US EPA RECORDS CENTER REGION 5
1006398

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone:419/547-7791XFax: 419/547-6144

August 14, 2006

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Vickery Environmental, Inc. (VEI) has requested a Class 2 permit modification. The modification will allow VEI to install a double-walled piping system for the transfer of waste liquids between the V-Tank building and T-Tank pumphouse as required by the facility's Part B Permit. The modification will also allow VEI to update the V-Tank to T-Tank P&ID drawing as well as add construction drawings into Appendix 14 of the Permit Application.

As required by OAC 3745-50-51(D)(2)(b), VEI is sending you this notification of this modifications because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

VICKERY ENVIRONMENTAL, INC.

Robert A. Smith
Vice President

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Vickery Environmental, Inc. (VEI), located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its Ohio Hazardous Waste Operating Permit in accordance with OAC 3745-50-51(H)(2). The modification will allow VEI to install a double-walled piping system for the transfer of waste liquids between the V-Tank building and T-Tank pumphouse as required by the facility's Part B Permit. The modification will also allow VEI to update the V-Tank to T-Tank P&ID drawing as well as add construction drawings into Appendix 14 of the Permit Application.

A 60-day comment period will be held from August 14, 2006, to October 12, 2006 Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Ms. Pamela Allen
122 South Front Street
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2980

VEI will host a Public Meeting to provide information related to these requests. The public meeting is scheduled for 5:00 pm, Thursday, August 31, 2006 at Vickery Environmental's Conference Room located at 3956 State Route 412, Vickery, Ohio.

The following individuals may be contacted:

VEI	Ohio EPA
Stephen C. Lonneman, General Manager	Jason Romp, On-Site Inspector
(419) 547-7791, extension 3305	(419) 547-6033
	(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

8/14/06

Dear Citizen:

Your name is on the "facility mailing list" for Vickery Environmental, Inc. (VEI). As required by OAC 3745-50-51 (F)(1)(c), VEI is informing you of the following Temporary Authorization Request.

On 8/14/06, VEI submitted to the Director of the Ohio EPA a Temporary Authorization Request. The Temporary Authorization Request is being submitted in order to allow VEI to begin the following construction activities associated with the Class 2 Permit Modification Request for the installation of a double walled piping system between the facility's V-Tanks and T-Tank pumphouse, that was submitted on August 10, 2006.

- Earthwork as described in the Structural Notes, sheet 10 (Part B page number 1376 O) of the Class 2 Permit Modification Request that was submitted on August 10, 2006.

- Concrete and Reinforcement as described in the Structural Notes, sheet 10 (Part B page number 1376 O) of the Class 2 Permit Modification Request that was submitted on August 10, 2006.

In accordance with OAC 3745-50-51 (F)(3)(b)(v) it is necessary to begin construction of the double walled piping system in order to facilitate changes that protect human health and the environment as soon as possible. Installation, during this construction season, of the double walled piping system will ensure that waste liquids transferred between the V-Tank building and T-Tank pumphouse are conducted within a contained piping system and that the current single walled piping system for the transfer of waste liquids is removed from services as soon as possible.

OhioEPA

State of Ohio Environmental Protection Agency

Northwest District Office

7 North Dunbridge Road
wling Green, OH 43402-9398

TELE: (419) 352-8461 **FAX:** (419) 352-8468
www.epa.state.oh.us

Bob Taft, Governor
Bruce Johnson, Lieutenant Governor
Joseph P. Koncelik, Director

June 30, 2006

Mr. Steve Lonneman, General Manager
Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

Re: Hazardous Waste Permit Modification
Class 2 Modification for Double-Walled Piping Installation
30 Day Notice of Action Letter
Vickery Environmental, Inc.
U.S. EPA ID# OHD 020 273 819
Ohio Permit # 03-72-0191

Dear Mr. Lonneman:

On April 3, 2006, Ohio EPA received a Class 2 hazardous waste permit modification application (tracking number - 060403-2-1) from Vickery Environmental, Inc. (VEI) requesting to install double-walled piping for the transfer of waste liquids between the V-tank Building and T-tank Pump House.

In accordance with Ohio Administrative Code (OAC) Rule 3745-50-51 (D)(2)(f)(i)(e), VEI is hereby notified that Ohio EPA will make a decision on the above referenced Class 2 modification application within 30 days after the end of original 90-day regulatory time frame. The end of the original 90-day regulatory time frame is July 2, 2006. The required date of action is now August 1, 2006. Be advised that this extension of time does not preclude the Agency from taking any of the possible actions detailed in OAC Rule 3745-50-51 (D)(2)(f)(ii).

If you have any questions concerning this action, please contact Jason Romp of Ohio EPA's Northwest District Office at (419)547-6033.

Sincerely,

Shannon M. Nabors

Shannon M. Nabors
District Chief

JR/cs

pc: Harriet Croke, Region V, USEPA
Jeremy Carroll, EU, DHWM, CO
Pamela Allen, DHWM, CO
Jason Romp, DHWM, NWDO
Cindy Lohrbach, DHWM, NWDO
Dave Pollick, Sandusky County Health Commissioner
DHWM, NWDO File: Vickery Environmental, Inc.; Ohio Permit File

ec: Ed Merriman, DHWM, NWDO
Gary Deutschman, DHWM, NWDO
Jason Romp, DHWM, NWDO
Kiet Chung, DHWM, CO
Chuck Lowe, DDAGW, CO
Deborah Haubert, Sandusky Co. Health Dept.

OhioEPA

State of Ohio Environmental Protection Agency

Northwest District Office

orth Dunbridge Road
ing Green, OH 43402-9398

TELE: (419) 352-8461 **FAX:** (419) 352-8468
www.epa.state.oh.us

Bob Taft, Governor
Bruce Johnson, Lieutenant Governor
Joseph P. Koncelik, Director

May 17, 2006

Mr. Steve Lonneman
Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

Re: Hazardous Waste Permit Modification
Notice of Deficiency
Vickery Environmental, Inc.
Class 2 Modification for Double-Walled Piping Installation
U.S. EPA ID# OHD 020 273 819
Ohio Permit # 03-72-0191

Dear Mr. Lonneman:

On April 3, 2006, Ohio EPA received a Class 2 permit modification application from Vickery Environmental, Inc.

Ohio EPA, Division of Hazardous Waste Management (DHWM) has conducted a completeness/technical adequacy review of the above referenced modification application, and has determined it to be incomplete and technically inadequate. This application has been reviewed pursuant to the rules published in the Hazardous Waste Facility Standards Chapters in the Ohio Administrative Code (OAC) and the corresponding Federal regulations.

We have enclosed completeness/technical adequacy comments that are the result of this review. Please provide detailed information addressing all areas indicated on the comment sheet to Ohio EPA within 30 days of the date of receipt of this correspondence. This submission shall be in accordance with the following editorial protocol or convention:

EDITORIAL PROTOCOL

1. Old language is overstruck. Delete language overstruck in previous versions as necessary to maintain only current language and its immediate antecedent overstruck language.

2. New language is capitalized or redlined.

3. Page headers should indicate date of submission or version designation.

4. If significant changes are necessary, pages should be renumbered, table of contents revised, and complete sections provided as required.

5. Each original application, or amended version must be prefaced by an updated "List of Effective Pages." The purpose of this requirement is to create a standard mechanism to specify and verify the content of the Part B permit application. Each "List of Effective Pages" must contain, at minimum, an inventory of pages for the entire document, posting directions, and a chronology of versions. The inventory of pages must positively identify each effective attachment by its page, drawing, figure, or table designation, and, unless an original page, by its current version designation or date of submission as specified in the inventory of pages. Enclosed is an example of "List of Effective Pages" and associated page markings. RCRA Engineering Section, Division of Hazardous Waste Management, Central Office, Ohio EPA may authorize individual facilities to use an alternate method of specifying the content of their Part B permit application on a case-by-case basis.

6. Each original application, or version must be accompanied by a certification letter as specified in OAC Rule 3745-50-42(D).

Please send one copy each to:

Pamela Allen, Manager
Ohio EPA, DHWM
Regulatory and Information Services Section
122 S. Front Street
P.O. Box 1049
Columbus, Ohio 43216-1049

Harriet Croke, Chief
Ohio Permitting Section (HRP-8J)
Waste Management Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Please send two copies to:

Jason Romp, Environmental Specialist
Ohio EPA, Northwest District Office
347 North Dunbridge Road
Bowling Green, Ohio 43402

In the course of the technical adequacy review, we may request additional information if it is necessary to clarify, modify, or supplement previous submissions of information in order to substantively evaluate the permit application for adequacy.

Failure to submit a complete permit application or to correct deficiencies in the application may result in the following:

1) Revocation of your existing Ohio Hazardous Waste Facility Installation and Operation Permit;

2) Denial of the permit application; and

3) Referral of the matter to the Ohio Attorney General's Office for appropriate enforcement action.

We request that the facility contact me at (419)547-6033 within ten (10) days of receipt of this NOD to discuss each of the enclosed comments in order to make clear the information being requested. This can be accomplished by a conference call or meeting.

Thereafter, any questions concerning the review of this permit application and the level of detail expected should also be addressed to me.

Sincerely,

Gary S. Deutschman for

Jason Romp
Environmental Specialist
Division of Hazardous Waste Management

/cs

Enclosure

pc: Harriet Croke, Region V, USEPA
Jeremy Carroll, EU, DHWM, CO
Pamela Allen, DHWM, CO
Gary Deutschman, DHWM, NWDO
Cindy Lohrbach, DHWM, NWDO
Dave Pollick, Sandusky County Health Commissioner
DHWM, NWDO File: Vickery Environmental, Inc.; Ohio Permit File

ec: John Pasquarette, DHWM, NWDO
Ed Merriman, DHWM, NWDO
Gary Deutschman, DHWM, NWDO
Jason Romp, DHWM, NWDO
Kiet Chung, DHWM, CO
Lowe Chuck, DDAGW, CO
Deborah Haubert, Sandusky County Health Department

ATTACHMENT A

Vickery Environmental, Inc.
Class 2 Hazardous Waste Permit Modification
Notice of Deficiency
U.S. EPA ID# OHD 020 273 819
Ohio Permit # 03-72-0191

The following Ohio EPA comments are based on Vickery Environmental, Inc.'s (VEI) Class 2 Permit Modification Request (PMR) dated March 30, 2006 (i.e., PITS tracking number OHD020273819-060403-2-1) and regarding the installation of double-walled piping for the transfer of waste liquids between the V-tank Building and T-tank Pump House:

General Comments

1. The use of thermoplastics (PVC and CPVC) for an outdoor application raises some concern (PVC in particular) as thermoplastics are susceptible to degradation with UV exposure. Ohio EPA recognizes that VEI's use of insulation should minimize UV problems. However, Ohio EPA remains concerned where there are gaps in the insulation and where the clear PVC is exposed for the visual monitoring system. VEI should address how any unprotected PVC will be monitored for UV degradation.

2. VEI failed to provide information regarding the pumps used to transfer the wastes through the piping system. This information needs to be provided for the review of the piping system. The pump information, such as head and flow curves, is needed to determine the hydrostatic stresses the pipe walls will be subject to.

3. VEI failed to provide calculations and drawings for how the carrier (inner) piping is being supported within the containment (outer) piping. The calculations and drawings should be provided to show that the design of the inner piping will be adequately supported from vibratory and other stresses.

VICKERY

VICKERY ENVIRONMENTAL, INC.

3956 State Route 412, Vickery, OH 43464
Phone:419/547-7791XFax: 419/547-6144

April 4, 2006

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Vickery Environmental, Inc. (VEI) has requested a Class 2 permit modification. The modification will allow VEI to install a double-walled piping system for the transfer of waste liquids between the V-Tank building and T-Tank pumphouse as required by the facility's Part B Permit. The modification will also allow VEI to update the V-Tank to T-Tank P&ID drawing as well as add construction drawings into Appendix 14 of the Permit Application.

As required by OAC 3745-50-51(D)(2)(b), VEI is sending you this notification of this modifications because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

VICKERY ENVIRONMENTAL, INC.

Robert A. Smith
Vice President

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Vickery Environmental, Inc. (VEI), located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its Ohio Hazardous Waste Operating Permit in accordance with OAC 3745-50-51(H)(2). The modification will allow VEI to install a double-walled piping system for the transfer of waste liquids between the V-Tank building and T-Tank pumphouse as required by the facility's Part B Permit. The modification will also allow VEI to update the V-Tank to T-Tank P&ID drawing as well as add construction drawings into Appendix 14 of the Permit Application.

A 60-day comment period will be held from April 4, 2006, to June 2, 2006 Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Ms. Pamela Allen
122 South Front Street
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2980

VEI will host a Public Meeting to provide information related to these requests. The public meeting is scheduled for 5:00 pm, Thursday, April 27, 2006 at Vickery Environmental's Conference Room located at 3956 State Route 412, Vickery, Ohio.

The following individuals may be contacted:

VEI	Ohio EPA
Stephen C. Lonneman, General Manager	Jason Romp, On-Site Inspector
(419) 547-7791, extension 3305	(419) 547-6033
	(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone:419/547-7791•Fax: 419/547-6144

RECEIVED

NOV 29 2005

Technical Support and Permits Section
Waste Management Branch
Waste, Pesticides and Toxics Division
U.S. EPA - Region 5

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7000 1670 0002 6379 9344

November 21, 2005

Mr. Joseph P. Koncelik, Director C/O Pam Allen, DHWM, RISS, CO
Ohio EPA
Lazarus Government Center
P.O. Box 1049
Columbus, Ohio 43216-1049

Re: Vickery Environmental, Inc.
Notice of Deficiency for Class 2 Modification for Waste Analysis Plan

Dear Mr. Koncelik:

Vickery Environmental, Inc. (VEI) is pleased to provide the following response to your October 24, 2005 Notice of Deficiency (NOD) letter. Per direction with Ohio EPA on November 3, 2005, we are not providing responses to a number of Ohio EPA general and specific comments at this time. Instead, we have provide responses and corrections to Ohio EPA comments specific to VEI's original Class 2 permit modification that was submit as required by your July 11, 2005, Notice of Violation letter.

For ease of review, Ohio EPA language from the October 24, 2005, NOD letter is provide below in italics, followed by VEI's response.

General Comments

Ohio EPA General Comment 1: *The general facility standards and permit terms and conditions require that TSDFs employ appropriate Quality Assurance/Quality Control (QA/QC) procedures for their waste analysis. Because the WAP rules incorporate all the information necessary to comply with applicable rules and the permit, QA/QC information for analytical data collected to meet the requirements of OAC Rule 3745-54-13 is appropriate to include in the WAP.*

Therefore, to ensure that waste analysis decisions are based on data of known quality, and to document that appropriate laboratory QA/QC procedures are used, VEI's WAP must include or incorporate by reference a laboratory quality assurance plan (QAP) which contains the elements of appropriate laboratory QA/QC procedures. Likewise, VEI's WAP must also include or incorporate by reference appropriate sampling QA/QC procedures. The laboratory and sampling QA/QC procedures included in

the WAP should be in accordance with SW-846 chapter one or other appropriate guidance. Note that analytical method-specific QA/QC procedures should be included in either the laboratory QAP or the standard operating procedures (SOPs) for each method.

To view specific information to be contained in a WAP's laboratory QAP, VEI can refer Subsection C-2b of Ohio EPA's "Part B Review Checklist, Section C - Waste Characteristics," which is located online at the following internet address: http://www.epa.state.oh.us/dhwm/pdf/sec_c2.pdf. To view specific information to be contained in a WAP's sampling QA/QC procedures, VEI can refer Subsection C-2c of that same checklist. VEI is also encouraged to refer to Ohio EPA's June 2000, "Waste Analysis Plan Guidance," which is located online at the following internet address: http://www.epa.state.oh.us/dhwm/pdf/FinalGuidance.PDF. Specifically, Section 4.3.5 of that guidance addresses WAP Sampling QA/QC Procedures, while Section 4.4.3 addresses WAP Laboratory QA/QC Procedures.

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA General Comment 2 : *Besides VEI Method Number SSP-97-66, all of the facility's site specific methods are based on ASTM or U.S. EPA standard methods. Currently, many of VEI's site specific methods have gaps in section numbering and the content varies widely between methods. It is not adequate to copy selected sections from U.S. EPA or ASTM standard methods. Each site specific method should be a "stand alone document" and use standard document control format. The sections in each method should be numbered completely, consecutively and consistently, and they should contain information on standards preparation, calibration procedures and QA/QC. VEI must list all method sections and steps in its site specific methods so that laboratory technicians can perform the procedures consistently without having to refer back and forth between the standard method and site specific method.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA General Comment 3: *Most site specific methods have quality control sections that stipulate duplicate and spike analyses or other quality control measures. However, the sections do not include the procedural steps and rationale for these analyses, or the acceptance criteria or corrective action that will be conducted based upon the results. The facility should revise the sections to specifically explain the procedural steps and rationale for these quality control analyses, including the acceptance criteria and any actions that should result if the criteria is not met.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA General Comment 4: *There is no indication in the WAP or site specific methods of what waste analysis information or data is recorded and in what format it is stored. For effective review by Ohio EPA, information from laboratory tests (e.g., raw analytical data, quality assurance/quality control data, instrument calibration data, etc.) must be recorded and stored in a consistent manner. It is not necessary to have information management procedures specified in the site specific methods, but the WAP*

or QAP should discuss this subject in detail. However, the site specific methods should still make reference to the location in the WAP or QAP that discusses information management procedures.

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA General Comment 5: *Many of VEI's site specific methods state that "samples should be analyzed as soon as possible" (e.g., Method 97-68 at Section 6.2, Method VIC0789-2 at Section 4.1, Method SSP-97-66 at Section 4.1, and Method VIC0789-3 at Section 4.1). VEI should define a technical holding time for each method in accordance with approved methods where applicable. Please expand the statement presently included in each method to include a maximum amount of time that should not be exceeded between sample collection and sample analysis.*

VEI Response: VEI has included technical holding times for the site specific methods listed in Ohio EPA Comment 5. The corrected pages have been included as Attachment 1. Please note that VEI made additional corrections to sections 5.2, 5.3, 7.2 and 7.2.3 of page 485 in addition to the inclusion of a technical holding time.

Ohio EPA General Comment 6: *Many of VEI's site specific methods refer to EPA publication SW846 as "5W846." VEI should correct these references.*

VEI Response: The corrected pages for Ohio EPA General Comment 6 are include as Attachment 2.

Specific Comments

Ohio EPA Specific Comment 1: *In VEI's approved RCRA Part B Permit Application, WAP Appendix 1 is listed on page ii of the Table of Contents. However, in the replacement page for the Table of Contents for the August 16, 2005 Class 2 permit modification application, VEI has WAP Appendix 1 listed on page iii of the Table of Contents. VEI should correct this error so that the revised page for the Table of Contents will fit into the approved RCRA Part B Permit Application.*

VEI Response: The corrected Table of Contents Page requested by Ohio EPA Specific Comment 1 is included as Attachment 3.

Ohio EPA Specific Comment 2: *Section 9.1 stipulates that duplicates and spikes will be analyzed at a minimum of 1 in 20 samples. This section should explain the rationale for duplicate and spike analyses, including the criteria used to assess the analyses and what action will be taken based upon the data.*

VEI Response: Per a request from Ohio EPA, Vickery Environmental removed vague, but approved, QA/QC language such as "Follow current quality control policy and procedures" and added specific language that is currently listed in Waste Management QA/QC manual. No

changes have been made to the originally proposed modification request for this specific comment.

Ohio EPA Specific Comment 3: *Section 10.1 states that a quality control check sample is performed on each lot of sample tubes. This section should explain the rationale for the quality control check sample, including the criteria used to assess the quality control check sample and what action will be taken based upon the data.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 4: *Section 10.2 stipulates that duplicates and spikes will be analyzed at a minimum of 1 in 20 samples. This section should explain the rationale for duplicate and spike analyses, including the criteria used to assess the analyses and what action will be taken based upon the data.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 5: *The method does not discuss the preparation of the spike. This information should be included in Section 7 of the method.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 6: *Each waste stream accepted by the facility may have differing properties. Therefore, VEI should explain how the matrix spike mentioned in section 10.2 will be useful in assessing the accuracy of the method.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 7: *Since the method no longer states a level at which the facility considers the waste unacceptable (i.e., the level at which the sample fails the screen), VEI should explain at what concentration level the spike will be performed. VEI should also clarify this information in the method.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 8: *The numbering of this method begins with Section 19. VEI should adopt a standard document control format for this method with consistent section numbering. This method is based upon withdrawn ASTM standard test method D5049-90 (withdrawn 1999) which provided details on acidification and sample preparation. These procedures are absent from VEI's site specific method. Since VEI's site specific method is based upon a withdrawn ASTM standard test method, VEI must list all*

method sections and steps in its version of the method so that laboratory technicians can perform the procedure consistently without having to refer back and forth between the withdrawn standard method and site specific method.

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 9: *In section 20.1, the chemical formula for sulfuric acid should be* H_2SO_4.

VEI Response: The corrected page requested by Ohio EPA Specific Comment 9 is included as Attachment 4.

