transfer Units
13. Metal Machining (Cutting) Operations
14. Pesticide/Herbicide Manufacturing
15. Ink and Pigment Manufacturing
16. Oil Based Paint Manufacturing
17. Paper Recycling Operations
18. Roofing Felt Manufacturing or Processing
19. Auto Fluff
20. Non-WMI Waste Treaters
21. Chlorobenzene Manufacturing

IV. PROCEDURES

A. Pre-Acceptance Samples

Pre-acceptance samples are to be analyzed for PCBs by a laboratory if the waste stream meets any of the criteria specified in section III above.

B. Incoming Waste Shipment Samples

The need to analyze incoming waste shipment samples for PCBs will be established by the results of the sales sample analysis and evaluation of the sales sample Waste Profile Sheet information against this policy. Table II describes the overall requirements discussed below.

If a waste stream does not meet any of the PCB suspect criteria, then there is no specific requirement to perform PCB analyses on the incoming shipments of this waste stream unless specifically required under a Waste Analysis Plan (WAP).

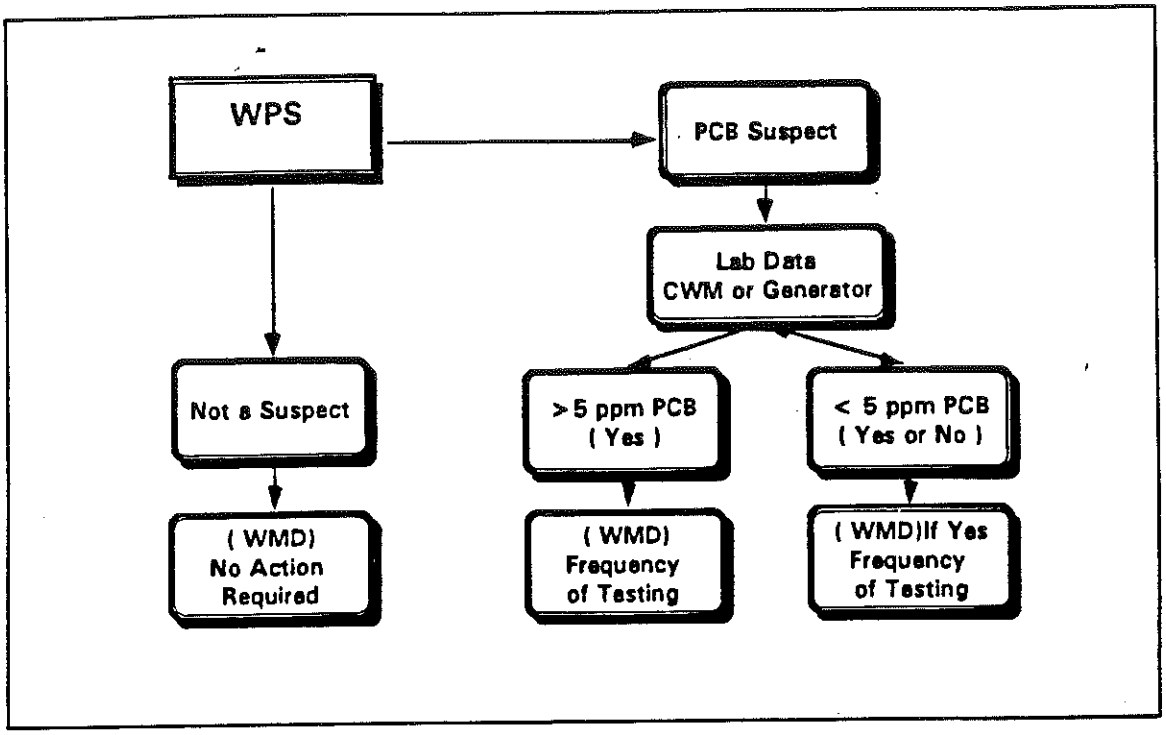
If a waste stream meets any of the PCB Suspect Criteria and the sales sample analysis indicates PCBs are less than 5 ppm[1] or the regulatory limit (The EPA TSCA office has recently specified concentrations of less than 2 ppm PCBs in treatment residues for approval and refer to Table I for listed code specifications), whichever is lower, then the laboratory/technical manager must specify on the Waste Management Decision (WMD) whether PCB analyses on incoming waste shipments are required and, if so, the frequency of analyses.