Ohio EPA Specific Comment 10: *The procedure listed does not discuss calibration, continuing calibration and/or calibration acceptance criteria. Section 8.0 does mention that a continuing calibration standard must fall within set limits, but the method fails to list these criteria and any action that is promoted by a continuing calibration standard that fails the criteria. The method must provide details on calibration and calibration acceptance.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 11: *The method fails to mention whether other common batch and sample specific quality assurance samples and spikes will be analyzed, and if so, what criteria and action will be used based upon these results.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 12: *This method is not adequate as an overall QA/QC method. It does not provide any indication of what criteria is used to define "in-house" limits, nor on how a trend in surrogate recovery will be defined. These procedures must be defined either within this method or referenced from the laboratory QAP.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 13: *In Section 8.6.2.5.1, the text does not explain why no further action is necessary if an apparent trend is present and the trend is "consistent with the matrix." The facility should define control charting procedures or other methods to define trends from QA/QC data*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 14: *For Section 8.6.2.6, it may not be acceptable to simply report the data as an estimated concentration. Severe recovery problems should require additional investigation into the likelihood of false positives or negatives. Rejection of the data, especially non-detected values for low biased data, may be necessary. The data validation criteria should be revised to include specific data qualification criteria and overall QA assessment procedures.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 15: *The procedure should give information on the calibration procedure that will be used for the instrument.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 16: *The method should give an indication whether manual or automatic temperature control is used for the instrument.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 17: *The stated rationale for the method (Section 2.0) is to define an optimum blend based upon a defined millivolt endpoint. However, in Section 7.3 it appears that the blend is already predetermined. Is the purpose of the method to define a safe blend ratio? The purpose of Section 7.3 should be clarified.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 18: *Section 8.0 requires that duplicates be taken at a minimum of 1 in 20 samples. VEI should explain how the facility will use this information. Presumably, the waste that will be duplicated will have little relationship to the other 19 waste samples. The relative percent difference of the waste being duplicated can be used to determine precision of the blend for that waste, but VEI provides no detailed information on the quality control criteria nor the actions that may result if the sample results are outside of the criteria. Please add this type of information to the method.*

VEI Response: Per a request from Ohio EPA, Vickery Environmental removed vague, but approved, QA/QC language such as "Follow current quality control policy and procedures" and added specific language that is currently listed in Waste Management QA/QC manual. No changes have been made to the originally proposed modification request for this specific comment.

Ohio EPA Specific Comment 19: *Section 1.1.2 lists "carbon", "1,2-", and "t-1,2-" as target analytes. These compound names appear incomplete. In addition, the list includes 1,1,2-TCE and 1,1,1-TCE,*

apparently in reference to trichloroethane isomers. In all cases, VEI should use proper nomenclature to designate target compounds. In the following section on retention times, these errors appear again. These sections should be revised.

VEI Response: VEI has corrected VEI Method Number 97-02. This correction includes corrected nomenclature. The corrected VEI Method Number 97-02 is included as Attachment 5. Please replace as appropriate in VEI's original modification request.

Ohio EPA Specific Comment 20: *Section 8.3 requires a calibration check standard be analyzed daily; however, there is no criteria listed for the acceptance of the check standard. VEI should discuss what criteria will be used for acceptance.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 21: *Section 8.4. VEI should explain what criteria is used to assess the instrument performance check standard. VEI should explain what actions are prompted if the IPC is outside of the QC criteria.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 22: *Section 8.5. VEI should explain what criteria is used to assess spikes. VEI should explain what actions are prompted if the spike recovery is outside of the QC criteria?*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 23: *Section 8.5 refers to Figure 9, but that figure is not shown in the method. VEI should include the figure in the method.*

VEI Response: VEI has corrected VEI Method Number 97-02. This correction includes all appropriate figures. The corrected VEI Method Number 97-02 is included as Attachment 5. Please replace as appropriate in VEI's original modification request.

Ohio EPA Specific Comment 24: *Section 10.2 refers to Figures 1 through 4, but those figures are not shown in the method. VEI should include those figures in the method.*

VEI Response: VEI has corrected VEI Method Number 97-02. This correction includes all appropriate figures. The corrected VEI Method Number 97-02 is included as Attachment 5. Please replace as appropriate in VEI's original modification request. Please not that VEI also added the revision date to the method.

Ohio EPA Specific Comment 25 *Section 12.3 stipulates that a sample matrix spike and a replicate matrix spike will be analyzed at a minimum of 1 in 20 samples. This section should explain the rationale for sample matrix spike and replicate matrix spike analyses, including the criteria used to assess such analyses and what action will be taken based upon the data.*

VEI Response: Per a request from Ohio EPA, Vickery Environmental removed vague, but approved, QA/QC language such as "Follow current quality control policy and procedures" and added specific language that is currently listed in Waste Management QA/QC manual. No changes have been made to the originally proposed modification request for this specific comment.

Ohio EPA Specific Comment 26 *Section 10.1 states that a quality control check sample is performed on each lot of sample tubes. This section should explain the rationale for the quality control check sample, including the criteria used to assess the quality control check sample and what action will be taken based upon the data.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 27: *Section 10.2 stipulates that duplicates and spikes will be analyzed at a minimum of 1 in 20 samples. This section should explain the rationale for duplicate and spike analyses, including the criteria used to assess the analyses and what action will be taken based upon the data.*

VEI Response: Per a request from Ohio EPA, Vickery Environmental removed vague, but approved, QA/QC language such as "Follow current quality control policy and procedures" and added specific language that is currently listed in Waste Management QA/QC manual. No changes have been made to the originally proposed modification request for this specific comment.

Ohio EPA Specific Comment 28: *Each waste stream accepted by the facility may have differing properties. Therefore, VEI should explain how the matrix spike mentioned in section 10.2 be useful in assessing the accuracy of the method.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 29: *Since the method no longer states a level at which the facility considers the waste unacceptable (i.e., the level at which the sample fails the screen), VEI should explain at what concentration level the spike will be performed? VEI should clarify this information in the method.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Ohio EPA Specific Comment 30: *The method does not discuss the preparation of the spike. This should be included in Section 7 of the method.*

VEI Response: Per direction from Ohio EPA on November 3, 2005, VEI is not addressing this comment at this time because it is outside the scope of the original modification request.

Also included as attachment 6 are corrections VEI wanted to include in the permit modification. The corrections are as follows.

Correction 1- VEI has included a new page 482, to include the correct revision date.
Correction 2- VEI has included a new page 483, to include a correction to sections 1.5.1 and 1.5.2.
Correction 3- VEI has included a new page 499, to include redline over the Revision Date.
Correction 4- VEI has included a new page 538, to include the correct revision date.

Please replace these pages as appropriate in the original modification submission.

If you have any questions regarding this information, please contact Dan Raezer at 419-547-3335.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

VICKERY ENVIRONMENTAL, INC.

Robert A. Smith
Vice President

RAS/dr

cc: Mr. Jason Romp, OEPA-NWDO (2)

ATTACHMENT 1

5.0 REAGENTS

5.1 Reagent Water, reagent water is defined as water in which an interference is not observed at or above the method detection limit (MDLs) of the analyte(s) of interest. Typically double deionized water, with electrical resistivity of > 1.0 mohms/cm at 25°C or electrical conductivity of < 1.0 microseimens/cm at 25°C, is used.

5.2 ~~Hydrochloric acid 1.0~~ Sulfuric Acid 0.5 N or appropriate concentration, prepare as directed in ASTM E200, or purchase certified reagent.

5.3 Sodium hydroxide, ~~1.0~~ 0.5 N or appropriate concentration, prepare as directed in ASTM E200, or purchase certified reagent.

6.0 SAMPLE COLLECTION, PRESERVATION AND HANDLING

6.1 All samples must be collected using a sampling plan that addresses the considerations discussed in the sites's Waste Analysis Plan.

6.2 The sample~~s~~ ~~should be analyzed as soon as possible~~ holding time is 14 days.

7.0 PROCEDURE

All Materials

7.1 Mount the electrodes and calibrate the system as recommended by the manufacturer.

7.2 Weigh an appropriate sample into a tared ~~250 mL~~ appropriate size beaker, using one of the following guidelines.

7.2.1 The sample weight can fall between one and ten grams.

7.2.2 A sample weight can be selected, which is 100 times the milliequivalent weight of the acidic or alkali species presented in Section 8.3.

7.2.3 For samples which react slowly with hydrochloric acid titrant, individual laboratory may specify a uniform sample size in order to increase precision of sulfuric acid the titrant.

GAS DETECTOR TUBE METHOD FOR CYANIDE

1.0 SCOPE AND APPLICATION

1.1 This method is designed as a screening device to detect ~~, for samples with a pH equal to or greater than 5, to detect~~ low level amounts of cyanide in a acidified atmosphere by the utilization of a gas detector tube as evolved hydrogen cyanide gas.

2.0 SUMMARY OF METHOD

2.1 A portion of the sample is acidified in an Erlenmeyer Flask to release hydrogen cyanide gas. The gas is funneled through a gas detector tube creating a stain inside the tube in proportions to the concentration of cyanide gas in the vapor. A definite color change in the tube indicates the positive presence of cyanide.

3.0 TERMINOLOGY

3.1 Screening Method means a preliminary qualitative or semi-quantitative test developed from classical qualitative and quantitative techniques. The method is designed to efficiently give the user specific information about the waste which will aid in determining waste identification, process compatibility and safety in handling.

4.0 SAMPLE STORAGE AND PRESERVATION

4.1 The sample~~s~~ ~~should be analyzed as soon as possible~~ holding time is 14 days. All liquid samples should be preserved with ~~2.5N~~ sodium hydroxide to adjust the pH range between 10 to 13, if pH is less than 10 and samples are to be stored.

5.0 APPARATUS

5.1 An ~~ground glass stoppered~~ Erlenmeyer flask.

5.2 A gas detector pump.

5.3 An automatic dispensing pipetor.

1.0 SCOPE AND APPLICATION

1.1 This method is designed to measure the redox potential for waste materials and will determine the optimum mix-ratio.

2.0 SUMMARY OF METHOD

2.1 The reducing waste will be blended with oxidizing wastes to an optimum potentiometric millivolt endpoint. Safe threshold limits will be determined to insure against all undesirable reactions.

3.0 DEFINITIONS

3.1 Reducing waste: This is a waste having a redox value less than 505 millivolts.

3.2 Oxidizing waste: This is a waste having a redox value greater than 505 millivolts.

3.3 Safe Threshold Limit: This is an endpoint warning value in millivolts potentiometrically determined.

4.0 SAMPLING AND STORAGE

4.1 All samples used in this procedure must be analyzed as soon as possible before degradation occurs, as there is no technical holding time established for this Vickery specific procedure. When the samples set too long the data may be inaccurate. The redox potential can change due to the samples' temperature and age. To be representative, each sample must be done as soon as possible after being received.

5.0 APPARATUS

5.1 Volt meter

5.2 Indicating electrode made of a noble metal such as platinum or gold

5.3 Reference electrode such as calomel or silver chloride

5.4 Combination redox electrode may also be used instead of 5.2 and 5.3

5.5 Glass beaker (used plastic if strong HF present)

GAS DETECTOR TUBE METHOD FOR SULFIDE

1.0 SCOPE AND APPLICATION

1.1 This method is designed as a screening device~~, for samples with a pH equal to or greater than 5,~~ to detect low level amounts of sulfide in a acidified atmosphere by the utilization of a gas detector tube as evolved hydrogen sulfide gas.

2.0 SUMMARY OF METHOD

2.1 A portion of the sample is acidified in an Erlenmeyer flask to release hydrogen sulfide gas. The gas is funneled through a gas detector tube creating a stain inside the tube in proportions to the concentration of sulfide gas in the vapor. A definite color change in the tube indicates the positive presence of sulfide.

3.0 TERMINOLOGY

3.1 Screening Method means a preliminary qualitative or semi-quantitative test developed from classical qualitative and quantitative techniques. The method is designed to efficiently give the user specific information about the waste which will aid in determining waste identification, process compatibility and safety in handling.

4.0 SAMPLE STORAGE AND PRESERVATION

4.1 The sample~~s~~ ~~should be analyzed as soon as possible~~ holding time is 7 days. All liquid sample should be preserved with ~~2.5N~~ sodium hydroxide to adjust the pH range between 10 to 13, if pH is less than 10 and samples are to be stored.

5.0 APPARATUS

5.1 An ~~ground glass stoppered~~ Erlenmeyer flask.

5.2 A gas detector pump.

5.3 An automatic dispensing pipetor.

ATTACHMENT 2

Rearranging the above equation yields the concentration of a sample corresponding to an instrumental measurement.

$$x = (Y-I)/s$$

where:

x = calculated concentration for the sample
Y = actual instrument response for the sample

14.Q REFERENCES

14.5 EPA SW846-9056; Anion Chromatography Method, Sept.1994

Vickery Site Specific

Procedure

SW846, Method 8000~~B~~

Determinative Chromatographic Separations

Method Number SSP-8000 Revised 2/26/02

~~"This method is confidential and is intended for the sole use and benefit of the Vickery Facility, and may not be modified, reproduced, circulated or quoted in whole or in part, except with the approval of the Vickery Facility. Vickery assumes no responsibility whatsoever for the precision and bias of results or the safety of any analysis utilizing this method unless performed by Vickery. It is the responsibility of the user of this method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. This method may be changed by Vickery at any time without notice to the user."~~

Vickery Site Specific Procedure

of

SW846, Method 3510C

Separatory Funnel Liquid-Liquid Extraction

Method Number SPP-3510 Revised 2/25/02

"This method is confidential and is intended for the sole use and benefit of the Vickery Facility, and may not be modified, reproduced, circulated or quoted in whole or in part, except with the approval of the Vickery Facility. Vickery assumes no responsibility whatsoever for the precision and bias of results or the safety of any analysis utilizing this method unless performed by Vickery. It is the responsibility of the user of this method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. This method may be changed by Vickery at any time without notice to the user."

ATTACHMENT 3

E.6 Post Closure Closure Cell Groundwater Monitoring Sampling & Analysis Plan . . . . . .
E.7 Statistical Method . . . . . .

F. PROCEDURES TO PREVENT HAZARDS . . . . . Behind Tab

Pages 372 - 388 4/15/99

F.1 Security . . . . . .
F.2 Inspection Schedule . . . . . .
F.3 Preparedness and Prevention . . . . . .

G. CONTINGENCY PLAN . . . . . Behind Tab

Pages 389 - 390 4/15/99

H. TRAINING PLAN . . . . . Behind Tab

Pages 391 - 392 4/15/99

I. CLOSURE REQUIREMENTS . . . . . Behind Tab

Pages 393 - 396 4/15/99

I.1 Closure Plan and Closure Cost Estimate . . . . . .
I.2 Post-Closure Plan and Post-Closure Cost Estimate . . . . . .
I.3 Financial Assurance for Closure and Post-Closure Care Costs . . .
I.4 Notice in Deed . . . . . .
I.5 Liability Insurance . . . . . .

J. OTHER FEDERAL AND STATE REQUIREMENTS . . . . . Behind Tab

Pages 397 - 429 4/15/99

J.1 Federal Laws and Permits . . . . . .
J.2 State Laws and Permits . . . . . .

K. PART B CERTIFICATION . . . . . Behind Tab

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APPENDICES

1. Waste Analysis Plan
Pages 432 - 582 8/12/05
2. Inspection Plan
Pages 583 - 617 4/15/99
3. Contingency Plan
Pages 618 - 723 4/15/99
4. Training Plan
Pages 724 - 753 4/15/99
5. Closure Plan

ATTACHMENT 4

19.0 INTERFERENCES

19.2 CYANTESMO paper is very sensitive to cyanide solutions weakly acidified with sulfuric acid and does not react with alkaline solutions. Strongly acidic solutions destroy the Cyantesmo reagent. To circumvent interferences by volatile oxidizing or reducing agents hydrocyanic acid can be set free by sodium hydrogen carbonate.

20.0 REAGENTS AND MATERIALS

20.1 Concentrated Sulfuric Acid (H_2SO_4). ~~Dilute 1:1 ,(v/v) Sulfuric Acid~~ (Reagent Grade or equivalent) ~~with water~~.

21.0 PROCEDURE

21.2 Acidify the sample with Sulfuric Acid ~~Solution~~(H_2SO_4). Gently shake the acidified solution.

21.3 After shaking, tear off the Cyantesmo test strip and position the strip so that the bottom of the paper is above the waste and the remainder of the strip extends up into the test tube. Then stopper the test tube.

ATTACHMENT 5

Method Modification
ASTM D5830

Standard Test Method

for

Solvents Analysis in Hazardous Waste

Using Gas Chromatography

Method Number 97-02 Revised 7/20/05

~~"This method is confidential and is intended for the sole use and benefit of the Vickery Facility, and may not be modified, reproduced, circulated or quoted in whole or in part, except with the approval of the Vickery Facility. Vickery assumes no responsibility whatsoever for the precision and bias of results or the safety of any analysis utilizing this method unless performed by Vickery. It is the responsibility of the user of this method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. This method may be changed by Vickery at any time without notice to the user."~~

1.0 SCOPE

1.1.2 The ASTM D5830-95 for Solvents Analysis in Hazardous Waste using Gas Chromatography is used to determine the following list of organic compounds in waste samples at the Vickery facility:

Acetone	t-1,2-Dichloroethylene	Propyl acetate
Acetonitrile	1,4-Dioxane	*i*-Propyl alcohol
Benzene	Ethanol	Pyridine
i-Butanol	Ether	Styrene
n-Butanol	2-Ethoxyethanol	Tetrachloroethylene
2-Butoxyethanol	2-Ethoxyethyl acetate	Toluene
Butyl acetate	Ethyl acetate	1,1,1-Trichloroethane
Carbon Tetrachloride	Ethyl benzene	1,1,2-Trichloroethane
Chlorobenzene	Methanol	Trichloroethylene
Chloroform	Methylene Chloride	Trichlorofluoromethane
p-Cresol	Methyl Ethyl Ketone	1,1,2-Trichloro-1,2,2-trifluoroethane
Cyclohexanone	Methyl Isobuytl Ketone	*o*-Xylene
o-Dichlorobenzene	Nitrobenzene	*p*-Xylene
1,2-Dichloroethane	n-Propanol	

1.5 List standard solutions preparations.
1.6 Establish current GC operating conditions and column types.

3.0 SUMMARY OF METHOD

3.1 Screening analysis for F-Coded Solvents in waste samples by direct injection, or by carbon disulfide extraction and injection of the extract into a gas chromatograph. Detection is achieved using a flame ionization detector (FID).

8.0 STANDARD PREPARATION

8.1 Stock Standard Solutions are prepared using ASTM D5830 with WM 97-02 Method Modification. There are four (4) stock standards containing 9.0% to 10.0% by weight of each compound depending on the number of compounds present in each of the standards. The standards and retention times (taken from the calibration done on the 6890B GC in June of 2005 and 5890RB in March of 2005) are:

5890RB RT(min)	6890B RT(min)	STDQC
3.423	3.598	Methanol
4.389	4.478	Methylene chloride
6.181	6.313	1,1,1-Trichloroethane
6.388	6.500	Chloroform
7.858	8.101	*i*-Butanol
11.015	11.101	Methyl Isobutyl Ketone
11.504	11.514	Tetrachloroethylene
14.092	14.109	Ethyl benzene
14.357	14.390	*p*-Xylene
15.297	15.324	*o*-Xylene

5890RB RT(min	6890B RT(min	STD1
3.898	4.078	Ethanol
4.464	4.655	*t*-1,2-Dichloroethylene
5.941	6.141	Ethyl acetate
7.484	7.645	1,2-Dichloroethane
9.363	9.497	1,4-Dioxane
13.011	13.072	Butyl acetate
13.975	14.031	Chlorobenzene
16.785	16.899	2-Ethoxyethyl acetate
17.137	17.241	Cyclohexanone
23.114	23.231	Nitrobenzene

5890RB RT(min)	6890B RT(min)	STD2
3.726	3.862	1,1,2-Trichloro-1,2,2-trifluoroethane
4.103	4.185	Acetone
4.300	4.450	*i*-Propyl alcohol
4.644	4.797	Acetonitrile
6.118	6.295	Methyl Ethyl Ketone
6.925	7.032	Benzene
8.019	8.0688	Trichloroethylene
9.361	9.421	Propyl acetate
10.718	10.745	Toluene
11.216	11.304	Pyridine

5890RB RT(min)	6890B RT(min)	STD3
3.476	3.636	Trichlorofluoroethane
5.674	6.003	*n*-Propanol
6.223	6.377	Carbon tetrachloride
9.208	9.493	*n*-Butanol
10.589	10.896	2-Ethoxyethanol
12.438	12.529	1,1,2-Trichloroethane
15.525	15.594	Styrene
17.020	117.184	2-Butoxyethanol
20.122	20.177	*o*-Dichlorobenzene
24.413	24.555	*p*-Cresol

8.2 Secondary dilutions of the stock standards to 0.90% to 1.0% concentrations are diluted with carbon disulfide. Weigh 1.0 gram of the stock standard, then add 9.0 grams of carbon disulfide to give a 0.9% or 1.0% standard. Note these retention times will shift with time, and are used only as reference to Figure 1 through 8.

8.3 Daily Calibration Check Standard (QC) is prepared with the same compounds present in the stock standard QC (STDQC) using the same procedure as the Stock Standard Solutions. This standard must be made from a different source.

8.4 Instrument Performance Check Standard (IPC) uses *n*-Nonane. Prepare a 10% by weight *n*-Nonane stock standard in Carbon disulfide. A second dilution to 1.0% by weight of *n*-Nonane in Carbon disulfide is used as the daily IPC.

8.5 Spike Solution used in fortifying waste samples consists of 1.0% Methanol, 1.0% *i*-Butanol, 1.0% MIBK in 97% water by weight. In spiking a sample, weigh a portion of the waste sample (approximately 1.0 gram) into a vial. Then introduce the spike solution (at approximately a 1:1 ratio) using a syringe directly in the waste sample and weigh. Use the worksheet shown in Figure 9 to calculate the percent recovery and relative percent difference of the spikes.

10.0 PROCEDURE

10.1 Sample Preparation

10.1.1 Analyzed liquid samples of a pH greater than 2 (pH>2) and less than 12.5 (pH<12.5) by direct injection as received into the GC. Samples with a pH less than 2 (pH<2) or greater than 12.5 (pH>12.5) should be diluted or extracted with Carbon disulfide prior to injection into the GC.

10.2 The recommended column and operating conditions for the Agilent 6890 GC and the Hewlett Packard 5890GC are:

10.2.1-6890B For capillary DB-1701 with FID

Column Flow Rate	0.6 ml N_2/min
Aux. or Make-up Gas Flow Rate	30 ml/min
Split flow	12 ml/min
Injector Temperature	250 °C
Detector Temperature	250 °C
Air flow for FID	300 ml/min (approx.)
Hydrogen Flow for FID	30 ml/min (approx.)
Initial Oven Temperature	35 °C
Initial Time	6.0 min
Level 1 Rate	6.0 °C/min
Level 1 Final Value	170 °C
Run Time	28.5 min
Slope Sensitivity	50 units
Peak Width	4 sec
Area Reject	45 area counts

Note the standards chromatogram are shown in Figures 1 through 4.