If a waste stream meets any of the PCB Suspect Criteria and the sales sample analysis indicates PCBs are above 5 ppm[1] or the regulatory limit, whichever is lower, then the laboratory/technical manager must specify on the WMD that PCB analyses on incoming waste shipments are required and the frequency at which that analysis is to be performed.

If the receipt material demonstrates a change in the waste from the pre-acceptance sample and it now meets the PCB suspect criteria, then PCB analysis must be performed before treatment, storage, or disposal.

[1] The specific criterion of 5 ppm is the typical laboratory reporting limit for PCB analysis. It is a conservative approach to protecting the integrity of non-TSCA facilities.

TABLE II



Meets PCB Suspect Criteria	*Sales Sample PCB Results	Receiving Procedures
No		No specific actions required.
Yes	<5 ppm	Specify in Waste Management Decision (WMD) whether PCB analyses on incoming waste shipments are required and, if so, the frequency of analyses.
Yes	>5 ppm	WMD must specify that PCB analyses are required on incoming waste shipments and must specify the frequency of those analyses.

* or the regulatory limit, whichever is lower.

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TRADE WASTE INCINERATION

DIOXIN SUSPECT ANALYSIS POLICY

SEPTEMBER 28, 1994

TWI DIOXIN ANALYSIS POLICY

I. INTRODUCTION

Trade Waste Incineration is implementing this policy for the screening of wastes which may contain dioxins. This policy will identify the types of wastes which must be analyzed for dioxins or dioxin precursors prior to approval for acceptance as a waste stream at TWI. Implementation of this policy will provide a means of ensuring that potentially dioxin contaminated wastes are analyzed for dioxin content and subsequently managed appropriately according to applicable state and federal regulations. The final decision to manage a dioxin bearing waste must be made according to the conditions and restrictions of the governing facility Waste Analysis Plan and operating permits.

II. POLICY

A. Waste streams contemplated for management at TWI will be subjected to the Dioxin Suspect Waste Criteria during the decision evaluation process of the profiling procedure.

B. Wastes which are determined to meet the Dioxin Suspect Waste Criteria will require analysis for dioxin precursors prior to acceptance and management for treatment and disposal at the facility.

C. Wastes which are found to contain dioxin precursors at or above the site action level for precursors will require dioxin analysis prior to acceptance and management for treatment and disposal at the facility.

D. Wastes which are found to contain dioxins at or above the site action level will not be accepted for management for treatment and disposal at the facility until such time that treatment and disposal are allowed according to the conditions and restrictions of the governing facility Waste Analysis Plan and operating permits.

III. DIOXIN SUSPECT WASTE CRITERIA

The following criteria has been developed for defining a waste as dioxin suspect. These criteria are intended to supplement existing requirements which may have been imposed through permit conditions, administrative orders, or other agreements with federal or state authorities. Wastes considered under these criteria remain subject to all existing conditions imposed by Chemical Waste Management policies and environmental directives.

A. Generator Defined Dioxin Waste.

Any waste for which the generator has indicated on the "Generator's Waste Material Profile Sheet" or any other supporting documentation that dioxins or dioxin precursors are present at any level.

B. Wastes From the Following:

These wastes will be considered as suspect if they may have been subject to historical contamination from dioxins or dioxin precursors, or if the wastes contain a known dioxin or dioxin precursor material.

1. Timber/Lumber Treating Facilities.

2. Pesticide/Herbicide Manufacturing Facilities.

3. Manufacturers or Processes Using:

   a) mono-, di-, tri-, or tetrachlorophenols, and their chloro-phenoxy derivative acids, esters, amine, and other salts.
   b) pentachlorophenol
   c) mono-, di-, tri-, tetra-, penta-, or hexachlorobenzenes.
   d) trichlorophenoxypropionic acid (silvex)
   e) trichlorophenoxyacetic acid (2,4,5-T)
   f) hexachlorophene

4. Combustion products from sources outside of the CWM/WMX Technologies family of companies where such combustion occurred under uncontrolled conditions and the formation of dioxins or dioxin related compounds is suspected to have occurred (i.e. the combustion of PVC, CPVC, etc.).

C. Wastes bearing EPA hazardous waste numbers F032, F039, K001, K015, K016, K030, K042, K043, K085, K099, K105, K149, K150, and K151.

IV. PROCEDURES

A. Precursor Analysis:

Dioxin precursor analysis may be conducted by HPLC, GC or GC/MS, or immunoassay screen techniques following approved EPA methods or CWM modifications of such methods.