10.2.1-5890RB

Column Flow Rate	0.6 ml N_2/min
Aux. or Make-up Gas Flow Rate	30 ml/min
Split flow	0.6 ml/min
Injector Temperature	250 °C
Detector Temperature	250 °C
Air flow for FID	300 ml/min
Hydrogen Flow for FID	30 ml/min (approx.)
Initial Oven Temperature	35 °C
Initial Time	6.0 min
Level 1 Rate	6.0 °C/min
Level 1 Final Value	180 °C
Run Time	25.17 min
Slope Sensitivity	50 units
Peak Width	4 sec
Area Reject	2000 area counts

Note the standards chromatogram are shown in Figures 5 through 8.

12.0 QUALITY CONTROL

12.1 Instrument performance check will be performed on the GC each day of use.

12.3 Sample matrix spike and a replicate matrix spike will be performed at minimum of 1 in 20 samples.

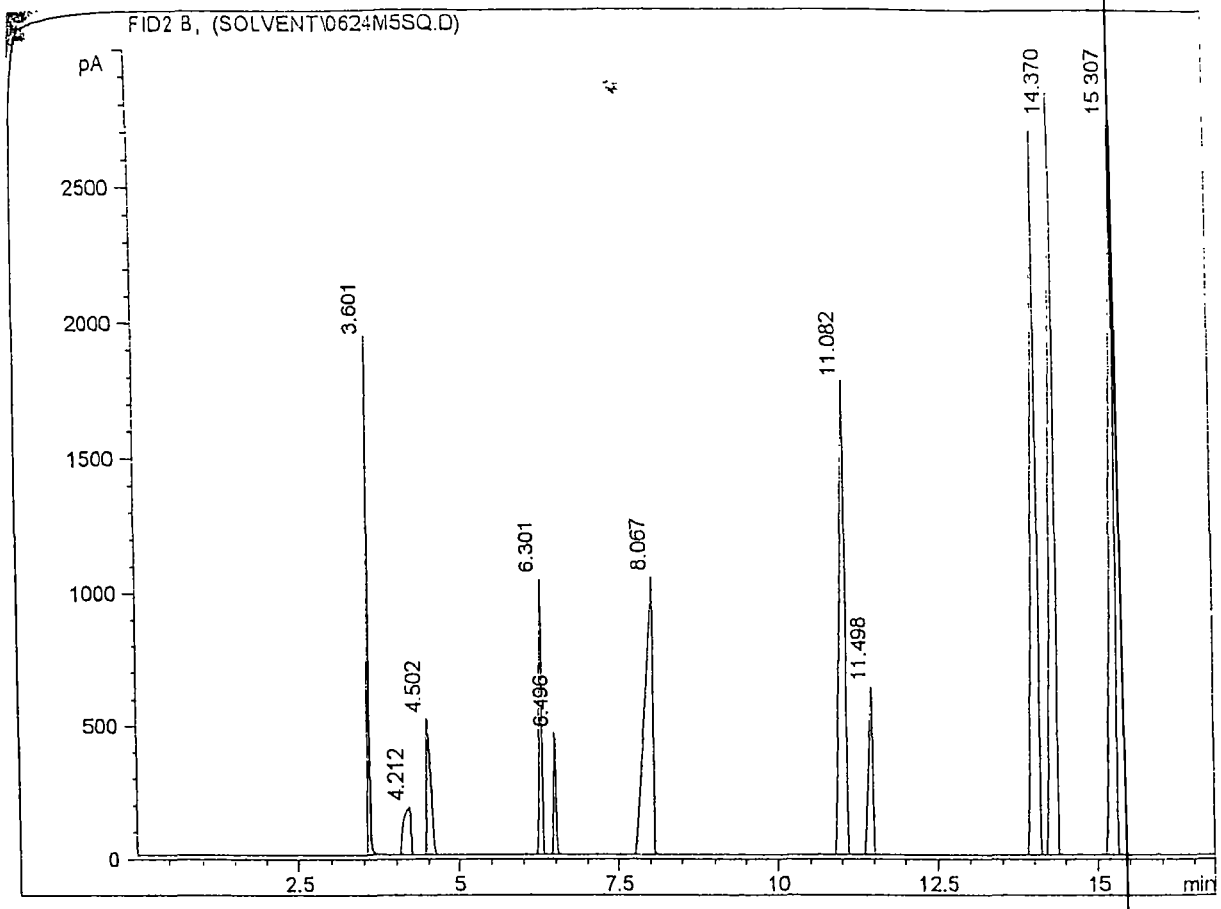

Figure 1: 6890B Solvent STD QC Chromatogram

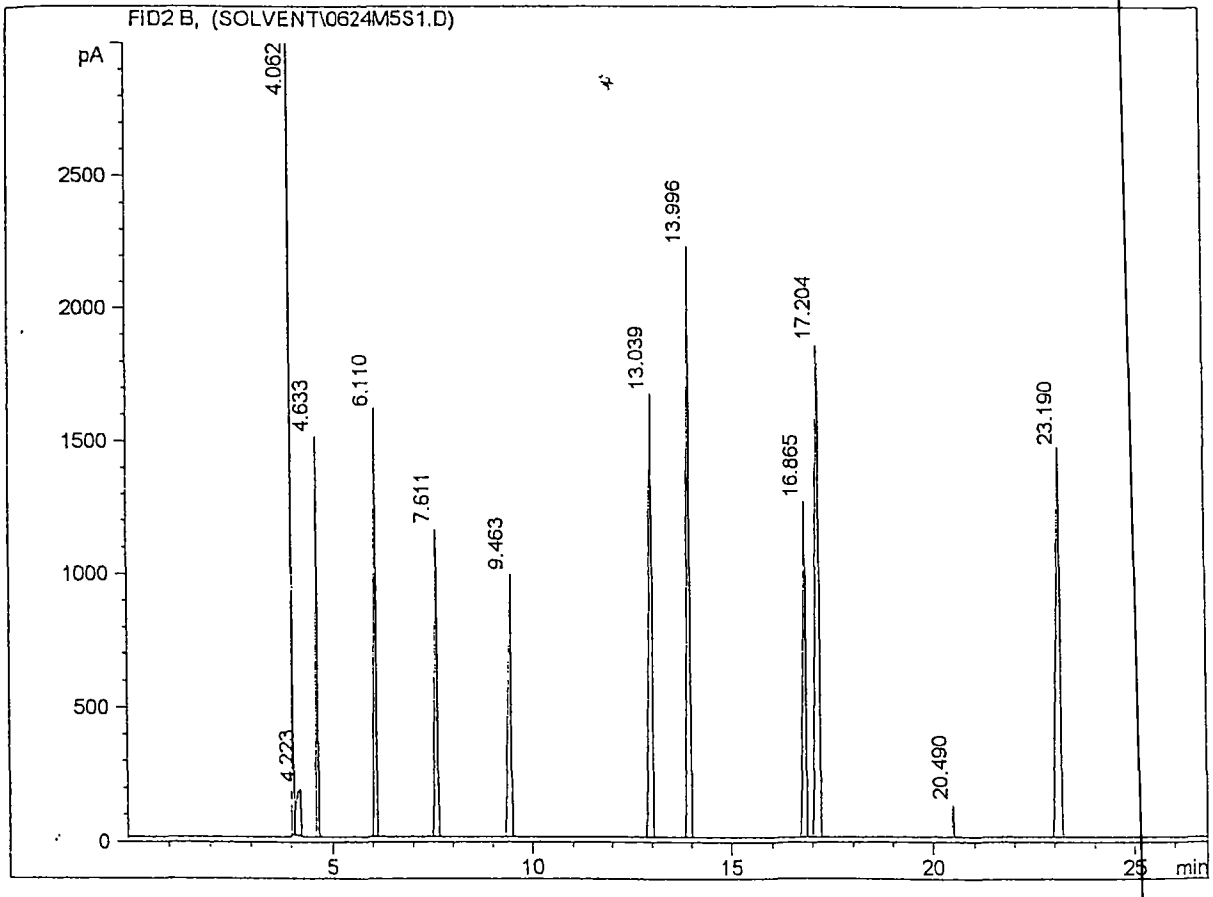

Figure 2: 6890B Solvent STD 1 Chromatogram

547A

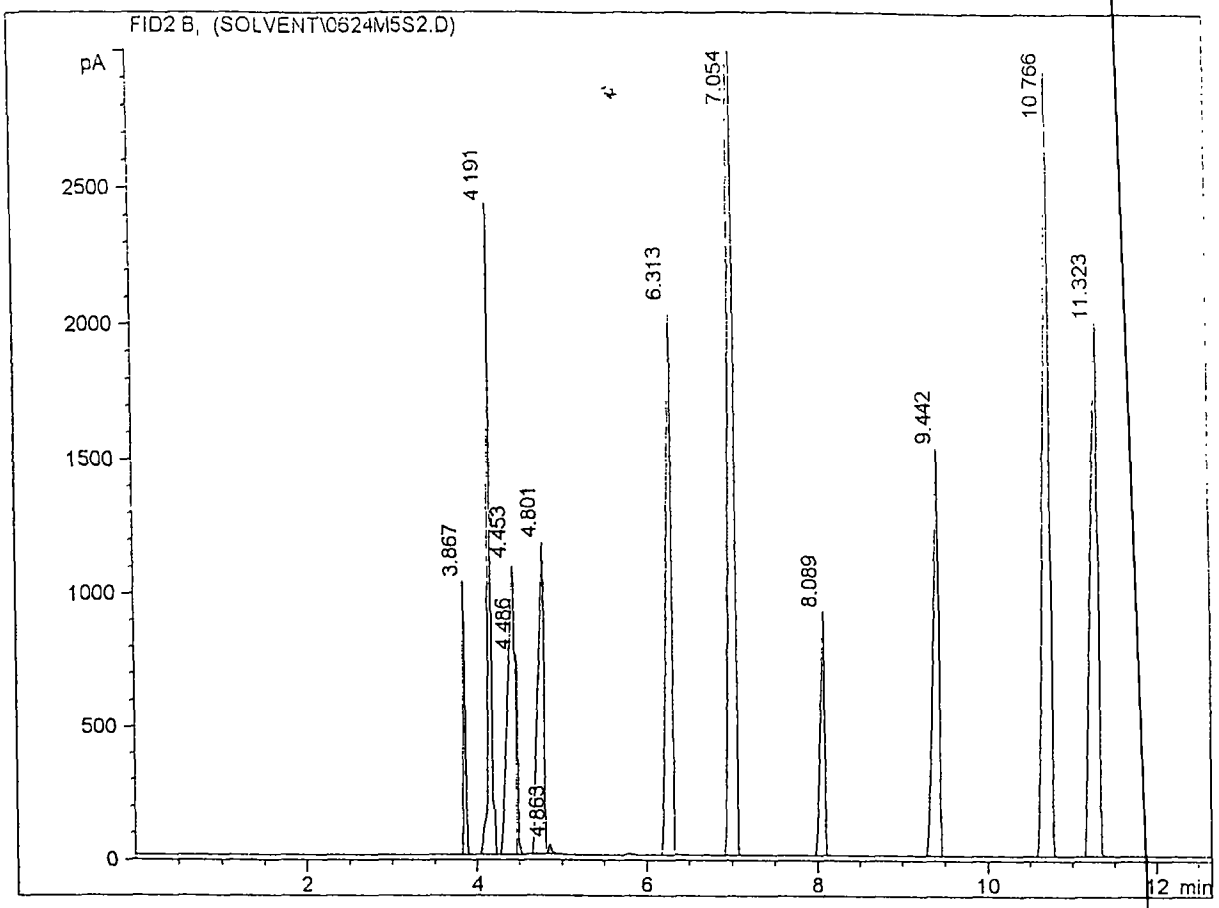

Figure 3: 6890B Solvent STD 2 Chromatogram

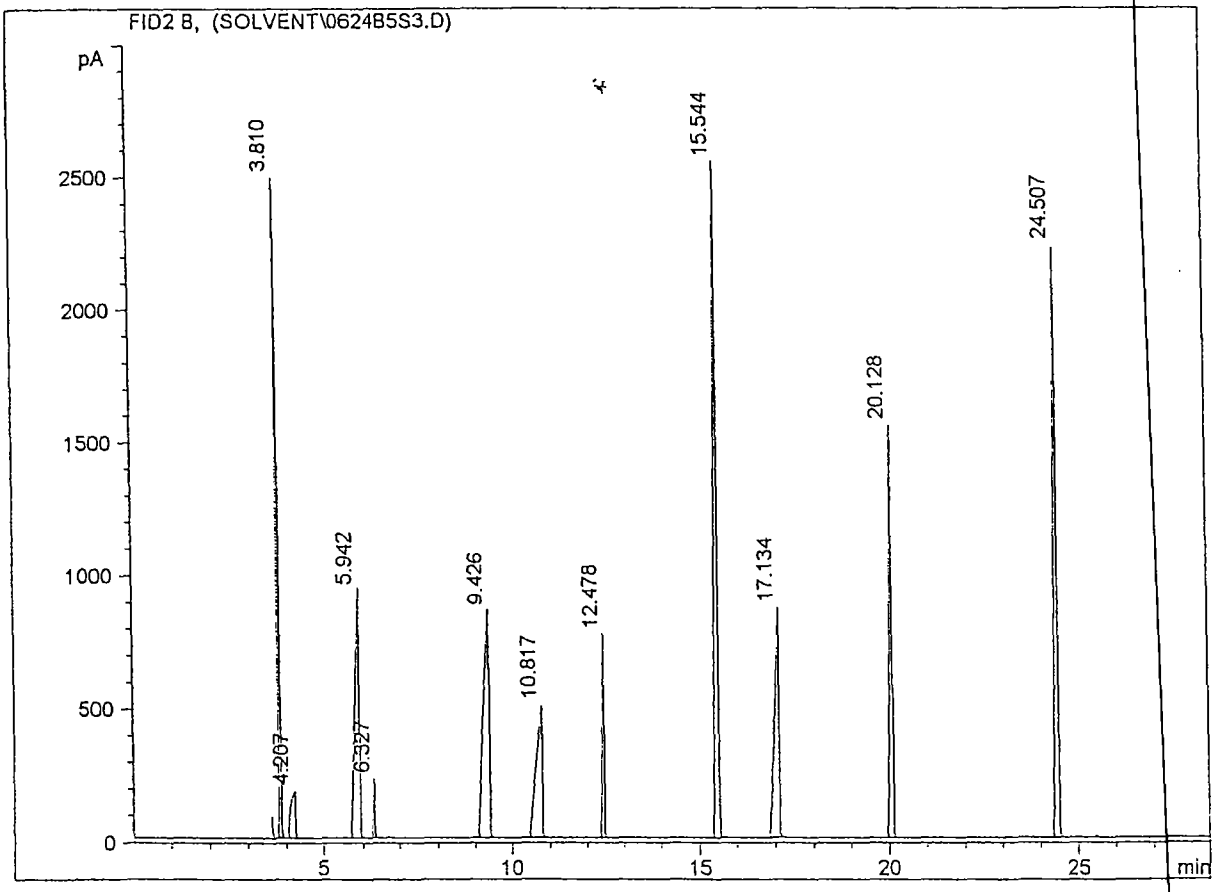

Figure 4: 6890B Solvent STD 3 Chromatogram

547 B

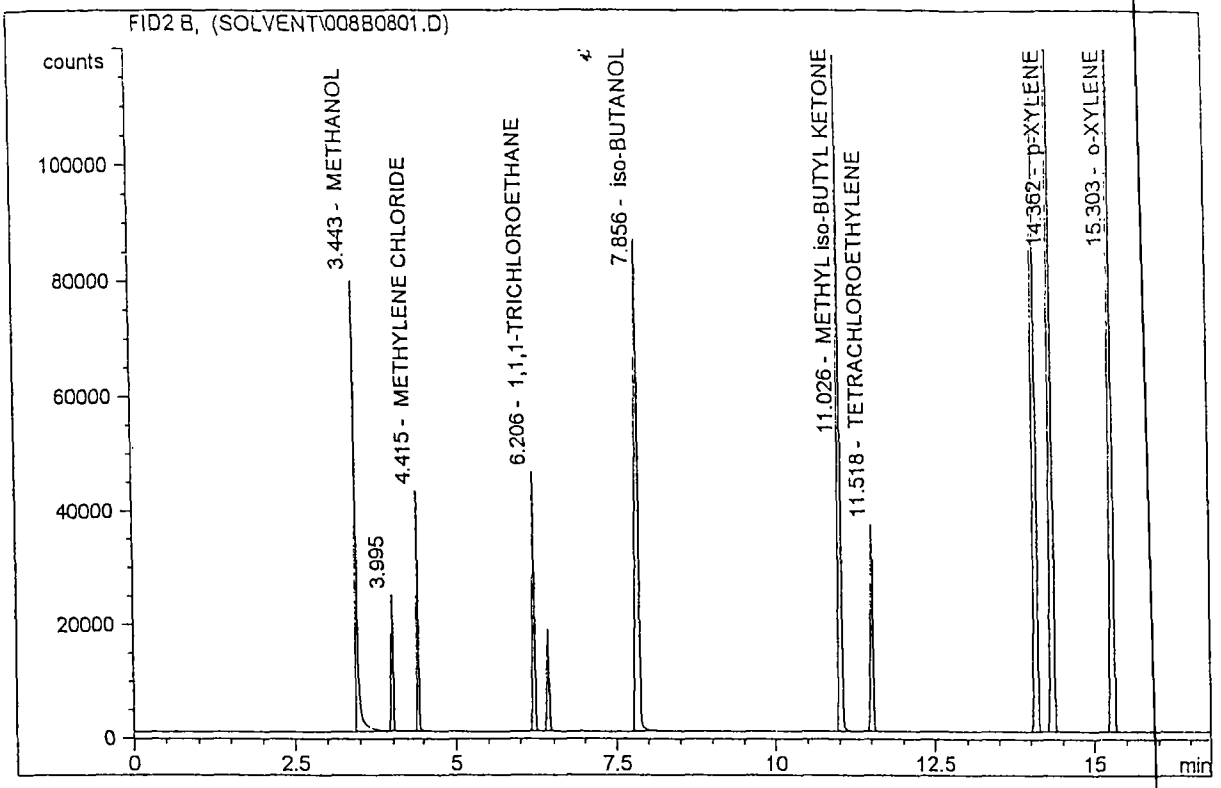

Figure 5: 5890RB Solvent STD QC Chromatogram

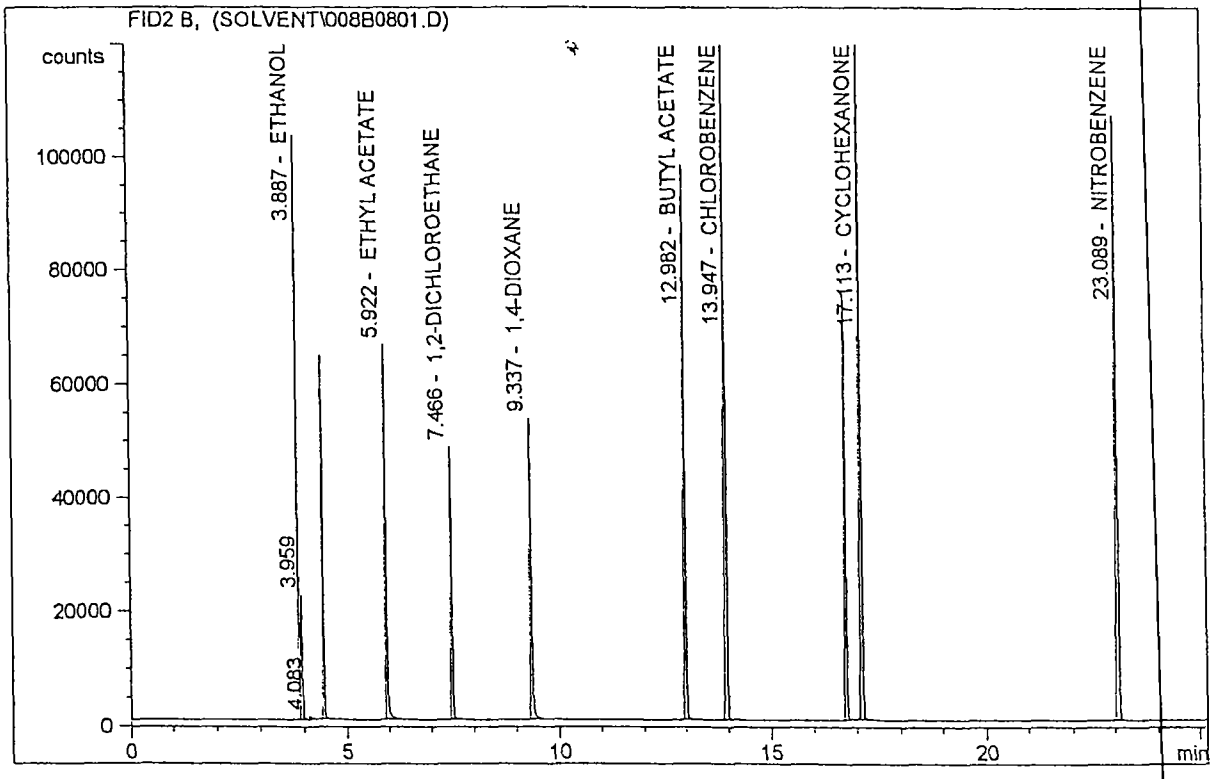

Figure 6: 5890RB Solvent STD 1 Chromatogram

547 C

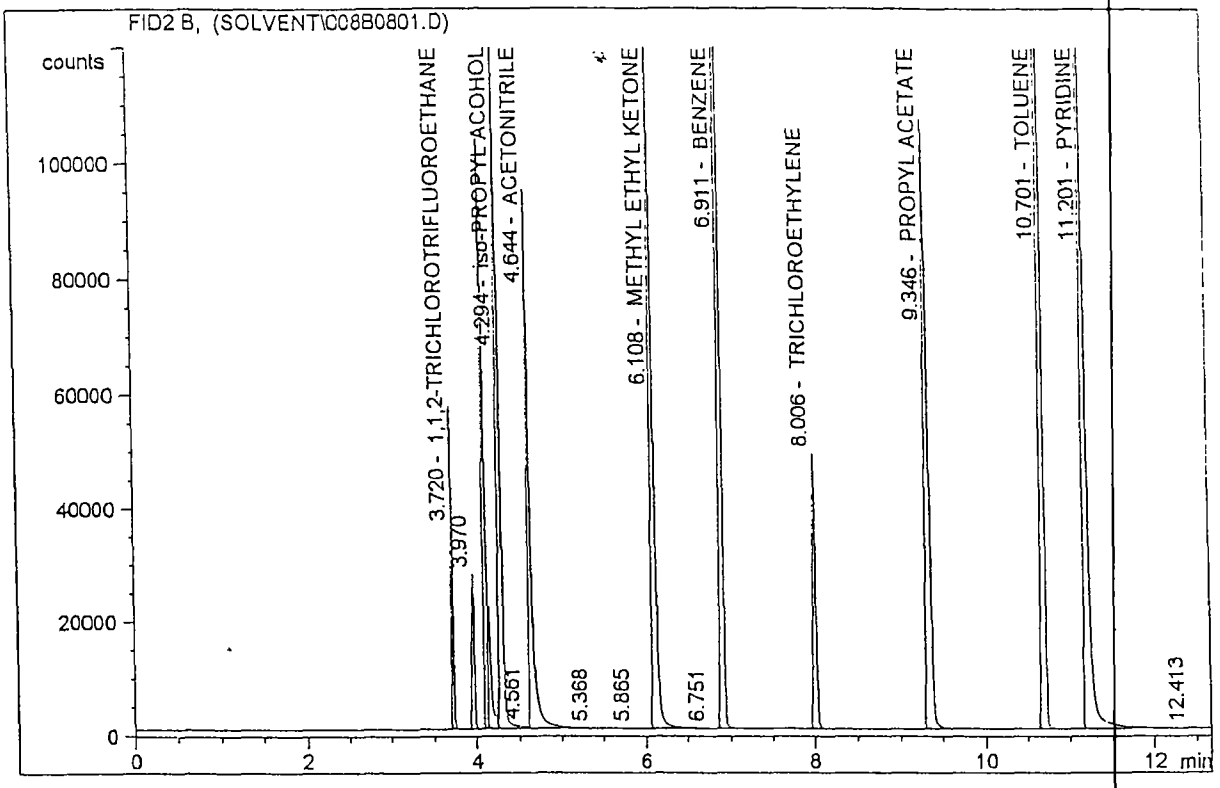

Figure 7: 5890RB Solvent STD 2 Chromatogram

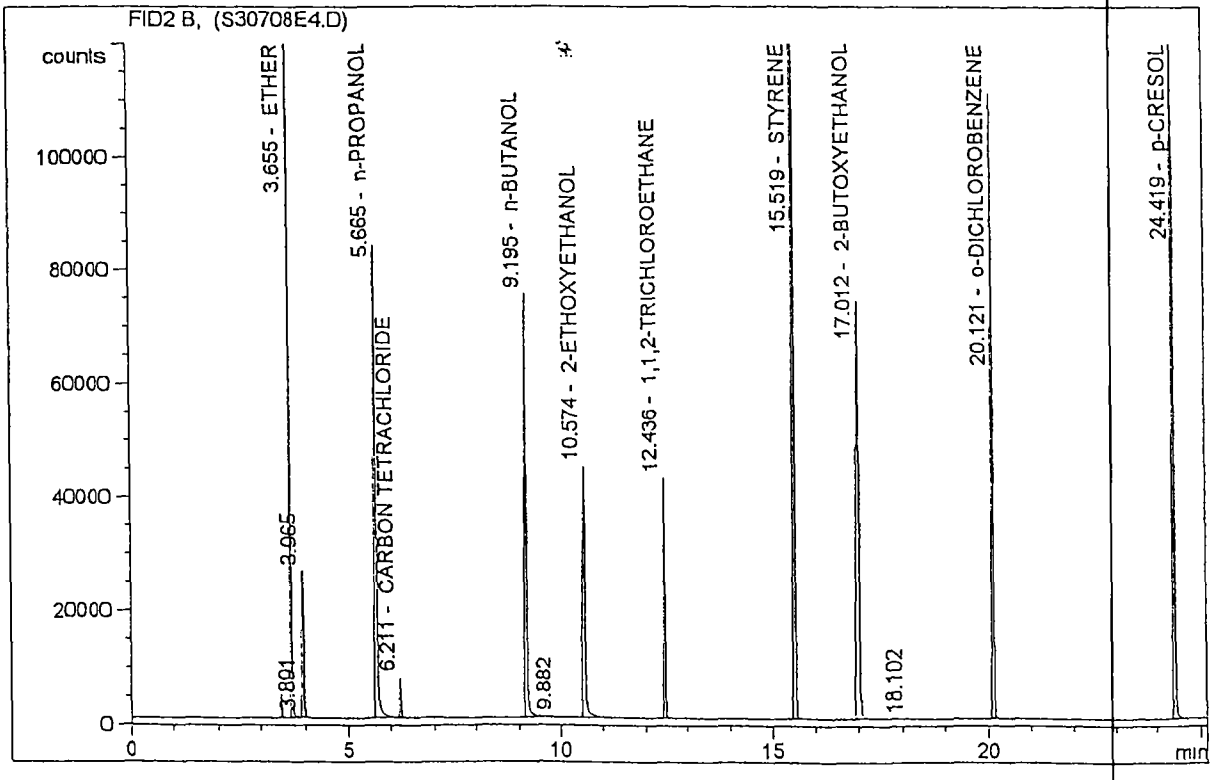

Figure 8: 5890RB Solvent STD 3 Chromatogram

547 D

Solvent Spike Worksheet

Analyst: _____

Sample I.D.: _____

	MeOH			iBuOH			MIBK		
	Spk 1	Spk 2	Spk 3	Spk 1	Spk 2	Spk 3	Spk 1	Spk 2	Spk 3
Sample W_i (g)									
Spike W (g)									
Final W_f (g)									
Dilution $\left(\frac{W_f}{W_i}\right)$									
Microliters Inj.									
Conc.(%) from Spike Scan									
Conc.(%) from Sample Scan									
Spk Conc.(%) = (Spike Scan - Sample Scan)									
RPD (%)									
TS = $\left[\frac{(1.0)(\text{spike W})}{\text{Sample } W_i}\right]$									
% Recovery									

Figure 9: Worksheet for Solvent Calculation

547 E

ATTACHMENT 6

METHOD MODIFICATION

ASTM D 1067

DETERMINATION OF PERCENT ACIDITY AND ALKALINITY IN BUFFERED OR UNBUFFERED HAZARDOUS WASTE BY ELECTROMETRIC TITRATION

Method Number 97-68 Revised 8/4/05

~~"This method is confidential and is intended for the sole use and benefit of the Vickery Facility, and may not be modified, reproduced, circulated or quoted in whole or in part, except with the approval of the Vickery Facility. Vickery assumes no responsibility whatsoever for the precision and bias of results or the safety of any analysis utilizing this method unless performed by Vickery. It is the responsibility of the user of this method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. This method may be changed by WMO at any time without notice to the user."~~

1.0 SCOPE AND APPLICATION

1.1 This method is for determining the percent acidity or alkalinity of hazardous waste, by electrometric titration.

1.2 This method is applicable to determine the acidity or alkalinity of aqueous liquid, solid, and semisolid hazardous waste samples. It may be used for samples containing a significant amount of organic material.

1.3 The method is also applicable to determination of the alkalinity of buffered hazardous wastes.

1.3.1 Buffered hazardous waste includes those stabilized with reagents such as lime, kiln dust, calcium oxide, magnesium oxide and other cementaceous materials.

1.3.2 Many stabilization reagents also fall into this category.

1.3.3 Alkalinity of buffered waste is measured by back-titration procedure.

1.4 A hazardous waste should be approached as an unbuffered material unless site operations or operator knowledge directs otherwise.

1.5 The data is reported as percent acidity or alkalinity.

1.5.1 Unless otherwise specified, acidity data is reported as % ~~H_2SO_4~~$CaCO_3$. The data can be reported in terms of other acids present in Section 8.3.

1.5.2 Unless otherwise specified, alkalinity data is reported as ~~NaOH~~$CaCO_3$. The data can be reported in terms of other alkalies presented in Section 8.3.

1.6 The data is applicable to the broad range of disposal decisions, regulatory issues, and process control situations encountered in the hazardous waste disposal area.

2.0 SUMMARY OF METHOD

2.1 For unbuffered samples, a weighed portion is titrated with standardized aqueous acid or alkali, to a defined electrometrically monitored endpoint.

Vickery Site Specific Procedure

to

ASTM D5049 - 90

Standard Test Method

for

Screening of Cyanide in Waste

(Test Method C - Cyantesmo Paper)

Method Number SSP-D5049 Revised 8/2/05

~~"This method is confidential and is intended for the sole use and benefit of the Vickery Facility, and may not be modified, reproduced, circulated or quoted in whole or in part, except with the approval of the Vickery Facility. Vickery assumes no responsibility whatsoever for the precision and bias of results or the safety of any analysis utilizing this method unless performed by Vickery. It is the responsibility of the user of this method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. This method may be changed by Vickery at any time without notice to the user."~~

ACID WASTE REACTIVITY BY

POTENTIOMETRIC TITRATION

Method Number SSP-97-66 Revised 8/4/05

~~"This method is confidential and is intended for the sole use and benefit of the Vickery Facility, and may not be modified, reproduced, circulated or quoted in whole or in part, except with the approval of the Vickery Facility. Vickery assumes no responsibility whatsoever for the precision and bias of results or the safety of any analysis utilizing this method unless performed by Vickery. It is the responsibility of the user of this method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. This method may be changed by Vickery at any time without notice to the user."~~

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGIONS 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

NOV 1 5 2005

CERTIFIED MAIL: 7001 0320 0006 1558 4130
RETURN RECEIPT REQUESTED

REPLY TO THE ATTENTION OF: **DW-8J**

Mr. Daniel Raezer, Environmental Health and Safety Manager
Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

RE: Class 2 Permit Modification Request
Vickery Environmental, Inc.
OHD 020 273 819

Dear Mr. Raezer:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the Vickery Environmental, Inc., Class 2 Federal Resource Conservation and Recovery Act (RCRA) permit modification request. The Class 2 modification request dated September 15, 2005, was submitted in accordance with Title 40 Code of Federal Regulations (40 C.F.R.) §270.42(g)(1)(iv) for newly listed hazardous waste codes. On August 19, 2005, Vickery Environmental, Inc., submitted a Class 1 Federal RCRA permit modification request in accordance with 40 C.F.R. §270.42(g)(1)(ii) for newly listed hazardous waste codes. Subsequently, the U.S. EPA approved the Class 1 Federal RCRA permit modification in an email dated August 25, 2005.

The U.S. EPA has reviewed the Class 2 Federal RCRA permit modification request and has determined that it meets the requirements of 40 C.F.R §270.42(b). Therefore, the U.S. EPA approves the Vickery Environmental Inc., Class 2 modification of the Federal portion of the RCRA permit adding the newly listed waste code K-181.

The revisions to the Federal portion of the RCRA permit are included as an enclosure to this letter. Please replace Page 2 of 2 of the Attachment portion of original permit with the revised Page 2 of 2.

Should you have any questions, please contact Jennifer Dodds, a member of my staff, at (312) 886-1484.

Sincerely,

Jose G. Cisneros, Chief
Waste Management Branch

Enclosure

cc: Jason Romp, Ohio EPA

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Recycled Paper (50% Postconsumer)

K176 Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony metal or crude antimony oxide).

K177 Slag from the production of antimony oxide that is speculatively accumulated or disposed, including slag from the production of intermediates (e.g., antimony metal or crude antimony oxide).

K181 Nonwastewaters generated from the production of certain dyes, pigments, and FD&C colorants.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGIONS 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

NOV 1 5 2005

REPLY TO THE ATTENTION OF: DW-8J

Dear Sir/Madam:

As required by the regulation at 40 CFR §270.42(f)(1), this letter is to inform you that the United States Environmental Protection Agency (U.S. EPA) issued an approval of a Resource Conservation and Recovery Act (RCRA) Class 2 permit modification requested by Vickery Environmental, Inc. (Vickery), located in Vickery, Ohio. The permit modification requested the acceptance of the newly listed hazardous waste code, K-181, at the treatment and storage facility at the Vickery facility in Vickery, Ohio.

The U.S. EPA received this Class 2 permit modification request by letter dated September 15, 2005. Vickery notified you of the request by letter dated September 16, 2005, describing the modifications, inviting comments, and announcing the public meeting that was held on October 6, 2005 at Vickery Environmental's Conference Room located at 3956 State Route 412, Vickery, Ohio.

In a letter to Vickery dated November 15, 2005, U.S. EPA approved the permit modification request, adding the newly listed waste code K-181.

You have the right to appeal this determination as provided in the regulation at 40 CFR §124.19. If you have any questions regarding this matter, please contact Jennifer Dodds of my staff, at (312) 886-1484.

Sincerely,

Jose G. Cisneros, Chief
Waste Management Branch

cc: Daniel Raezer, Vickery Environmental, Inc.
Jason Romp, Ohio EPA

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Recycled Paper (50% Postconsumer)

OhioEPA
State of Ohio Environmental Protection Agency

Northwest District Office

347 North Dunbridge Road
Bowling Green, OH 43402-9398

TELE: (419) 352-8461 **FAX:** (419) 352-8468
www.epa.state.oh.us

Bob Taft, Governor
Bruce Johnson, Lieutenant Governor
Joseph P. Koncelik, Director

October 24, 2005

RECEIVED
OCT 31 2005
Technical Support
Waste Management Section
Waste, Pesticides and Toxics Division
U.S. EPA - Region 5

Certified Mail 7002 2410 0003 1155 8515

Mr. Steve Lonneman
Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

Re: Hazardous Waste Permit Modification
Notice of Deficiency
Vickery Environmental, Inc.
Class 2 Modification for Waste Analysis Plan
U.S. EPA ID# OHD 020 273 819
Ohio Permit # 03-72-0191

Dear Mr. Lonneman:

On August 18, 2005, Ohio EPA received a Class 2 permit modification application (tracking number – OHD020273819-050818-2-1) from Vickery Environmental, Inc.

Ohio EPA, Division of Hazardous Waste Management (DHWM) has conducted a completeness/technical adequacy review of the above referenced modification application, and has determined it to be incomplete and technically inadequate. This application has been reviewed pursuant to the rules published in the Hazardous Waste Facility Standards Chapters in the Ohio Administrative Code (OAC) and the corresponding Federal regulations.

We have enclosed completeness/technical adequacy comments that are the result of this review (see Attachment A). Please provide detailed information addressing all areas indicated on the comment sheets to Ohio EPA within 30 days of the date of receipt of this correspondence. This submission shall be in accordance with the following editorial protocol or convention:

EDITORIAL PROTOCOL

1. Old language is overstruck. Delete language overstruck in previous versions as necessary to maintain only current language and its immediate antecedent overstruck language.

2. New language is capitalized or redlined.

3. Page headers should indicate date of submission or version designation.

4. If significant changes are necessary, pages should be renumbered, table of contents revised, and complete sections provided as required.

5. Each original application, or amended version must be prefaced by an updated "List of Effective Pages." The purpose of this requirement is to create a standard mechanism to specify and verify the content of the Part B permit application. Each "List of Effective Pages" must contain, at minimum, an inventory of pages for the entire document, posting directions, and a chronology of versions. The inventory of pages must positively identify each effective attachment by its page, drawing, figure, or table designation, and, unless an original page, by its current version designation or date of submission as specified in the inventory of pages. Attached is an example of "List of Effective Pages" and associated page markings. RCRA Engineering Section, Division of Hazardous Waste Management, Central Office, Ohio EPA may authorize individual facilities to use an alternate method of specifying the content of their Part B permit application on a case-by-case basis.

6. Each original application, or version must be accompanied by a certification letter as specified in OAC Rule 3745-50-42(D).

Please send one copy each to:

Pamela Allen, Manager
Ohio EPA, DHWM
Regulatory and Information Services Section
122 S. Front Street
P.O. Box 1049
Columbus, Ohio 43216-1049

Harriet Croke, Chief
Ohio Permitting Section (HRP-8J)
Waste Management Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Please send two copies to:

Jason Romp, Environmental Specialist
Ohio EPA, Northwest District Office
347 North Dunbridge Road
Bowling Green, OH 43402-9398

In the course of the technical adequacy review, we may request additional information if it is necessary to clarify, modify, or supplement previous submissions of information in order to substantively evaluate the permit application for adequacy.

Failure to submit a complete permit application or to correct deficiencies in the application may result in the following:

1) Revocation of your existing Ohio Hazardous Waste Facility Installation and Operation Permit;

2) Denial of the permit application; and

3) Referral of the matter to the Ohio Attorney General's Office for appropriate enforcement action.

We request that the facility contact me at (419)547-6033 within ten (10) days of receipt of this NOD to discuss each of the enclosed comments in order to make clear the information being requested. This can be accomplished by a conference call or meeting.

Thereafter, any questions concerning the review of this permit application and the level of detail expected should also be addressed to me.

Sincerely,

Jason Romp
Environmental Specialist
Division of Hazardous Waste Management

/cs

Enclosure

pc: Harriet Croke, Region V, USEPA
Jeremy Carroll, EU, DHWM, CO
Pamela Allen, DHWM, CO
Cindy Lohrbach, DHWM, NWDO
Dave Pollick, Sandusky County Health Commissioner
DHWM, NWDO File: Vickery Environmnetal, Inc.; Ohio Permit File

ec: John Pasquarette, DHWM, NWDO
Ed Merriman, DHWM, NWDO
Michael Terpinski, DHWM, NWDO
Gary Deutschman, DHWM, NWDO
Jason Romp, DHWM, NWDO
Kiet Chung, DHWM, CO
Lowe Chuck, DDAGW, CO
Deborah Haubert, Sandusky County Health Department

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone:419/547-7791XFax: 419/547-6144

September 26, 2005

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Vickery Environmental, Inc. (VEI) has requested a Class 2 permit modification. The modification will allow VEI to amend Appendix 3, Contingency Plan; in it's Part B Permit Application. The amendment is to add lockout/tagout language to the following sections of the facility's contingency plan: Section 3.1.3.2 "Controlling Spills", Table 4-1"Safety/Emergency Response Inventory List" "Other Incident Response Equipment" and Section 7.1 "Prevention of Recurrence".

As required by OAC 3745-50-51(D)(2)(b), VEI is sending you this notification of this modifications because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

VICKERY ENVIRONMENTAL, INC.

Robert A. Smith
Vice President

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Vickery Environmental, Inc. (VEI), located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its Ohio Hazardous Waste Operating Permit in accordance with OAC 3745-50-51(D)(2). The modification will allow VEI to amend Appendix 3, Contingency Plan; in it's Part B Permit Application. The amendment is to add lockout/tagout language to the following sections of the facility's contingency plan: Section 3.1.3.2 "Controlling Spills", Table 4-1"Safety/Emergency Response Inventory List" "Other Incident Response Equipment" and Section 7.1 "Prevention of Recurrence".

A 60-day comment period will be held from September 26, 2005, to November 24, 2005 Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Ms. Pamela Allen
122 South Front Street
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2980

VEI will host a Public Meeting to provide information related to these requests. The public meeting is scheduled for 5:00 pm, Thursday, October 13, 2005 at Vickery Environmental's Conference Room located at 3956 State Route 412, Vickery, Ohio.

The following individuals may be contacted:

VEI	Ohio EPA
Stephen C. Lonneman, General Manager	Jason Romp, On-Site Inspector
(419) 547-7791, extension 3305	(419) 547-6033
	(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

WMB

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone:419/547-7791XFax: 419/547-6144

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7000 1670 0002 6379 9375

RECEIVED
SEP 20 2005
OFFICE OF REGIONAL ADMINISTRATOR

September 15, 2005

Mr. Thomas Skinner
Regional Administrator
U.S. Environmental Protection Agency Region V
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Mr. Skinner:

In accordance with 40 CFR 270.42(g)(1)(iv), Vickery Environmental, Inc. (VEI) submits a Class 2 permit modification for newly listed waste from nonwastewaters generated from the production of certain dyes, pigments, and FD&C colorants that are newly listed. This is a waste, which carries the waste code K181. This modification would permit the acceptance of these waste codes for waste types currently managed at this facility. This modification is classified as a Class 2 modification based on the criteria presented in 40 CFR 270.42(g)(iv). VEI submitted the Class 1 permit modification for these waste codes on August 19, 2005, in accordance with 40 CFR 270.42(g)(1)(ii).

These wastes will be treated (T01) and stored (S02) in tanks, treated by filtration (T04) and deepwell injected (D79). This change is necessary in order to manage wastes, which are otherwise acceptable with the facility design.

Included as attachments to this letter is the information required by 40 CFR 270.42(b). Below is a listing of the attachments:

Attachment 1 Summary of Rule Requirements and Facility Response
Attachment 2 Federal RCRA Permit Attachment containing additional waste codes
Attachment 3 Letter of Notification and Public Notice
Attachment 4 Mailing List

As discussed in the summary included as Attachment 1, the addition of this code will not require any additional or different management practices. There will be no addition to or change in the treatment process. Blending of wastes will still occur in tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. All wastes will pass the currently approved Waste Analysis Plan requirements, thereby demonstrating that they are the same type of waste the facility currently and previously has managed. No new fire protection is required.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Dan Raezer at 419-547-3335.

Sincerely,
VICKERY ENVIRONMENTAL, INC.