1. Profile Approval Samples: Profile approval samples are to be analyzed for dioxin precursors if the waste stream meets any of the criteria specified in section III above. Wastes which are being reprofiled or recertified due to changes in the process generating the waste, or as a result of generator information gathered during the non-conformance resolution during incoming analysis are also subject to the criteria specified in section III.

2. Incoming Waste Shipment Samples:

   a) The need to analyze incoming waste shipment samples for dioxin precursors will be established by the results of the profile approval sample analysis and an evaluation of the waste profile sheet information against the criteria established in this policy.

   b) If a waste stream does not meet any of the criteria established in section III of this policy, then there is no specific requirement to perform dioxin precursor analysis on the incoming shipment samples of the waste stream.

   c) If the receipt material demonstrates a change in the waste from the profile approval sample (i.e. information provided by the generator during the non-conformance resolution process), and it now meets the criteria established in section III of this policy, then dioxin precursor analysis must be performed as part of the incoming analysis.

   d) Wastes which meet the criteria established in section III of this policy and which exhibited negative screen results for dioxin precursors during profile approval analysis will not be screened upon receipt.

e) Wastes which meet the criteria established in section III of this policy and which exhibited positive screen results for dioxin precursors during profile approval analysis will be screened upon receipt if the profile approval screen indicated dioxin precursors above the precursor threshold value, and subsequent dioxin analysis confirmed dioxins below the dioxin threshold value (or not present). The incoming screen will be limited to only those precursors which were detected during profile approval analysis.

If the incoming screen indicates the presence of dioxin precursors, incoming dioxin confirmation analysis will be conducted if the levels of precursors in the incoming screen exceed the levels of precursors in the profile approval analysis with the following guidelines:

i) Profile approval precursor screen was positive, dioxin confirmation analysis was negative, none detected.

- and -

The incoming screen indicates precursor levels greater than a factor of 10 times above the profile approval results.

ii) Profile approval precursor screen was positive, dioxin confirmation analysis was negative, but dioxin was detected below threshold value.

- and -

The incoming screen indicates precursor levels greater than a prorated level above the profile approval results. The prorated level is determined as follows:

(DTL / DLD) X PPL

where: DTL = dioxin threshold level
DLD = dioxin level detected (profile approval)
PPL = profile approval precursor level

B. Dioxin Analysis:

Dioxin analysis will be performed, with the concurrence of the generator of the waste, following a dioxin precursor screen which indicates a precursor present at or above 0.01% by weight. Detection limits for dioxin analysis will be set at a 1 part per million threshold.