Robert A. Smith
Vice President

RAS/dr

Attachments

cc w/: Mr. Jose Cisneros, USEPA Region V, DW-8J
Jennifer Dodds, USEPA Region V, Mail Code DW-8J
(Regular Mail and via e-mail at dodds.jennifer@epa.gov)

cc w/out: David Pollick, SCBOH
Jason Romp, OEPA Onsite Inspector

Attachment 1
Summary of Rule Requirements and Facility Response

Class 2 Modification 40 CFR 270.42(b)(1)...	Rule Requirement	Facility Response
(i)	Exact Change to be made to Permit	The addition of the waste code K181 requires a revision to the listing of additional waste codes on page 2 of the attachment to VEI=s Federal RCRA Permit. Included as Attachment 2 is the revised attachment page 2 of VEI=s Federal RCRA Permit.
(ii)	Class 2 Modification	The facility submits this Class 2 modification as required by 40 CFR 270.42(g)(iv). The rule listing waste code K181 was effective August 23, 2005. The Class 1 modification was submitted August 19, 2005.
(iii)	Why Modification Needed	The facility submits this Class 2 modification as required by 40 CFR 270.42(g)(iv). This modification would permit the continued acceptance of these waste codes for waste types currently managed at this facility.
(iv)	Information Required by 40 CFR 270.13-270.21; 270.62; 270.63.	See information provided below.
	40 CFR 270.13-Part A	See Attachment 2 for the attachment page of VEI=s Federal RCRA permit.
	40 CFR 270.14-Part B	See Attachment 2 for the attachment page of VEI=s Federal RCRA permit. The addition of this code will not require any additional or different management practices. There will be no addition to or change in the treatment process. Blending of wastes will still occur in tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. All wastes will pass the currently approved Waste Analysis Plan requirements, thereby demonstrating that they are the same type of waste the facility currently and previously has managed. No new fire protection is required.
Class 2 Modification 40 CFR 270.42(b)(1)...	**Rule Requirement**	**Facility Response**
(iv) (cont'd)	40 CFR 270.15-Containers	The facility does not manage hazardous wastes in these types of units under this rule.
	40 CFR 270.16-Tanks	The addition of this code will not require any additional or different management practices. There will be no addition to or change in the treatment process. Blending of wastes will still occur in tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. All wastes will pass the currently approved Waste Analysis Plan requirements, thereby demonstrating that they are the same type of waste the facility currently and previously has managed. No new fire protection is required.

	40 CFR 270.17 to 40 CFR 270.21; 40 CFR 270.62 and 40 CFR 270.63 Surface Impoundments, waste piles, incinerators, land treatment.	The facility does not manage hazardous wastes in these types of units.
(2) and (2)(i) through (vi)	Notification to those on mailing list.	As required by 40 CFR 270.42(b)(2), VEI will send notification of the modification to all persons on the facility mailing list, as maintained by the Director and all appropriate State and local government. This notification will be made within 7 days after the submission of this modification application and will include all information required. The notice includes all information required by 40 CFR 270.42(2)(i) through (vi). Included as Attachment 3 is a copy of the notification sent to all persons on our facility mailing list including the public notice that is scheduled to appear in The Fremont News-Messenger newspaper on September 16, 2005 Included in Attachment 4 is a copy of our mailing list.
(3)	Copy of Modification	A copy of the permit modification application and supporting documents shall be available at the Birchard Public Library of Sandusky County in Fremont.
(4)	Public Meeting	A public meeting is scheduled for 5:00 pm on Thursday, October 6, 2005 at Vickery Environmental=s Conference Room located at 3956 State Route 412 Vickery, Ohio.
(5)	Comment Period	The 60-day comment period shall be from September 16, 2005 to November 14, 2005.

Attachment 2
Federal RCRA Permit Attachment Additional Hazardous Wastes

K175 Wastewater treatment sludges from the production of vinyl chloride monomer using mercuric chloride catalyst in an acetylene-based process.

K176 Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony metal or crude antimony oxide).

K177 Slag from the production of antimony oxide that is speculatively accumulated or disposed, including slag from the production of intermediates (e.g., antimony metal or crude antimony oxide).

K181 Nonwastewaters generated from the production of certain dyes, pigments, and FD&C colorants.

Attachment 3
Letter of Notification and Public Notice

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone:419/547-7791XFax: 419/547-6144

September 16, 2005

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with the Code of Federal Regulations (CFR) 40 CFR 270.42, Vickery Environmental, Inc. (VEI) has requested a Class 2 permit modification. The purpose of this request is to allow the continued acceptance of waste code K181 which is a newly listed wastes from nonwastewaters generated from the production of certain dyes, pigments, and FD&C colorants. The federal rules require for newly listed wastes that a Class 1 modification be submitted prior to the effective date of the rule. The effective date was August 23, 2005. The facility's Class 1 modification was submitted on August 19, 2005. The rules then require that the facility submit a Class 2 modification within 180 days following the effective date of the rule; hence the reason for the submittal of this modification application.

As required by 40 CFR 270.42(b)(2), VEI is sending you this notification of the modification because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

VICKERY ENVIRONMENTAL, INC.

Robert A. Smith
Vice President

PUBLIC NOTICE

This notice is given pursuant to 40 CFR 270.42(b)(2). Vickery Environmental, Inc. (VEI) located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its US EPA Federal Hazardous Waste Operating Permit in accordance with 40 CFR 270.42(g)(1)(iv). This request would allow the facility to continue to receive waste, which carries the waste code K181. This is a newly listed wastes from nonwastewaters generated from the production of certain dyes, pigments, and FD&C colorants which were listed in the February 24, 2005 Federal Register.

A 60-day comment period will be from September 16, 2004 through November 14, 2005, Comments may be sent to:

Ms. Jennifer Dodds, DW-8J
USEPA Region V
Office of RCRA, Permitting Division
77 West Jackson Blvd.
Chicago, IL 60604-3590

VEI will host a Public Meeting to provide information related to this request. The meeting will be held at 5:00 pm on Thursday, October 6, 2005 at Vickery Environmental=s Conference Room located at 3956 State Route 412 Vickery, Ohio.

The following individuals may be contacted:

VEI	USEPA Region V
Stephen C. Lonneman, General Manager	Jennifer Dodds, Permitting Division
(419) 547-7791, ext. 3305	(312) 886-1484

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

Attachment 4
Mailing List

Nature Conservancy
Ohio Office
6375 Riverside Drive #50
Dublin, OH 43017-5045

Bill Costello
Ohio Mfg. Assoc.
33 N. High St.
Columbus, OH 43215

Chairman, Senate, Energy, Natural
Resources & Environmental Committee
State House
Columbus, OH 43215

Scott Miller
Environ Design Group
405 Grant Street
Akron, OH 44311-1183

Dave Lore
Columbus Dispatch
34 S. Third Street
Columbus, OH 43215

Ohio Chamber of Commerce
P.O. Box 15159
230 East Town Street
Columbus, OH 43215-0159

Eric Anderson
Cecos Intl
4879 Spring Cove
Cincinnati, OH 45232

Air Pollution Control Agency
Attn: Mr. Leon Weitzel
Administrative Building
105 Main St.
Painesville, OH 44077

Allen County Citizens for the Environment
1123 Rice Avenue
Lima, OH 45802

Richard Sahli
Ohio Environmental Council
1207 Grandview Avenue #201
Columbus, OH 43212-3449

Daniel Mcintyre
Columbus Water & Chemical Test Lab
American Council of Ind Labs
4628 Indianola
Columbus, OH 43214

David Chenault
Ohio EPA, DSHWM
Southeast District Office
2195 Front St.
Logan, OH 43138

Dick Fridley
Jefferson Water and Sewer Dist.
P.O. Box 116
Blacklick, OH 43004

Gary Sommerville
Sr. Environmental Specialist
Ohio Electric Utilitic Institute
215 North Front St.
Columbus, OH 43215

Alan Kuper, Chairmain
Sierra Club
2265 Delaware Road
Cleveland, OH 44106

Bryan Zima
Ohio Attorney General's Office
Environmental Section, 25th Flo
30 East Broad Street
Columbus, OH 43215

Charlene Dwin
Advisory Council on Historical
Preservation
1100 Pennsylvania Ave., NW #
Washington, D.C. 20004

Daryl Hawkins
U.S. Army Corp. of Engineers
CEORL-OR-F
P.O. Box 59
Louisville, KY 40201-0059

Dennis A. Huebner, Chief
State Waste Programs Branch
U.S. EPA
JFK Federal Bldg.
Boston, MA 02203

Dominic Hanket
Ohio Attorney General's Office
Environmental Section
30 East Broad St.
Columbus, OH 43215

Glenn Stevenson
Legislative Services Comm
State House
Columbus, OH 43215

Governor of Ohio
State House
Columbus, OH 43215

Director
Office of Ocean and Coastal Resource
Management NOAA
3300 Whitehaven St., NW
Washington, D.C. 20235

Ida Kay Keller, Chairperson
430 North Acadia
Spencerville, OH 45887

James W. Cowden
J.W. Cowden and Associates
9315 Glenwood Trail
Brecksville, OH 44141

James K. Essman
Ohio Dept. of Health
Bureau of Envir. Health
246 North High Street
Columbus, OH 43215

John A. Paul, Supervisor
Reg Air Pollution Control
451 W. Third Street
P.O. Box 972
Dayton, OH 45422

Kent Kroonemeyer, Supervisor
U.S. Fish and Wildlife Services
6950 H Americana Parkway
Reynoldsburg, OH 43068

Laura Evans
Hazardous Substances Chair
Ohio League of Women Voters
226 South Main St.
Granville, OH 43023

League of Ohio Sportsmen
3953 Indianola Ave.
Columbus, Oh 43214

Library
Baker and Hostetler
65 East State St., 22nd Floor
Columbus, OH 43215

Mack Industries
201 Columbia Road
Valleycity, OH 44208

Marcia Cooper
Legislative Services Committee
State House
Columbus, OH 43215

Mark R. Rowland
Water Mgmt Assoc of Ohio
Burgess & Niple, Ltd.
5085 Reed Road
Columbus, OH 43220

Michael Colvin
Environmental Review Coord
ODNR
Fountain Square Bldg. AC-3
Columbus, OH 43244

Mike Ramsey
6011 Stillwell
Oxford, OH 45056

Mr. Don Klama
Advisory Council on Historical Preservation
1100 Pennsylvania Ave. NW. Suite 803
Washington, D.C. 20004

Ms. Ann Berger, NOAA
Coastal Programs Division
1825 Connecticut Ave., NW
Washington, D.C. 20235

Ms. Judy Kitchen
State Historic Preservation Offi
1982 Velma Avenue
Columbus, OH 43211

NEFCO
969 Copley Road
Akron, OH 44320

Ohio Academy of Science
P.O. Box 12507
1500 W. 3rd Ave., #223
Columbus, OH 43212-2817

Ohio Edison Co.
Attn: Manager Environmental
Projects
76 S. Main St.
Akron, OH 44308

Ohio Biological Survey
Museum of Biological Diversity
The Ohio State University
1315 Kinnear Road
Columbus, OH 43212-1192

Robert Bash
Ohio Farm Bureau Federation
35 E. Chestnut St., Box 479
Columbus, OH 43215

Ronald F. Scott
Asst. Administrator
Div of Sewage and Drainage
910 Dublin Rd.
Columbus, OH 43215

Sam Rahrig
513 East 1st Street
Spencerville, OH 45887

Sandy Bihn
City of Oregon
5330 Seaman Rd.
Oregon, OH 43616

Sierra Club Ohio Chapter
6557 Rainbow Lane
Cincinnati, OH 45230

Steve Levy
U.S. EPA
Office of Solid Waste Rm. 264G
401 M Street SW
Washington, D.C. 20460

Sue Harding
S. Valley Ridge Farm
Hunting Valley, OH 44022

Tauny Rather
2840 Attleboro Road
Shaker Heights, OH 44120

Thomas Hart
Ohio Manufacturers Association
33 North High Street, Suite 600
Columbus, OH 43215

Thomas J. Walsh
Division of Air Pollution
9127 Miles Ave.
Cleveland, OH 44105

Thomas M. Berg
State Geologist and Chief ODN
Geological Survey
Fountain Square Building B
Columbus, OH 43224

TMACOG
P.O. Box 9508
Toledo, OH 43697-9508

Tom Breckenridge
Plain Dealer
1801 Superior Ave.
Cleveland, OH 44114

Tony Casasanta
Canton Chamber of Commerce
Environmental Committee
101 E. Maple St.
North Canton, OH 44720

U.S. DOT
Federal Highway Adm
200 N. High St. Room 328
Columbus, OH 43215

University of Toledo
College of Law Library
2801 W. Bancroft St.
Toledo, OH 43606

University of Akron
Serials Dept.
Bierce Library
Akron, OH 44325

Elizabeth Smith
Ohio Petroleum Council
88 E. Broad Street

Rebecca Petty, Administrator
Ohio Dept. of Natural Resources
Division of Water
1939 Fountain Square
Columbus, OH 43224-1336

Acar Caner, Office Chief Eng.
ODNR Bldg D-2
1930 Belcher Dr.
Columbus, OH 43224

Bureau of National Affairs, Inc.
BNA Plus
1231 25th St. NW, Room 215
Washington, D.C. 20037

Case Western Reserve University
Law Library
11075 E. Blvd.
Cleveland, OH 44107

Dan Chatfield
Ohio Dept. of Health
246 N. High 6th Floor
Columbus, OH 43215

Greg Studen
Sierra Club Conservation Chapter
7675 Squire Lane
Novelty, OH 44076

Leslie Skuttle
Izaak Walton League of America
Ohio Division
3026 Ranfield Road
Kent, OH 44240

Mike Muirer
Squire, Sanders & Dempsey
1300 Hunnington Ctr
415 High Street
Columbus, OH 43215

Mr. Bob Pattison
Air Pollution Control Division
Canton City Health Dept
Second Floor City Hall
Canton, OH 44702

Richard Brinkman
Montgomery Co. Environmental Services
6589 North Webster Ave
Dayton, OH 45414

U.S. Dept. of the Interior
Fish & Wildlife Services Field
6950-H Americana Parkway
Reynoldsburg, OH 43068

Wallace H. Metcalf
Jackson County Env. Comm
687 East Mithoff Street
Columbus, OH 43206-2954

Ohio Department of Transportation
Office of Environmental Services
1980 West Broad Street
Columbus, OH 43223

RECEIVED
SEP 27 2005
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA - REGION 5

ATTACHMENT A

Vickery Environmental, Inc.
Class 2 Hazardous Waste Permit Modification
Notice of Deficiency
U.S. EPA ID# OHD 020 273 819
Ohio Permit # 03-72-0191

The following Ohio EPA comments are based on Vickery Environmental, Inc.'s (VEI) Class 2 permit modification application dated August 16, 2005 (i.e., PITS tracking number OHD020273819-050818-2-1):

General Comments

1. The general facility standards and permit terms and conditions require that TSDFs employ appropriate Quality Assurance/Quality Control (QA/QC) procedures for their waste analysis. Because the WAP rules incorporate all the information necessary to comply with applicable rules and the permit, QA/QC information for analytical data collected to meet the requirements of OAC Rule 3745-54-13 is appropriate to include in the WAP.

   Therefore, to ensure that waste analysis decisions are based on data of known quality, and to document that appropriate laboratory QA/QC procedures are used, VEI's WAP must include or incorporate by reference a laboratory quality assurance plan (QAP) which contains the elements of appropriate laboratory QA/QC procedures. Likewise, VEI's WAP must also include or incorporate by reference appropriate sampling QA/QC procedures. The laboratory and sampling QA/QC procedures included in the WAP should be in accordance with SW-846 chapter one or other appropriate guidance. Note that analytical method-specific QA/QC procedures should be included in either the laboratory QAP or the standard operating procedures (SOPs) for each method.

   To view specific information to be contained in a WAP's laboratory QAP, VEI can refer Subsection C-2b of Ohio EPA's *"Part B Review Checklist, Section C - Waste Characteristics,"* which is located online at the following internet address: http://www.epa.state.oh.us/dhwm/pdf/sec_c2.pdf. To view specific information to be contained in a WAP's sampling QA/QC procedures, VEI can refer Subsection C-2c of that same checklist. VEI is also encouraged to refer to Ohio EPA's June 2000, *"Waste Analysis Plan Guidance,"* which is located online at the following internet address: *http://www.epa.state.oh.us/dhwm/pdf/FinalGuidance.PDF*. Specifically, Section 4.3.5 of that guidance addresses WAP Sampling QA/QC Procedures, while Section 4.4.3 addresses WAP Laboratory QA/QC Procedures.

2. Besides VEI Method Number SSP-97-66, all of the facility's site specific methods are based on ASTM or U.S. EPA standard methods. Currently, many of VEI's site specific methods have gaps in section numbering and the content varies widely between methods. It is not adequate to copy selected sections from U.S. EPA or ASTM standard methods. Each site specific method should be a "stand alone document" and use

standard document control format. The sections in each method should be numbered completely, consecutively and consistently, and they should contain information on standards preparation, calibration procedures and QA/QC. VEI must list all method sections and steps in its site specific methods so that laboratory technicians can perform the procedures consistently without having to refer back and forth between the standard method and site specific method.

3. Most site specific methods have quality control sections that stipulate duplicate and spike analyses or other quality control measures. However, the sections do not include the procedural steps and rationale for these analyses, or the acceptance criteria or corrective action that will be conducted based upon the results. The facility should revise the sections to specifically explain the procedural steps and rationale for these quality control analyses, including the acceptance criteria and any actions that should result if the criteria is not met.

4. There is no indication in the WAP or site specific methods of what waste analysis information or data is recorded and in what format it is stored. For effective review by Ohio EPA, information from laboratory tests (e.g., raw analytical data, quality assurance/quality control data, instrument calibration data, etc.) must be recorded and stored in a consistent manner. It is not necessary to have information management procedures specified in the site specific methods, but the WAP or QAP should discuss this subject in detail. However, the site specific methods should still make reference to the location in the WAP or QAP that discusses information management procedures.

5. Many of VEI's site specific methods state that *"samples should be analyzed as soon as possible"* (e.g., Method 97-68 at Section 6.2, Method VIC0789-2 at Section 4.1, Method SSP-97-66 at Section 4.1, and Method VIC0789-3 at Section 4.1). VEI should define a technical holding time for each method in accordance with approved methods where applicable. Please expand the statement presently included in each method to include a maximum amount of time that should not be exceeded between sample collection and sample analysis.

6. Many of VEI's site specific methods refer to EPA publication SW846 as *"5W846."* VEI should correct these references.

Specific Comments

Table of Contents Page iii

1. In VEI's approved RCRA Part B Permit Application, WAP Appendix 1 is listed on page ii of the Table of Contents. However, in the replacement page for the Table of Contents for the August 16, 2005 Class 2 permit modification application, VEI has WAP Appendix 1 listed on page iii of the Table of Contents. VEI should correct this error so that the revised page for the Table of Contents will fit into the approved RCRA Part B Permit Application.

VEI Method Number 97-68. Pages 482-488.

2. Section 9.1 stipulates that duplicates and spikes will be analyzed at a minimum of 1 in 20 samples. This section should explain the rationale for duplicate and spike analyses,

including the criteria used to assess the analyses and what action will be taken based upon the data.

VEI Method Number VIC0789-2. Pages 494-498.

3. Section 10.1 states that a quality control check sample is performed on each lot of sample tubes. This section should explain the rationale for the quality control check sample, including the criteria used to assess the quality control check sample and what action will be taken based upon the data.

4. Section 10.2 stipulates that duplicates and spikes will be analyzed at a minimum of 1 in 20 samples. This section should explain the rationale for duplicate and spike analyses, including the criteria used to assess the analyses and what action will be taken based upon the data.

5. The method does not discuss the preparation of the spike. This information should be included in Section 7 of the method.

6. Each waste stream accepted by the facility may have differing properties. Therefore, VEI should explain how the matrix spike mentioned in section 10.2 will be useful in assessing the accuracy of the method.

7. Since the method no longer states a level at which the facility considers the waste unacceptable (i.e., the level at which the sample fails the screen), VEI should explain at what concentration level the spike will be performed. VEI should also clarify this information in the method.

VEI Method Number SSP-D5049. Pages 499-500.

8. The numbering of this method begins with Section 19. VEI should adopt a standard document control format for this method with consistent section numbering. This method is based upon withdrawn ASTM standard test method D5049-90 (withdrawn 1999) which provided details on acidification and sample preparation. These procedures are absent from VEI's site specific method. Since VEI's site specific method is based upon a withdrawn ASTM standard test method, VEI must list all method sections and steps in its version of the method so that laboratory technicians can perform the procedure consistently without having to refer back and forth between the withdrawn standard method and site specific method.

9. In section 20.1, the chemical formula for sulfuric acid should be H_2SO_4.

VEI Method Number SSP-8082PCB. Pages 530A - 530D.

10. The procedure listed does not discuss calibration, continuing calibration and/or calibration acceptance criteria. Section 8.0 does mention that a continuing calibration standard must fall within set limits, but the method fails to list these criteria and any action that is promoted by a continuing calibration standard that fails the criteria. The method must provide details on calibration and calibration acceptance.

11. The method fails to mention whether other common batch and sample specific quality assurance samples and spikes will be analyzed, and if so, what criteria and action will be used based upon these results.

VEI Method Number SSP-8000. Pages 531-532.

12. This method is not adequate as an overall QA/QC method. It does not provide any indication of what criteria is used to define "in-house" limits, nor on how a trend in surrogate recovery will be defined. These procedures must be defined either within this method or referenced from the laboratory QAP.

13. In Section 8.6.2.5.1, the text does not explain why no further action is necessary if an apparent trend is present and the trend is "consistent with the matrix." The facility should define control charting procedures or other methods to define trends from QA/QC data.

14. For Section 8.6.2.6, it may not be acceptable to simply report the data as an estimated concentration. Severe recovery problems should require additional investigation into the likelihood of false positives or negatives. Rejection of the data, especially non-detected values for low biased data, may be necessary. The data validation criteria should be revised to include specific data qualification criteria and overall QA assessment procedures.

VEI Method Number 97-71. Pages 533-534.

15. The procedure should give information on the calibration procedure that will be used for the instrument.

16. The method should give an indication whether manual or automatic temperature control is used for the instrument.

VEI Method Number SSP-97-66. Pages 538-542.

17. The stated rationale for the method (Section 2.0) is to define an optimum blend based upon a defined millivolt endpoint. However, in Section 7.3 it appears that the blend is already predetermined. Is the purpose of the method to define a safe blend ratio? The purpose of Section 7.3 should be clarified.

18. Section 8.0 requires that duplicates be taken at a minimum of 1 in 20 samples. VEI should explain how the facility will use this information. Presumably, the waste that will be duplicated will have little relationship to the other 19 waste samples. The relative percent difference of the waste being duplicated can be used to determine precision of the blend for that waste, but VEI provides no detailed information on the quality control criteria nor the actions that may result if the sample results are outside of the criteria. Please add this type of information to the method.

VEI Method Number 97-02. Pages 543 to 547.

19. Section 1.1.2 lists "carbon", "1,2-", and"t-1,2-" as target analytes. These compound names appear incomplete. In addition, the list includes 1,1,2-TCE and 1,1,1-TCE,

apparently in reference to trichloroethane isomers. In all cases, VEI should use proper nomenclature to designate target compounds. In the following section on retention times, these errors appear again. These sections should be revised.

20. Section 8.3 requires a calibration check standard be analyzed daily; however, there is no criteria listed for the acceptance of the check standard. VEI should discuss what criteria will be used for acceptance.

21. Section 8.4. VEI should explain what criteria is used to assess the instrument performance check standard. VEI should explain what actions are prompted if the IPC is outside of the QC criteria.

22. Section 8.5. VEI should explain what criteria is used to assess spikes. VEI should explain what actions are prompted if the spike recovery is outside of the QC criteria?

23. Section 8.5 refers to Figure 9, but that figure is not shown in the method. VEI should include the figure in the method.

24. Section 10.2 refers to Figures 1 through 4, but those figures are not shown in the method. VEI should include those figures in the method.

25. Section 12.3 stipulates that a sample matrix spike and a replicate matrix spike will be analyzed at a minimum of 1 in 20 samples. This section should explain the rationale for sample matrix spike and replicate matrix spike analyses, including the criteria used to assess such analyses and what action will be taken based upon the data.

<u>VEI Method Number VIC0789-3. Pages 548 -552.</u>

26. Section 10.1 states that a quality control check sample is performed on each lot of sample tubes. This section should explain the rationale for the quality control check sample, including the criteria used to assess the quality control check sample and what action will be taken based upon the data.

27. Section 10.2 stipulates that duplicates and spikes will be analyzed at a minimum of 1 in 20 samples. This section should explain the rationale for duplicate and spike analyses, including the criteria used to assess the analyses and what action will be taken based upon the data.

28. Each waste stream accepted by the facility may have differing properties. Therefore, VEI should explain how the matrix spike mentioned in section 10.2 be useful in assessing the accuracy of the method.

29. Since the method no longer states a level at which the facility considers the waste unacceptable (i.e., the level at which the sample fails the screen), VEI should explain at what concentration level the spike will be performed? VEI should clarify this information in the method.

30. The method does not discuss the preparation of the spike. This should be included in Section 7 of the method.

OhioEPA
State of Ohio Environmental Protection Agency

Northwest District Office

North Dunbridge Road
Bowling Green, OH 43402-9398

TELE: (419) 352-8461 **FAX:** (419) 352-8468
www.epa.state.oh.us

Bob Taft, Governor
Bruce Johnson, Lieutenant Governor
Joseph P. Koncelik, Director

November 10, 2005

Certified Mail 7002 2410 0003 1155 8409

Mr. Steve Lonneman
Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

Re: Hazardous Waste Permit Modification
Class 2 Modification for Waste Analysis Plan
30 Day Notice of Action Letter
Vickery Environmental, Inc.
U.S. EPA ID# OHD 020 273 819
Ohio Permit # 03-72-0191

Dear Mr. Lonneman:

On August 18, 2005, Ohio EPA received a Class 2 hazardous waste permit modification application (tracking number – OHD020273819-050818-2-1) from Vickery Environmental, Inc. (VEI) requesting to revise site-specific laboratory analytical procedures contained in the facility's waste analysis plan. VEI submitted the permit modification application in response to Ohio EPA's July 11, 2005 Notice of Violation letter.

In accordance with Ohio Administrative Code (OAC) Rule 3745-50-51 (D)(2)(f)(i)(e), VEI is hereby notified that Ohio EPA will make a decision on the above referenced Class 2 modification application within 30 days after the end of original 90-day regulatory time frame. The end of the original 90-day regulatory time frame is November 16, 2005. The required date of action is now December 16, 2005. Be advised that this extension of time does not preclude the Agency from taking any of the possible actions detailed in OAC Rule 3745-50-51 (D)(2)(f)(ii).

If you have any questions concerning this action, please contact Jason Romp of Ohio EPA's Northwest District Office at (419) 547-6033.

Sincerely,

Shannon M. Nabors

Shannon M. Nabors
District Chief

JR/cs
pc: Pamela Allen, DHWM, CO
Jeremy Carroll, EU, DHWM, CO
Harriet Croke, Region V, USEPA
Cindy Lohrbach, DHWM, NWDO
Dave Pollick, Sandusky County Health Commissioner
DHWM, NWDO File: Vickery Environmnetal, Inc.; Ohio Permit File
ec: Ed Merriman, DHWM, NWDO
Gary Deutschman, DHWM, NWDO
Jason Romp, DHWM, NWDO
Jeremy Carroll, EU, DHWM, CO
Kiet Chung, DHWM, CO
Lowe Chuck, DDAGW, CO
Deborah Haubert, Sandusky County Health Department

VICKERY

VICKERY ENVIRONMENTAL, INC.

3956 State Route 412, Vickery, OH 43464
Phone:419/547-7791XFax: 419/547-6144

August 19, 2005

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Vickery Environmental, Inc. (VEI) has requested a Class 2 permit modification. The modification will allow VEI to insert updated Waste Analysis Plan test methods in the facility's Ohio Hazardous Waste Facility Installation and Operation Permit Application.

As required by OAC 3745-50-51(D)(2)(b), VEI is sending you this notification of this modifications because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

VICKERY ENVIRONMENTAL, INC.

Robert A. Smith
Vice President

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Vickery Environmental, Inc. (VEI), located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its Ohio Hazardous Waste Operating Permit in accordance with OAC 3745-50-51(D)(2). The modification will allow VEI to insert updated Waste Analysis Plan test methods in the facility's Ohio Hazardous Waste Facility Installation and Operation Permit Application and to clarify the language of the cyanide and sulfide testing requirement.

A 60-day comment period will be held from August 19, 2005, to October 17, 2005 Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Ms. Pamela Allen
122 South Front Street
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2980

VEI will host a Public Meeting to provide information related to these requests. The public meeting is scheduled for 5:00 pm, Thursday September 8, 2005 at Vickery Environmental's Conference Room located at 3956 State Route 412, Vickery, Ohio.

The following individuals may be contacted:

VEI	Ohio EPA
Stephen C. Lonneman, General Manager	Jason Romp, On-Site Inspector
(419) 547-7791, extension 3305	(419) 547-6033
	(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

OHD 020273819

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone:419/547-7791XFax: 419/547-6144

January 14, 2005

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Class 2 Permit Modifications

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Vickery Environmental, Inc. (VEI) has requested a Class 2 permit modification. The modification will allow VEI to update language in the facility's Ohio Hazardous Waste Facility Installation and Operation Permit in order to be consistent with hazardous waste rules found in the Ohio Administrative Code, Ohio EPA's Ohio Hazardous Waste Facility Installation and Operation Permit boilerplate language and the permits of other commercial treatment, storage and disposal facilities located in Ohio.

As required by OAC 3745-50-51(D)(2)(b), VEI is sending you this notification of this modifications because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

VICKERY ENVIRONMENTAL, INC.

Robert A. Smith
Vice President

OhioEPA
State of Ohio Environmental Protection Agency

EET ADDRESS:
Lazarus Government Center
122 S. Front Street
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

CERTIFIED MAIL

November 19, 2004

Re: **Vickery Environmental, Inc.**
US EPA ID No: OHD 020 273 819
Ohio ID No: 03-72-0191

Steve Lonneman
Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

Dear Mr. Lonneman:

On August 18, 2004, Ohio EPA received Vickery Environmental, Inc.'s (Vickery) request to modify the Permit application for the installation of an additional tank to tank transfer line to better control the output of its tank blending process. For this modification, Vickery submitted a Class 2 permit modification application[1]. The Agency did not receive any verbal or written comments concerning the Class 2 modification. I have enclosed the final modified Ohio hazardous waste facility installation and operation permit (Permit) action that was issued by the director today. Please note that the modified Permit remains in effect until it is renewed, withdrawn, suspended or revoked.

You have the right to appeal this Permit decision to the Environmental Review Appeals Commission (ERAC) no later than 30 days after the public notice (See Ohio Revised Code § 3745.04). You may file your appeal with ERAC at the following address: Environmental Review Appeals Commission, 309 South Fourth Street, Room 222, Columbus, Ohio 43215.

If you file an appeal, you must put it in writing. Your appeal must explain why you are appealing the action(s) and the grounds you are using for your appeal. You must send a copy of the appeal to the director of the Ohio Environmental Protection Agency no later than three (3) days after you file it with ERAC.

---

[1]Ohio EPA assigned tracking # 040818-2-1 to this modification application.

Bob Taft, Governor
Jennette Bradley, Lieutenant Governor
Christopher Jones, Director

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If you have any questions, please contact John Pasquarette of Ohio EPA's Northwest District Office at (419) 352-8461.

Sincerely,

Pamela S. Allen

Pamela S. Allen, Manager
Regulatory and Information Services
Division of Hazardous Waste Management

cc: Jeremy Carroll/Shannon Ryan, ERAS, DHWM
Harriet Croke, U.S. EPA, Region V
John Pasquarette, NWDO, DHWM
Carol Hester, Ohio EPA, PIC
file

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PUBLIC NOTICE

Sandusky County

OHIO EPA ISSUES FINAL MODIFIED HAZARDOUS WASTE PERMIT

On November 19, 2004, Ohio EPA issued a final Class 2 modified Hazardous Waste Facility Installation and Operation Permit (Permit) to Vickery Environmental, Inc. for its facility at 3956 State Route 412, Vickery, Ohio 43464. The EPA Identification Number for this facility is OHD020273819.

Why is Vickery Environmental, Inc. modifying its Permit?

Vickery Environmental, Inc. (Vickery) is permitted to operate hazardous waste container and tank units and other related hazardous waste management units at its facility. Vickery wishes to modify Permit Application Drawings 9/1362, 10/1363, and 11/1364 to install a "T-Tank to T-Tank" transfer pipe and valves in the T-Tank pump house to improve blending of wastes in the T-Tank system. This final modified permit will allow Vickery to make the requested changes. To issue this final modified Permit, Ohio EPA determined that the modification application is complete and meets appropriate standards.

Can I appeal this final modified Permit?

Yes, if you are an officer of an agency of the state or of a political subdivision, acting in a representative capacity, or any person who would be aggrieved or adversely affected by this modified Permit, you have the right to appeal this Permit decision to the Environmental Review Appeals Commission (ERAC).

If I decide to appeal this final modified Permit, how and when must I make the appeal?

If you file an appeal, you must put it in writing no later **than December 19, 2004.** Your appeal must explain why you are appealing the action and the grounds you are using for your appeal. You must file your appeal, according to ORC § 3745.04, with ERAC at the following address: ***Environmental Review Appeals Commission***, 309 Fourth Street, Room 222, Columbus, Ohio 43215. You must send a copy of the appeal to the director of Ohio EPA at the following address no later than three (3) days after you file it with ERAC: ***Christopher Jones, Director of Ohio EPA***, P.O. Box 1049, Columbus, Ohio 43216-1049

OHIO E.P.A.

NOV 19 2004

ENTERED DIRECTOR'S JOURNAL

OHIO ENVIRONMENTAL PROTECTION AGENCY

MODIFIED OHIO HAZARDOUS WASTE FACILITY INSTALLATION AND OPERATION PERMIT

Date of Issuance: November 19, 2004
Effective Date: November 19, 2004

U.S. EPA ID No.: OHD 020 273 819
Ohio Permit No.: 03-72-0191

Name of Permittee: Vickery Environmental, Inc.

Mailing Address: 3956 State Route 412
Vickery, Ohio 43464

Facility Location: 3956 State Route 412
Vickery, Ohio 43464

Person to Contact: Steve Lonneman

This Modified Ohio Hazardous Waste Facility Installation and Operation Permit is issued pursuant and subject to Section 3734.05(I) of the Ohio Revised Code and Rule 3745-50-51(D) of the Ohio Administrative Code.

The Ohio Hazardous Waste Facility Installation and Operation Permit with the above-referenced permit number as issued by the Ohio Environmental Protection Agency and journalized on August 17, 2001, is hereby incorporated by reference in its entirety, except as it may be modified herein.

This modification of the permit shall remain in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended or revoked.

The Permittee shall comply with all requirements of the modified Part B permit application as amended or supplemented on August 18, 2004, and September 16, 2004. The information contained in the modified Part B permit application is incorporated herein by reference. Specifically, all written statements regarding the specifications, locations or capabilities of the processes, equipment, containment devices, safety devices or programs or other matters made by the applicant in the permit modification application are hereby incorporated as express, binding terms and conditions of this modified permit.

Christopher Jones
Director

I certify this to be a true and correct copy of the [illegible] Ohio Environmental Protection Agency

By [illegible] 11/19/04

OHIO ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF HAZARDOUS WASTE MANAGEMENT

SUMMARY OF MODIFICATION TO HAZARDOUS WASTE INSTALLATION AND OPERATION PERMIT

Vickery Environmental, Inc.
U.S. EPA ID #: OHD 020 273 819
Ohio ID #: 03-72-0191

Modification of the Hazardous Waste Facility Installation and Operation Permit will authorize Vickery Environmental, Inc. (VEI) to make the following change:

Class 2 Modification:

- Modify VEI's Permit Application, Drawings 9/1362, 10/1363, and 11/1364 to install a "T-Tank to T-Tank" transfer pipe and valves in the T-Tank pump house to improve blending of wastes in the T-Tank system.

OHIO EPA DHWM

NOV 19 2004

OhioEPA

State of Ohio Environmental Protection Agency

Northwest District Office

347 North Dunbridge Road
Bowling Green, OH 43402-9398

TELE: (419) 352-8461 FAX: (419) 352-8468

Bob Taft, Governor
Christopher Jones, Director

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APR 20 2004

Technical Support and Permits Section
Waste Management Branch
Waste, Pesticides and Toxics Division
U.S. EPA - Region 5

April 14, 2004

Certified Mail 7003 2260 0007 6056 1841

Mr. Steve Lonneman
Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

Re: Hazardous Waste Permit Modification
Notice of Deficiency
Vickery Environmental, Inc.
Class 2 Modification for T-Tank System
U.S. EPA ID# OHD 020 273 819
Ohio Permit # 03-72-0191

Dear Mr. Lonneman:

On January 27, 2004, Ohio EPA received two Class 2 hazardous waste permit modification applications (tracking numbers - OHD 020273819-040127-2-1 and OHD 020273819-040127-2-2) from Vickery Environmental, Inc., (VEI) requesting to remove language in the facility's permit application which lists specific products to be used as liner material in the T-Tanks and the T-Tank secondary containment system. This permit modification is needed because the liner material specified in the facility's permit is no longer available. This permit modification will allow the facility to select the most appropriate liner material needed to meet the requirements of Ohio Administrative Code (OAC) Rules 3745-55-92 and 3745-55-93.

Ohio EPA, Division of Hazardous Waste Management (DHWM) has conducted a completeness/technical adequacy review of the above referenced modification application, and has determined it to be incomplete and technically inadequate. This application has been reviewed pursuant to the rules published in the Hazardous Waste Facility Standards Chapters in the OAC and the corresponding Federal regulations.

We have enclosed completeness/technical adequacy comments that are the result of this review (see Attachment A). Please provide detailed information addressing all areas indicated on the comment sheets to Ohio EPA within 30 days of the date of receipt of this correspondence. This submission shall be in accordance with the following editorial protocol or convention:

EDITORIAL PROTOCOL

1. Old language is overstruck. Delete language overstruck in previous versions as necessary to maintain only current language and its immediate antecedent overstruck language.

2. New language is capitalized or redlined.

3. Page headers should indicate date of submission or version designation.

4. If significant changes are necessary, pages should be renumbered, table of contents revised, and complete sections provided as required.

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5. Each original application, or amended version must be prefaced by an updated "List of Effective Pages." The purpose of this requirement is to create a standard mechanism to specify and verify the content of the Part B permit application. Each "List of Effective Pages" must contain, at minimum, an inventory of pages for the entire document, posting directions, and a chronology of versions. The inventory of pages must positively identify each effective attachment by its page, drawing, figure or table designation, and, unless an original page, by its current version designation or date of submission as specified in the inventory of pages. Enclosed is an example of "List of Effective Pages" and associated page markings. RCRA Engineering Section, Division of Hazardous Waste Management, Central Office, Ohio EPA may authorize individual facilities to use an alternate method of specifying the content of their Part B permit application on a case-by-case basis.

6. Each original application or version must be accompanied by a certification letter as specified in OAC Rule 3745-50-42(D).

Please send one copy each to:

Pamela Allen, Manager
Ohio EPA, DHWM
Regulatory & Information Services Section
122 South Front Street
P. O. Box 1049
Columbus, Ohio 43216-1049

Harriet Croke, Chief
Ohio Permitting Section (HRP-8J)
Waste Management Division
U.S. EPA, Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Please send two copies to:

Jason Romp, Environmental Specialist
Ohio EPA, NWDO
Division of Hazardous Waste Management
347 North Dunbridge Road
Bowling Green, Ohio 43402

In the course of the technical adequacy review, we may request additional information if it is necessary to clarify, modify or supplement previous submissions of information in order to substantively evaluate the permit application for adequacy.

Failure to submit a complete permit application or to correct deficiencies in the application may result in the following:

1. revocation of your existing Ohio Hazardous Waste Facility Installation and Operation Permit;

2. denial of the permit application; and

3. referral of the matter to the Ohio Attorney General's Office for appropriate enforcement action.

We request that the facility contact me at (419)547-6033 within ten (10) days of receipt of this NOD to discuss each of the enclosed comments in order to make clear the information being requested. This can be accomplished by a conference call or meeting.

Thereafter, any questions concerning the review of this permit application and the level of detail expected should also be addressed to me.

Sincerely,

Gary S. Deutschman for Jason Romp

Jason M. Romp
Environmental Specialist
Division of Hazardous Waste Management

/cs

pc: Harriet Croke, USEPA, Region V
Jeremy Carroll, EU, DHWM, CO
Pamela Allen, DHWM, RIS, CO
Cindy Lohrbach, DHWM, NWDO
Dave Pollick, Sandusky County Health Commissioner
DHWM, NWDO File: Vickery Environmental, Inc.; Ohio Permit File

ec: John Pasquarette, DHWM, NWDO
Eric Getz, DHWM, NWDO
Gary Deutschman, DHWM, NWDO
Jason Romp, DHWM, NWDO
Shannon Ryan, DHWM, CO

ATTACHMENT A

Vickery Environmental, Inc.
Class 2 Hazardous Waste Permit Modification
Notice of Deficiency
U.S. EPA ID# OHD 020 273 819
Ohio Permit # 03-72-0191

The following Ohio EPA comments are based on Vickery Environmental, Inc.'s (VEI) two Class 2 Permit Modification Requests (PMR) dated January 23, 2004, (i.e., PITS tracking numbers OHD020273819-040127-2-1 and OHD020273819-040127-2-2) regarding the corrosion resistant lining materials used in the facility's T-Tanks and T-Tank secondary containment system:

Comments

1. VEI must revise the PMR to indicate that the internal T-Tank liners, external T-Tank liners and secondary containment system liner will meet the requirements of both OAC Rule 3745-55-92 and OAC Rule 3745-55-93, instead of just OAC Rule 3745-55-93 as the PMR currently indicates.

2. In addition to stating that the liner material will meet OAC Rule 3745-55-92 and OAC Rule 3745-55-93, Vickery must describe the technical standards (e.g., ASTM, etc.) and procedures that the facility will use to evaluate/choose the lining materials. VEI must describe the process the facility will follow to verify that the lining materials will be corrosion resistant, compatible with the waste in the tanks, resistant to UV exposure deterioration (where applicable), resistant to heat/cold deterioration, resistant to abrasion deterioration, etc. in the Part B Application. This should be included in Appendix 12.

3. Condition D.6(c) of VEI's Ohio Hazardous Waste Installation and Operation Permit states in part, "For all major repairs to eliminate leaks or restore the integrity of the tank system, the Permittee must obtain a certification by an independent, qualified, registered, professional engineer in accordance with OAC Rule 3745-50-42(D) that the repaired system is capable of handling hazardous wastes without release for the intended life of the system before returning the system to service." Therefore, the written assessment for the T-Tank liners, external T-Tank liners and secondary containment system liner must be revised appropriately to reflect current or "as-built" conditions following the repairs, including any new PE certifications completed as part of the repairs. This revision must also include the results of the waste compatibility tests and corrosion resistance tests, etc. for the material(s) used in the repairs. The revised written assessment must be incorporated into the Part B Application via a PMR in accordance with OAC Rule 3745-50-51.

4. VEI has struck the reference to the "Donohue-Foundation and Containment Structure Specifications" on pages 00949 through 01018 of the permit modification request. However, VEI failed to strikeout the reference to these specifications in Appendix 12, Table of Contents. VEI must be consistent and strike out the reference in the Appendix 12, Table of Contents.

OHD 020 273 819 B/S

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone: 419/547-7791 • Fax: 419/547-6144

RECEIVED

JAN 30 2004

Technical Support
Waste Management
Waste, Pesticide
U.S. E.

January 23, 2004

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Class 2 Permit Modifications

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Vickery Environmental, Inc. (VEI) has requested Class 2 permit modifications. The purpose of these modifications is to allow the facility to evaluate corrosion resistant liner materials for the T-Tanks and the T-Tank secondary containment system and select the most appropriate liner needed based on the requirements of OAC 3745-55-93 and the materials currently being stored in the facility's T-Tank system. The current permit lists a specific product that is used as a liner in the T-Tanks and the T-Tank secondary containment system. This permit modification will allow VEI to avoid using obsolete liner materials by giving the facility the ability to select the most appropriate liner material at the time of need.

As required by OAC 3745-50-51(D)(2)(b), VEI is sending you this notification of these modifications because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

VICKERY ENVIRONMENTAL, INC.