V. DEFINITIONS

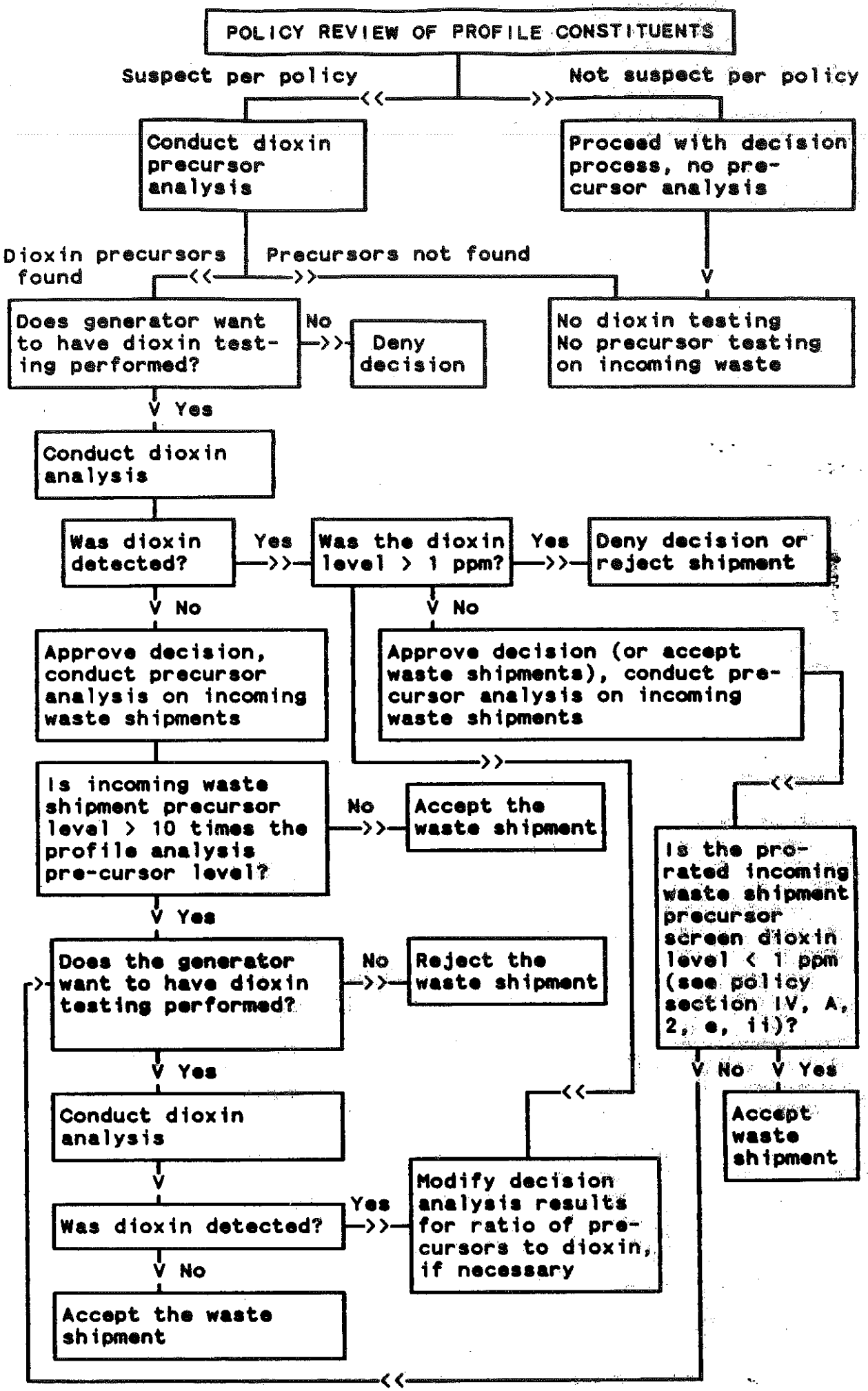
A. Dioxin: General family name for compounds known as polychlorinated dibenzo-p-dioxins (PCDDs). Specifically, "dioxin" is typically used to refer to 2,3,7,8-tetrachlorodibenzo-p-dioxin, or 2,3,7,8-TCDD.

B. Dioxin precursors: Chemicals which when manufactured have been shown to contain dioxins as a waste or by-product. Dioxin precursors are of similar chemical composition to dioxins. Some examples are 2,4,5-trichlorophenol, silvex, and hexachlorophene.

C. HPLC: High Pressure Liquid Chromatography. This analysis technique is used in CWM method #92-78, "The Analysis of Chlorophenoxy Herbicides using HPLC".

D. GC, GC/MS: Gas Chromatography, GC/Mass Spectroscopy. Analysis instrumentation used for the specific identification of numerous organic compounds. Typically, the methods for quantification of specific dioxins or dioxin precursors use GC or GC/MS techniques.

E. Immunoassay screen: A quick, semi-quantitative method of identifying the presence of a specific chemical or chemical family. Specifically, SW-846 Method 4010, Immunoassay Test for the Presence of Pentachlorophenol.


POLICY REVIEW OF PROFILE CONSTITUENTS
Suspect per policy
Not suspect per policy
Conduct dioxin precursor analysis
Proceed with decision process, no pre-cursor analysis
Dioxin precursors found
Precursors not found
Does generator want to have dioxin test-ing performed?
No
Deny decision
No dioxin testing
No precursor testing on incoming waste
Yes
Conduct dioxin analysis
Was dioxin detected?
Yes
Was the dioxin level > 1 ppm?
Yes
Deny decision or reject shipment
No
No
Approve decision, conduct precursor analysis on incoming waste shipments
Approve decision (or accept waste shipments), conduct pre-cursor analysis on incoming waste shipments
Is incoming waste shipment precursor level > 10 times the profile analysis pre-cursor level?
No
Accept the waste shipment
Yes
Does the generator want to have dioxin testing performed?
No
Reject the waste shipment
Yes
Conduct dioxin analysis
Was dioxin detected?
Yes
Modify decision analysis results for ratio of pre-cursors to dioxin, if necessary
No
Accept the waste shipment
Is the pro-rated incoming waste shipment precursor screen dioxin level < 1 ppm (see policy section IV, A, 2, e, ii)?
No
Yes
Accept waste shipment