Robert A. Smith
Vice President

WM
WASTE MANAGEMENT

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Vickery Environmental, Inc. (VEI), located at 3956 State Route 412, Vickery, Ohio has requested Class 2 Modifications of its Ohio Hazardous Waste Operating Permit in accordance with OAC 3745-50-51(D)(2)(a). The purpose of these modifications is to allow the facility to evaluate corrosion resistant liner materials for the T-Tanks and the T-Tank secondary containment system and select the most appropriate liner needed based on the requirements of OAC 3745-55-93 and the materials currently being stored in the facility's T-Tank system. The current permit lists a specific product that is used as a liner in the T-Tanks and the T-Tank secondary containment system. This permit modification will allow VEI to avoid using obsolete liner materials by giving the facility the ability to select the most appropriate liner material at the time of need.

A 60 day comment period will be held from January 28, 2004 to March 27, 2004 Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Ms. Pamela Allen
122 South Front Street
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2980

VEI will host a Public Meeting to provide information related to these requests. The public meeting is scheduled for 5:00 pm, Thursday February 19, 2004, at Vickery Environmental's Conference Room located at 3956 State Route 412, Vickery, Ohio.

The following individuals may be contacted:

VEI
Stephen C. Lonneman, General Manager
(419) 547-7791, extension 3305

Ohio EPA
Jason Romp, On-Site Inspector
(419) 547-6033
(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone: 419/547-7791 • Fax: 419/547-6144

January 24, 2004

RE: Vickery Environmental, Inc.
OHD 020 273 819
Class 1 Permit Modification

Dear Citizen:

Your name is on the "facility mailing list" for Vickery Environmental, Inc. (VEI). As required by OAC 3745-50-51 (D)(1)(a)(ii), VEI is informing you of the following Class 1 Modification for its Ohio Hazardous Waste Permit issued October 24, 1994 and renewed on August 17, 2001.

On January 20, 2004, VEI replaced the T-9 recirculation pump. This replacement was with functionally equivalent components and there were no changes to the facility's Part B Permit Application.

Sincerely,

VICKERY ENVIRONMENTAL, Inc.

Stephen C. Lonneman
General Manager

SCL/tr

OhioEPA

State of Ohio Environmental Protection Agency

STREET ADDRESS:
Lazarus Government Center
122 S. Front Street
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

CERTIFIED MAIL

April 4, 2003

Re: **Vickery Environmental, Inc.**
EPA ID No: OHD 020 273 819
Ohio ID No: 03-72-0191
Modified Hazardous Waste Permit

Mr. Stephen C. Lonneman
Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464

RECEIVED
APR 21 2003
Technical Support and Permits Section
Waste Management Branch
Waste, Pesticides and Toxics Division
U.S. EPA - Region 5

Dear Mr. Lonneman:

On December 23, 2002, Ohio EPA received Vickery Environmental, Inc.'s request to 1) modify the facility Waste Analysis Plan to include a definition of Waste Broker and new logic to analyze railcars, and 2) to use an installed T-pipe connection, valves and a section of piping to allow direct unloading of waste to a permitted treatment tank. For these modifications, Vickery Environmental, Inc. submitted two Class 2 modification applications[1]. The Agency did not receive written comments concerning these Class 2 modification applications. I have enclosed the final modified Ohio hazardous waste facility installation and operation permit (Permit) that was issued by the director today. Please note that the modified Permit remains in effect until it is renewed, withdrawn, suspended or revoked.

You have the right to appeal this Permit decision to the Environmental Review Appeals Commission (ERAC) no later than 30 days after the public notice (See Ohio Revised Code § 3745.04). You may file your appeal with ERAC at the following address: Environmental Review Appeals Commission, 236 E. Town Street, Room 300, Columbus, Ohio 43215.

If you file an appeal, you must put it in writing. Your appeal must explain why you are appealing the action and the grounds you are using for your appeal. You must send a copy of the appeal to the director of the Ohio Environmental Protection Agency no later than three (3) days after you file it with ERAC.

---

[1]Ohio EPA assigned tracking #s 021223-2-01 and 021223-2-02 to these modification applications.

If you have any questions, please contact David Schilt of the Northwest District Office at (419) 352-8461.

Sincerely,

for Pamela S. Allen, Manager
Regulatory and Information Services
Division of Hazardous Waste Management

cc: Jeremy Carroll/Shannon Ryan, ERAS, DHWM
Harriet Croke, U.S. EPA, Region V
Raymond Roe, Hazardous Waste Facility Board
Eric Getz/David Schilt, NWDO, DHWM
Carol Hester, Ohio EPA, PIC

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PUBLIC NOTICE

Sandusky County

OHIO EPA ISSUES FINAL MODIFIED HAZARDOUS WASTE PERMIT

On April 4, 2003, Ohio EPA issued a final modified Hazardous Waste Facility Installation and Operation Permit (Permit) to Vickery Environmental, Inc. for its facility at 3956 State Route 412, Vickery, Ohio 43464. The EPA Identification Number for this facility is OHD020273819.

Why is Vickery Environmental, Inc. modifying its Permit?

Vickery Environmental, Inc. is permitted to operate hazardous waste container and tank units and other related hazardous waste management units at its facility. Vickery wants to 1) modify the facility Waste Analysis Plan to include a definition of Waste Broker and new logic to analyze railcars, and 2) to use an installed T-pipe connection, valves and a section of piping to allow direct unloading of waste to a permitted treatment tank. To issue this final modified Permit, Ohio EPA determined that the modification application is complete and meets appropriate standards.

Can I appeal this final modified Permit?

Yes, if you are an officer of an agency of the state or of a political subdivision, acting in a representative capacity, or any person who would be aggrieved or adversely affected by this modified Permit, you have the right to appeal this Permit decision to the Environmental Review Appeals Commission (ERAC).

If I decide to appeal this final modified Permit, how and when must I make the appeal?

If you file an appeal, you must put it in writing no later than **May 7, 2003.** Your appeal must explain why you are appealing the action and the grounds you are using for your appeal. You must file your appeal according to ORC § 3745.04, with ERAC at the following address: ***Environmental Review Appeals Commission***, 236 E. Town Street, Room 300, Columbus, Ohio 43215. You must send a copy of the appeal to the director of Ohio EPA at the following address no later than three (3) days after you file it with ERAC: ***Christopher Jones, Director of Ohio EPA***, P.O. Box 1049, Columbus, Ohio 43216-1049.

OHIO ENVIRONMENTAL PROTECTION AGENCY

MODIFIED OHIO HAZARDOUS WASTE FACILITY INSTALLATION AND OPERATION PERMIT

Date of Issuance: April 4, 2003
Effective Date: April 4, 2003

U.S. EPA ID No.: OHD 020 273 819
Ohio Permit No.: 03-72-0191

Name of Permittee: Vickery Environmental, Inc.

Mailing Address: 3956 State Route 412
Vickery, Ohio 43464

Facility Location: 3956 State Route 412
Vickery, Ohio 43464

Person to Contact: Steve Lonneman

ENTERED DIRECTOR'S JOURNAL
APR -4 2003
OHIO E.P.A.

This Modified Ohio Hazardous Waste Facility Installation and Operation Permit is issued pursuant and subject to Section 3734.05(I) of the Ohio Revised Code and Rule 3745-50-51(D) of the Ohio Administrative Code.

The Ohio Hazardous Waste Facility Installation and Operation Permit with the above-referenced permit number as issued by the Ohio Environmental Protection Agency and journalized on August 17, 2001, is hereby incorporated by reference in its entirety except as it may be modified herein.

This modification of the permit shall remain in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended or revoked.

The Permittee shall comply with all requirements of the modified Part B permit application as amended or supplemented on December 23, 2002. The information contained in the modified Part B permit application is incorporated herein by reference. Specifically, all written statements regarding the specifications, locations or capabilities of the processes, equipment, containment devices, safety devices or programs or other matters made by the applicant in the permit modification application are hereby incorporated as express, binding terms and conditions of this modified permit.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: [illegible] Date 4/4/03

The modified Terms and Conditions of this permit are attached hereto and are incorporated herein by reference. The modified Terms and Conditions supersede and replace the corresponding pages found in the August 17, 2001, renewal permit.

Christopher Jones
Director

OHIO EPA DHWM

APR 04 2003

OHIO ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF HAZARDOUS WASTE MANAGEMENT

SUMMARY OF MODIFICATIONS TO HAZARDOUS WASTE INSTALLATION AND OPERATION PERMIT

Vickery Environmental, Inc.
U.S. EPA ID #: OHD020273819
Ohio ID #: 03-72-0191

Modifications of the Hazardous Waste Facility Installation and Operation Permit will authorize Vickery Environmental, Inc. to make the following changes:

Class 2 Modifications:

1. Approval to modify the facility Waste Analysis Plan to include a definition of Waste Broker and new logic for the analysis of railcars. (Tracking number - 021223-2-01)

2. Approval to use an installed T-pipe connection, valves and a section of piping to allow for direct unloading of waste to a permitted treatment tank. (Tracking number - 021223-2-02)

OHIO EPA DHWM

APR 04 2003

6. Oil Maintenance Centers
7. Pond Closures
8. Remedial Action Superfund Sites*
9. RCRA Corrective Action Projects*
10. Timber/Lumber Treating Facilities
11. Hydraulic Equipment
12. Remedial Action Projects*
13. Landfill Leachate*

* Unless demonstrated non-TSCA

Brokered Waste is a waste that is managed by a third party and the original generator is not identified on the manifest as the generator. Businesses that receive third party wastes into storage and subsequently ship them to Vickery or receive third party waste for treatment but do not significantly change the aqueous characteristics of the wastewater. Examples of 'Waste Brokers' are: 1) facilities that consolidate drummed waste into bulk loads; 2) Solvent recyclers who separate water from the solvent and ship the water phase; 3) A TSDF that receive acid or basic wastes that are subsequently shipped to Vickery. Examples of waste streams that are not from 'Waste Brokers' are: 1) TSDF Incinerator scrubber water; 2) Recyclable Pickle Liquor.

-- Before each load is considered for acceptance without PCB analysis, Vickery obtains information from the transporter regarding the contents of the last load contained in the tanker prior to the load being received at the Vickery Facility. If the last load was from a generator who would not likely qualify to be on the list, and testing was not performed to confirm the absence of PCBs in the last load, a PCB screen is run on the current load

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APR 04 2003

prior to acceptance. If no information can be obtained on the last load, a PCB screen is run on the current load prior to acceptance. NOTE: If the truck was washed/cleaned before picking up the current load, the current load may be considered for acceptance without PCB screening.

-- For railcar shipments, the railcar is sampled and analyzed as required by Section 5.1. A PCB screen is performed on the railcar sample, ~~as required by the logic above.~~ or on the first truck loaded from each individual railcar for the first 10 railcars. If approved, each subsequent tanker load from the same railcar would not require PCB screening as long as Vickery obtains information from the transporter regarding the contents of the last load contained in the tanker prior to the load being received at the Vickery Facility, as described above. After the first ten railcars are received, as required by this logic, Vickery will perform a PCB screen on at least 10% (1 in 10) of all subsequent railcars by performing the PCB analysis on the first truck loaded from that particular railcar for that waste stream.

OHIO EPA DHWM

APR 0 4 2003

and/or supplemental analysis required prior to, or in conjunction with, arrival of a shipment onsite. Waste shipments that have arrived at the facility are considered to be in the receiving process until the laboratory or facility management makes a final decision regarding waste acceptability.

All bulk liquid waste deliveries are sampled and analyzed, with the exception of tank truck loads from rail car transfers. ~~the Toledo Transfer Facility.~~ ~~Each r~~Rail cars will either be ~~is~~ presampled at the ~~Toledo~~ ~~T~~transfer ~~F~~facility, with the samples being ~~DOT packaged and~~ transported to the Vickery facility to be analyzed or all trucks loaded from the rail car transfers will be sampled and analyzed at the Vickery facility. If the rail car is presampled, ~~A~~all tanker truck transfer shipments from the individual rail cars need not be resampled except to provide the analysis necessary to safely manage the load in the facility's tank system. If the rail cars are not presampled all incoming trucks will be analyzed according to the "Mandatory Analyses" identified in Section 3.1. All tanker truck transfer shipments are subject to chain-of-custody procedures. Samples from incoming waste shipments are subject to the "Mandatory Analyses" identified in Section 3.1.

5.2 Decision Evaluation Logic

The technical evaluation logic utilized in deciding whether to accept or reject a particular waste shipment is depicted in Figure 5-1. As outlined in Figure 5-1, there are specific major decision points. They are:

- The need for additional supplemental analyses
- The actual waste identification

OHIO EPA DHWM

APR 04 2003

- An evaluation of whether a waste conforms to the waste profile, and

- An evaluation of whether a waste found to be in "non-conformance" can still be accepted.

OHIO EPA DHWM

APR 0 4 2003

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone: 419/547-7791 • Fax: 419/547-6144

December 16, 2002

Re: Vickery Environmental, Inc.
OHD 020 273 819
RCRA Class 2 Permit Modifications

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Vickery Environmental, Inc. has requested Class 2 permit modifications. The purpose of these modifications is to include, a site definition of Waste Brokers, new logic used in analyzing railcar waste streams for PCB's and new logic used in analyzing railcars according the facility's "Mandatory Analyses". Also, a Class 2 permit modifications is being requested to use an installed T-pipe connection, a valve and approximately 2 feet of piping from the T-10 direct unloading line to the T-5 neutral fill line. This modification will allow VEI utilize this new installation in order to direct unload to T-5 in order to better manage the facility's incoming waste streams. Furthermore, VEI has updated the facility's engineering drawings to incorporate past modifications in the facility's piping.

As required by OAC 3745-50-51(D)(2)(b), VEI is sending you this notification of these modifications because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

VICKERY ENVIRONMENTAL, INC.

Stephen C. Lonneman
General Manager

WASTE MANAGEMENT

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Vickery Environmental, Inc. (VEI), located at 3956 State Route 412, Vickery, Ohio has requested Class 2 Modifications of its Ohio Hazardous Waste Operating Permit in accordance with OAC 3745-50-51(D)(2)(a). The purpose of these modification is to include, a site definition of Waste Brokers, new logic used in analyzing railcar waste streams for PCB's and new logic used in analyzing railcars according the facility's "Mandatory Analyses". Also, a Class 2 permit modifications is being requested to use an installed T-pipe connection, a valve and approximately 2 feet of piping from the T-10 direct unloading line to the T-5 neutral fill line. This modification will allow VEI utilize this new installation in order to direct unload to T-5 in order to better manage the facility's incoming waste streams. Furthermore, VEI has updated the facility's engineering drawings to incorporate past modifications in the facility's piping.

A 60 day comment period will be held from December 20, 2002, to February 17, 2003. Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Ms. Pamela Allen
122 South Front Street
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2980

VEI will host a Public Meeting to provide information related to these requests. The public meeting is scheduled for 6:00 pm, Thursday, January 9, 2002 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio

The following individuals may be contacted:

VEI
Stephen C. Lonneman, General Manager
(419) 547-7791, extension 3305

Ohio EPA
David Schilt, On-Site Inspector
(419) 547-6033
(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

SEP 25 2001

DW-8J

CERTIFIED MAIL: 7099 3400 0000 9585 2362
RETURN RECEIPT REQUESTED

Stephen C. Lonneman
General Manager
Vickery Environmental, Inc.
3956 State Route 412
Vickery, OH 43464

RE: Class 2 Permit Modification Request
Vickery Environmental, Inc.
OHD 020 273 819

Dear Mr. Lonneman:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the Vickery Environmental, Inc. Class 2 Federal Resource Conservation and Recovery Act (RCRA) permit modification request. The Class 2 modification request, dated June 12, 2001, was submitted in accordance with Title 40 Code of Federal Regulations (40 C.F.R.) §270.42(g)(1)(iv) for newly listed hazardous waste codes. On May 3, 2001, Vickery Environmental, Inc. submitted a Class 1 Federal RCRA permit modification request in accordance with 40 C.F.R. §270.42(g)(1)(ii) for newly listed hazardous waste codes. Subsequently, the U.S. EPA approved the Class 1 Federal RCRA permit modification.

The U.S. EPA has reviewed the Class 2 Federal RCRA permit modification request and has determined that it meets the requirements of 40 C.F.R §270.42(b). Therefore, the U.S. EPA approves the Vickery Environmental, Inc. Class 2 modification of the Federal portion of the RCRA permit adding the newly listed waste codes K-174 and K-175.

The revisions to the permit are included as an enclosure to this letter. Please replace Pages 16 and 17 (of 18) of the original permit with the revised Pages 16 and 17.

Should you have any questions, please contact Greg Czajkowski, a member of my staff, at (312) 886-6838.

Sincerely,

ORIGINAL SIGNED BY
KARL E. BREMER

Karl E. Bremer, Chief
Waste Management Branch

Enclosure

cc w/enclosure: Ed Lim OEPA
Dave Schilt, OEPA Onsite Inspector

DW-8J:GCzajkowski:Class2\class2mod Vickery Environmental, Inc.

WASTE MANAGEMENT BRANCH

SECRETARY	SECRETARY	SECRETARY
		9/20/01
TYPIST/ AUTHOR	TSPS SECTION CHIEF	WMB BRANCH CHIEF
CZAJKOWSKI 9-17-01	for 9/19/01	9/24/01

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 25 2001

REPLY TO THE ATTENTION OF:
DW-8J

CERTIFIED MAIL: 7099 3400 0000 9585 2362
RETURN RECEIPT REQUESTED

Stephen C. Lonneman
General Manager
Vickery Environmental, Inc.
3956 State Route 412
Vickery, OH 43464

RE: Class 2 Permit Modification Request
Vickery Environmental, Inc.
OHD 020 273 819

Dear Mr. Lonneman:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the Vickery Environmental, Inc. Class 2 Federal Resource Conservation and Recovery Act (RCRA) permit modification request. The Class 2 modification request, dated June 12, 2001, was submitted in accordance with Title 40 Code of Federal Regulations (40 C.F.R.) §270.42(g)(1)(iv) for newly listed hazardous waste codes. On May 3, 2001, Vickery Environmental, Inc. submitted a Class 1 Federal RCRA permit modification request in accordance with 40 C.F.R. §270.42(g)(1)(ii) for newly listed hazardous waste codes. Subsequently, the U.S. EPA approved the Class 1 Federal RCRA permit modification.

The U.S. EPA has reviewed the Class 2 Federal RCRA permit modification request and has determined that it meets the requirements of 40 C.F.R §270.42(b). Therefore, the U.S. EPA approves the Vickery Environmental, Inc. Class 2 modification of the Federal portion of the RCRA permit adding the newly listed waste codes K-174 and K-175.

The revisions to the permit are included as an enclosure to this letter. Please replace Pages 16 and 17 (of 18) of the original permit with the revised Pages 16 and 17.

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 50% Recycled Paper (20% Postconsumer)

Should you have any questions, please contact Greg Czajkowski, a member of my staff, at (312) 886-6838.

Sincerely,

Karl E. Bremer, Chief
Waste Management Branch

Enclosure

cc w/enclosure: Ed Lim, OEPA
Dave Schilt, OEPA Onsite Inspector

IV. TOXICITY CHARACTERISTIC

A. WASTE IDENTIFICATION:

Early Terminated

B. WASTE CHARACTERIZATION:

Early Terminated

C. SPECIFICATION OF HAZARDOUS WASTES

The Permittee may store, treat and dispose of the following wastes in tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Units
Liquid Waste	See list below	1,102,600 gallons	Tank Storage (S02)
Liquid Waste	See list below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See list below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See list below	2.4×10^9 gallons	Injection Well Disposal (D79)

EPA Hazardous Waste Numbers: K140, K169, K170, K171, K172, K174, K175, U408

D. CONDITIONS REGARDING THE UNITS

1. All units described in Condition IV.C above shall be operated in accordance with the State permit conditions and the State Underground Injection Control Permit conditions pertaining to those units.

2. The permittee shall follow the waste analysis procedures required in 40 CFR Part 264, and as described in the Waste Analysis Plan found in Attachment III.

F. DUTY TO COMPLY WITH FUTURE REQUIREMENTS

In addition to the waste numbers listed in the State-issued portion of the RCRA permit, the Permittee may handle newly listed hazardous wastes promulgated under the Hazardous and Solid Waste Amendments of 1984 at your facility only if the Permittees have processed and recieved Director's approval for a Class 2 modification in accordance with 40 CFR § 270.42(g). All handling of these waste codes must comply with the applicable provisions of both the State-issued portion and the Federally-issued portion of the RCRA permit.

V. AIR EMISSIONS STANDARDS

A. PROCESS VENTS

The permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart AA, regarding air emission standards for process vents.

B. EQUIPMENT LEAKS

The permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart BB, regarding air emission standards for equipment leaks.

C. TANKS, SURFACE IMPOUNDMENTS, AND CONTAINERS

The permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart CC, regarding air emission standards for tanks, surface impoundments and containers.

D. RECORDKEEPING AND REPORTING

The permittee shall comply with all applicable recordkeeping and reporting requirements described in 40 CFR Parts 264.1035, 264.1036, 264.1064, 264.1065, 264.1089 and 264.1090.

E. NOTIFICATION OF REGULATED ACTIVITY

The permittee shall notify the Regional Administrator of any waste management units which become subject to the requirements of 40 CFR Part 264, Subparts AA, BB, and CC within 30 days of startup of the regulated activity.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 25 2001

REPLY TO THE ATTENTION OF:
DW-8J

CERTIFIED MAIL: 7099 3400 0000 9585 2362
RETURN RECEIPT REQUESTED

Stephen C. Lonneman
General Manager
Vickery Environmental, Inc.
3956 State Route 412
Vickery, OH 43464

RE: Class 2 Permit Modification Request
Vickery Environmental, Inc.
OHD 020 273 819

Dear Mr. Lonneman:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the Vickery Environmental, Inc. Class 2 Federal Resource Conservation and Recovery Act (RCRA) permit modification request. The Class 2 modification request, dated June 12, 2001, was submitted in accordance with Title 40 Code of Federal Regulations (40 C.F.R.) §270.42(g)(1)(iv) for newly listed hazardous waste codes. On May 3, 2001, Vickery Environmental, Inc. submitted a Class 1 Federal RCRA permit modification request in accordance with 40 C.F.R. §270.42(g)(1)(ii) for newly listed hazardous waste codes. Subsequently, the U.S. EPA approved the Class 1 Federal RCRA permit modification.

The U.S. EPA has reviewed the Class 2 Federal RCRA permit modification request and has determined that it meets the requirements of 40 C.F.R §270.42(b). Therefore, the U.S. EPA approves the Vickery Environmental, Inc. Class 2 modification of the Federal portion of the RCRA permit adding the newly listed waste codes K-174 and K-175.

The revisions to the permit are included as an enclosure to this letter. Please replace Pages 16 and 17 (of 18) of the original permit with the revised Pages 16 and 17.

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Should you have any questions, please contact Greg Czajkowski, a member of my staff, at (312) 886-6838.

Sincerely,

Karl E. Bremer, Chief
Waste Management Branch

Enclosure

cc w/enclosure: Ed Lim, OEPA
Dave Schilt, OEPA Onsite Inspector

IV. TOXICITY CHARACTERISTIC

A. WASTE IDENTIFICATION:

Early Terminated

B. WASTE CHARACTERIZATION:

Early Terminated

C. SPECIFICATION OF HAZARDOUS WASTES

The Permittee may store, treat and dispose of the following wastes in tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Units
Liquid Waste	See list below	1,102,600 gallons	Tank Storage (S02)
Liquid Waste	See list below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See list below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See list below	2.4×10^9 gallons	Injection Well Disposal (D79)

EPA Hazardous Waste Numbers: K140, K169, K170, K171, K172, K174, K175, U408

D. CONDITIONS REGARDING THE UNITS

1. All units described in Condition IV.C above shall be operated in accordance with the State permit conditions and the State Underground Injection Control Permit conditions pertaining to those units.

2. The permittee shall follow the waste analysis procedures required in 40 CFR Part 264, and as described in the Waste Analysis Plan found in Attachment III.

F. DUTY TO COMPLY WITH FUTURE REQUIREMENTS

In addition to the waste numbers listed in the State-issued portion of the RCRA permit, the Permittee may handle newly listed hazardous wastes promulgated under the Hazardous and Solid Waste Amendments of 1984 at your facility only if the Permittees have processed and recieved Director's approval for a Class 2 modification in accordance with 40 CFR § 270.42(g). All handling of these waste codes must comply with the applicable provisions of both the State-issued portion and the Federally-issued portion of the RCRA permit.

V. AIR EMISSIONS STANDARDS

A. PROCESS VENTS

The permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart AA, regarding air emission standards for process vents.

B. EQUIPMENT LEAKS

The permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart BB, regarding air emission standards for equipment leaks.

C. TANKS, SURFACE IMPOUNDMENTS, AND CONTAINERS

The permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart CC, regarding air emission standards for tanks, surface impoundments and containers.

D. RECORDKEEPING AND REPORTING

The permittee shall comply with all applicable recordkeeping and reporting requirements described in 40 CFR Parts 264.1035, 264.1036, 264.1064, 264.1065, 264.1089 and 264.1090.

E. NOTIFICATION OF REGULATED ACTIVITY

The permittee shall notify the Regional Administrator of any waste management units which become subject to the requirements of 40 CFR Part 264, Subparts AA, BB, and CC within 30 days of startup of the regulated activity.

VICKERY

VICKERY ENVIRONMENTAL, INC.
3956 State Route 412, Vickery, OH 43464
Phone: 419/547-7791 • Fax: 419/547-6144

Fax

Name:	Greg Czajkowski
Organization:	USEPA Region V
Fax:	312-353-4788
Phone:	312-886-6838
From:	Sandy Clark
Organization:	Vickery Environmental, Inc.
Date:	8/28/01
Subject:	Federal Permit
Pages:	19 (including cover page)

Comments: Per our discussion.

WM
WASTE MANAGEMENT

Waste Management of Ohio, Inc. Vickery
OHD 020 273 819
November 5, 1999

PERMIT INDEX

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ATTACHMENTS:

I. List of Solid Waste Management Units

II. RCRA Corrective Action Scope of Work

III. Waste Analysis Plan

PERMIT CONDITIONS

(Note: The regulatory citations in parentheses are incorporated by reference.)

I. STANDARD CONDITIONS

A. EFFECT OF PERMIT (40 CFR 270.4 and 270.30(g))

The Permittee is allowed to manage hazardous waste in accordance with the conditions of the RCRA permit. Any management of hazardous waste not authorized in the RCRA permit is prohibited.

Compliance with the RCRA permit during its term constitutes compliance, for the purposes of enforcement, with Subtitle C of RCRA, except for those requirements not included in the permit which become effective by statute, or which are promulgated under 40 CFR Part 268, restricting the placement of hazardous waste in or on the land. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Sections 3008(a), 3008(h), 3013, or 7003 of RCRA; Sections 104, 106(a), or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (42 U.S.C. §9601 et seq., commonly known as CERCLA); or any other law providing for protection of public health or the environment.

B. PERMIT ACTIONS (40 CFR 270.30(f))

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR 270.41, 270.42, and 270.43. This permit may also be reviewed and modified by the U.S. EPA, consistent with 40 CFR 270.41, to include any terms and conditions determined necessary to protect human health and the environment pursuant to Section 3005(c)(3) of RCRA. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. The Permittee shall not perform any construction associated with a Class 3 permit modification request until such modification request is granted and the modification becomes effective.

C. SEVERABILITY (40 CFR 124.16)

The provisions of this permit are severable, and if any provision of this permit, or if the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. DUTIES AND REQUIREMENTS

1. Duty to Comply. (40 CFR 270.30(a))

The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit (See 40 CFR 270.61). Any permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of RCRA and HSWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, denial of a permit renewal application, or other appropriate action.

2. Duty to Reapply. (40 CFR 270.30(b) and 270.10(h))

The Permittee shall submit a complete application for a new permit at least 180 days before this permit expires unless: a) the Permittee no longer wishes to operate a hazardous waste management facility; b) the Permittee is no longer required to have a RCRA permit; or c) permission for a later date has been granted by the Regional Administrator. The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.

3. Permit Expiration. (40 CFR 270.13, 270.14, 270.50, and 270.51)

This permit and all conditions herein shall be effective for a fixed term not to exceed 10 years, and will remain in effect beyond the permit's expiration date only if the Permittee has submitted a timely, complete application (per 40 CFR 270.10 and applicable sections of 270.14 through 270.29): a) to both the U.S. EPA and the State; and b) through no fault of the Permittee, the Regional Administrator and the State have not issued a new permit, as set forth in 40 CFR 270.51.

4. Need to Halt or Reduce Activity Not a Defense. (40 CFR 270.30(c))

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate. (40 CFR 270.30(d))

In the event of releases or noncompliance with the permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health and the environment.

6. Proper Operation and Maintenance. (40 CFR 270.30(e))

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality control/quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

7. Duty to Provide Information. (40 CFR 270.30(h) and 264.74)

The Permittee shall furnish to the Regional Administrator, within the time designated by the Regional Administrator, any relevant information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

8. Inspection and Entry. (40 CFR 270.30(i))

The Permittee shall allow the Regional Administrator, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance, or as otherwise authorized by RCRA, any substances or parameters at any location.

9. Monitoring and Recordkeeping. (40 CFR 270.30(j), 270.31, 264.73, and 264.74)

The Permittee shall retain all reports, records, or other documents, required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the reports, records or other documents. Corrective Action records

must be maintained at least 3 years after all Corrective Action activities have been completed. These periods may be extended by request of the Regional Administrator at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

10. Reporting Planned Changes. (40 CFR 270.30(l)(1))

The Permittee shall give notice to the Regional Administrator of any planned physical alterations or additions to the permitted facility, as soon as possible, and at least 30 days before construction of such alteration or addition is commenced.

11. Anticipated Noncompliance. (40 CFR 270.30(l)(2))

The Permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. Such notice does not constitute a waiver of the Permittee's duty to comply with permit requirements.

12. Transfer of Permits. (40 CFR 270.30(l)(3), 270.40(a), and 264.12(c))

This permit may be transferred by the Permittee to a new owner or operator only after providing notice to the Regional Administrator and only if the permit is modified, or revoked and reissued, pursuant to 40 CFR 270.40(b), 270.41(b)(2), or 270.42(a). Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264, 268, and 270 (including all applicable corrective action requirements), and shall provide a copy of the RCRA permit to the new owner or operator.

13. Compliance Schedules. (40 CFR 270.30(l)(5) and 270.33)

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted to the Regional Administrator no later than 14 days following each scheduled date.

14. Twenty-four Hour Reporting. (40 CFR 270.30(l)(6) and 270.33)

The Permittee shall report to the Regional Administrator any noncompliance with this permit which may endanger human health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. This report shall include the following:

a. Information concerning the release of any hazardous waste which may endanger public drinking water supplies; and

b. Information concerning the release or discharge of any hazardous waste, or of a fire or explosion at the facility, which could threaten the environment or human health outside the facility. The description of the occurrence and its cause shall include:

(1) Name, address, and telephone number of the owner or operator;

(2) Name, address, and telephone number of the facility;

(3) Date, time, and type of incident;

(4) Name and quantity of material(s) involved;

(5) The extent of injuries, if any;

(6) An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and

(7) Estimated quantity and disposition of recovered material that resulted from the incident.

A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period(s) of noncompliance (including exact dates and times); steps taken to minimize impact on the environment; whether the noncompliance has been corrected, and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance. The Permittee need not comply with the 5-day written notice requirement if the Regional Administrator waives the requirement. Upon waiver of the 5-day requirement, the Permittee shall submit a written report within 15 days of the time the Permittee becomes aware of the circumstances.

15. Other Noncompliance. (40 CFR 270.30(l)(10))

The Permittee shall report all other instances of noncompliance not otherwise required to be reported above within 15 days of when the Permittee becomes aware of the noncompliance. The reports shall contain the information listed in Condition I.D.14.

16. Other Information. (40 CFR 270.30(l)(11))

Whenever the Permittee becomes aware that it failed to submit any relevant facts, or submitted incorrect information to the Regional Administrator in the permit application or in any reports, records, or other documentation provided to the Regional Administrator, the Permittee shall promptly submit such facts or information.

17. Submittal of Reports or Other Information. (40 CFR 270.30(l)(7), (8), and (9), and 270.31)

All reports or other information required to be submitted pursuant to this permit shall be sent to:

Waste Management Branch, DRP-8J
Waste, **Pesticides and Toxics** Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Attention: **Technical Support and Permitting** Section

18. All other requirements contained in RCRA, as amended, and in 40 CFR 270.30 not set forth herein are hereby fully incorporated in this permit.

E. SIGNATORY REQUIREMENT (40 CFR 270.30(k))

All reports or other information submitted to or requested by the Regional Administrator, his designee, or authorized representative, shall be signed and certified as required by 40 CFR 270.11.

F. CONFIDENTIAL INFORMATION

In accordance with 40 CFR 270.12 and 40 CFR Part 2, Subpart B, any information submitted to the U.S. EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions, or, in the case of other submissions, by marking the words "Confidential Business Information" on each page containing such information.
If no claim is made at time of submission, the U.S. EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2.

G. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility, until closure is completed and certified by an independent registered professional engineer, all items required by 40 CFR 264.73, including the following documents and all amendments, revisions, and modifications to these documents:

1. Waste Analysis Plan, as required by 40 CFR 264.13 and this permit;

2. Operating Record, as required by 40 CFR 264.73 and this permit;

3. Notifications from generators accompanying each incoming shipment of wastes subject to 40 CFR Part 268, Subtitle C, that specify treatment standards as required by 40 CFR 264.73, 268.7, and this permit;

4. Corrective Action reports and records as required by Conditions III.F. and VI. of this permit. These reports and records must be maintained for at least 3 years after all Corrective Action Activities have been completed.

5. Records regarding closed-vent systems and control devices and/or equipment leaks as required by 40 CFR 264.1035, 264.1064, and 264.73, and Condition V.C. of this permit.

II. LAND DISPOSAL REQUIREMENTS

A. GENERAL CONDITIONS

1. The Permittee shall comply with all the applicable self-implementing requirements of 40 CFR Part 268 and all applicable land disposal requirements which become effective by statute (Section 3004 of RCRA).

2. A mixture of any restricted waste with nonrestricted waste(s) is a restricted waste under 40 CFR Part 268.

3. The Permittee shall not in any way dilute a restricted waste or the residual from treatment of a restricted waste as a substitute for adequate treatment to achieve compliance with 40 CFR Part 268, Subpart D, to circumvent the effective date of a prohibition in 40 CFR Part 268, Subpart C, to otherwise avoid a prohibition in 40 CFR Part 268, Subpart C, or to circumvent a land disposal prohibition imposed by Section 3004 of RCRA.

4. The Permittee shall prepare and maintain a current list of the hazardous waste codes handled by the facility that are identified in 40 CFR 268, Subparts B and C. The list shall include all waste codes handled by the facility, and any associated treatment standards, and shall be updated through the inclusion of new treatment standards, as promulgated or amended. This list shall be provided to the U.S. EPA representatives, or their designees, upon request.

B. TESTING AND RELATED REQUIREMENTS

1. The Permittee must test, in accordance with 40 CFR 268.7(a), any waste generated at the facility, or use knowledge of the waste, to determine if the waste is restricted from land disposal.

2. For restricted wastes with treatment standards expressed as concentrations in the waste extract, as specified in 40 CFR 268.41, the Permittee shall test the wastes or waste treatment residues, or extracts of such residues developed using the test methods described inAppendix

II of 40 CFR Part 261 (Toxicity Characteristic Leaching Procedure, or TCLP) to assure that the wastes or waste treatment residues or extracts meet the applicable treatment standards of 40 CFR Part 268, Subpart D. Such testing shall be performed as required by 40 CFR 264.13.

3. A restricted waste for which a treatment technology is specified under 40 CFR 268.42(a) may be land disposed after it is treated using that specified technology or an equivalent treatment method approved by the Administrator under the procedures set forth in 40 CFR 268.42(b).

4. For restricted wastes with treatment standards expressed as concentrations in the waste, as specified in 40 CFR 268.43, the Permittee shall test the wastes or waste treatment residues (not extracts of such residues) to assure that the waste or waste treatment residues meet the applicable treatment standards of 40 CFR Part 268, Subpart D. Such testing shall be performed as required by 40 CFR 264.13.

5. The Permittee shall comply with all the applicable notification, certification, and recordkeeping requirements described in 40 CFR 268.7(a) and (b).

C. STORAGE PROHIBITIONS

1. The Permittee shall comply with all the applicable prohibitions on storage of restricted wastes specified in 40 CFR Part 268, Subpart E.

2. Except as otherwise provided in 40 CFR 268.50, the Permittee may store restricted wastes in tanks and containers solely for the purpose of the accumulation of such quantities of hazardous wastes as necessary to facilitate proper recovery, treatment, or disposal provided that:

   a. Each container is clearly marked to identify its contents and the date each period of accumulation begins; and

   b. Each tank is clearly marked with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, or such information for each tank is recorded and maintained in the operating record at that facility.

3. The Permittee may store restricted wastes for up to 1 year unless the U.S. EPA or its authorized agent can demonstrate that such storage was not solely for the purpose of accumulating such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal.

4. The Permittee may store restricted wastes beyond 1 year; however, the Permittee bears the burden of proving that such storage was solely for the purpose of accumulating such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal.

5. The Permittee shall not store any liquid hazardous waste containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm unless the waste is stored in a storage facility that meets the requirements of 40 CFR 761.65(b). This waste must be removed from storage and treated or disposed as required by 40 CFR Part 268 within 1 year of the date when such wastes are first put into storage. Condition II.C.4. above, that allows storage for over 1 year with specified demonstration, does not apply to PCB wastes prohibited under 40 CFR 268.32.

III. CORRECTIVE ACTION REQUIREMENTS

A. CORRECTIVE ACTION AT THE FACILITY

In accordance with Section 3004(u) of RCRA and the regulations promulgated pursuant thereto, the Permittee must institute Corrective Action as necessary to protect human health and the environment for all releases of hazardous waste(s) or hazardous constituent(s) from any solid waste management units (SWMUs) at the facility, regardless of the time at which waste was placed in such units.

B. CORRECTIVE ACTION BEYOND THE FACILITY BOUNDARY

In accordance with Section 3004(v) of RCRA and the regulations promulgated pursuant thereto, the Permittee must implement Corrective Action(s) beyond the facility property boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the Regional Administrator that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be addressed under the RCRA Facility Investigation, Corrective Measures Study, and Corrective Measures Implementation phases, as determined to be necessary on a case-by-case basis.

C. IDENTIFICATION OF SWMUs

During the Spring of 1990, Jacobs Engineering Group Inc. (Jacobs), was subcontracted by the U.S. EPA through Metcalf & Eddy to perform a RCRA Facility Assessment (RFA) at the Chemical Waste Management Inc., Vickery facility (CWM) located at 3956 State Route 412, Vickery, Ohio 43464. Jacobs conducted a Visual Site Inspection (VSI) at the facility on May 8 and 9, 1990, to verify the condition of these units and to identify Solid Waste Management Units (SWMU) and Areas of Concern (AOC) that were not found during the Preliminary Review. At the end of the VSI, 45 SWMUs and 5 AOCs were identified. A detailed description of each SWMU and AOC is presented in Section V of the VSI report, with additional comments in the RFA report. A list of SWMUs and AOCs is presented in Attachment I. There is sufficient evidence of past and potential releases to warrant the implementation of Corrective Action at the CWM facility in Vickery, Ohio. A RCRA Facility Investigation will be performed at this

facility, investigating all environmental media, in light of the historical lack of secondary containment for some units, contaminated soils and documented releases of contaminants to the environment.

CWM currently operates as a treatment, storage, and disposal facility for liquid hazardous wastes. The wastes are stored and treated in above ground tanks, filtered, blended, and disposed of by deep well injection through four Class 1 injection wells. The injection wells are regulated under a separate authority, however they will be addressed under Corrective Action through this RCRA permit. The Class 1 underground injection wells on-site, including all former and closed wells and the ones currectly in use, are SWMUs (46-52) and should be assessed during the RFI.

SWMUs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 have potential for releases that are considered high because the surface impoundments are unlined, and there are documented instances of releases to soils from transfer pipes and broken dikes. Sampling of soils and sludges has indicated the presence of PCBs, VOCs, and metals in some units. While these units are currently undergoing closure or are awaiting certification of closure, Corrective Action is still necessary.

For SWMUs 12, 13, 14, 15, 16, 17, 18, 19, 20, 27, 28, 29, 30, 31, 32, 33, 34, 37, and AOC D, there is a high potential for releases due to previous operation without secondary containment, documented spills, or documented soil contamination.

For SWMUs 19, 34, 35, 36, 37, 38, 39, 40, 42, 43, 44, 45 and AOCs A, B, C, E, there is no actual evidence of release to any particular environmental media, but soil, water, sediments, and air sampling may be required, based on information gathered at the facility, for those aforementioned units whose structural integrity is uncertain.

Several large releases of liquid hazardous waste to both Little Raccoon Creek and Meyer's Creek have been documented. Due to the nature of the wastes, predominantly acids, detection of historic releases to surface water should be made by analyzing sediments. Therefore an assessment of surface water sediments should be performed on-site for Little Raccoon Creek, Meyers Creek, any known ephemeral streams, and any other bodies of surface water.

In summary, all of the SWMUs and AOCs at the facility shall be included in the RFI. The media to be investigated in the RFI include: surface water, ground water, soil, sediments, and air. However, sampling of all media for all SWMUs is not required at this time.

D. NEWLY IDENTIFIED SWMUs OR RELEASES

1. General Information

The Permittee shall notify the Regional Administrator, within 30 days of discovery, of the following information requirements for any new SWMU identified at the facility, in accordance with 40 CFR 270.14(d):

a. The location of the unit on the site topographic map;

b. Designation of the type of unit;

c. General dimensions and structural description (supply any available drawings);

d. When the unit was operated; and

e. Specifications of all waste(s) that have been managed at the unit.

2. Release Information

The Permittee must submit to the Regional Administrator, within 30 days of discovery, all available information pertaining to any release of hazardous waste(s) or hazardous constituent(s) from any new or existing SWMU.

E. CORRECTIVE ACTION FOR NEWLY IDENTIFIED SWMUs AND RELEASES

The Regional Administrator will review the information provided in Condition III.D. above, and may as necessary require further investigations or corrective measures. The Permittee shall submit a written RCRA Facility Investigation Workplan to the Regional Administrator within thirty (30) days after written notification by the Regional Administrator that further investigation is necessary.

F. CORRECTIVE ACTION ACTIVITIES

1. RCRA Facility Investigation (RFI)

The Permittee shall conduct an RFI to evaluate thoroughly the nature and extent of the release of hazardous waste(s) and hazardous constituent(s) from all applicable SWMUs and AOCs identified in Condition III.C. above. The major tasks and required submittal dates are shown below. Additional tasks and associated submittal dates may also be specified in the Schedule of Compliance (Permit Condition VI.). The scope of work for each of the tasks is found in Attachment II (RCRA Corrective Action Plan).

a. RFI Workplan

The Permittee shall submit a written RFI Workplan to the Regional Administrator within one hundred and eighty (180) days after the effective date of this permit.

The Regional Administrator will approve, modify and approve, or disapprove, and provide comments on the Workplan in writing to the Permittee. Within thirty (30) days of receipt of such comments, the Permittee must modify the Workplan, so as to reflect the changes

required in the Regional Administrator's comments, or submit a new workplan for the Regional Administrator's approval. The RFI Workplan, as approved or as modified and approved, becomes an enforceable condition of this permit.

b. RFI Implementation

Within thirty (30) days of the Regional Administrator's written approval of the RFI Workplan, the Permittee shall implement the RFI Workplan according to the terms and schedule in the approved RFI Workplan.

c. RFI Final Report

Within sixty (60) days after the completion of the RFI, the Permittee shall submit an RFI Final Report to the Regional Administrator. The RFI Final Report shall describe the procedures, methods, and results of the RFI. The Final Report must contain adequate information to support further corrective action decisions at the facility.

After the Permittee submits the RFI Final Report, the Regional Administrator shall either approve or disapprove the Report in writing. If the Regional Administrator disapproves the Report, the Regional Administrator shall notify the Permittee in writing of the deficiencies and specify a due date for submittal of a revised Report. The RFI Final Report, as approved, becomes an enforceable condition of this permit.

2. Interim Measures

The following specific interim measures have been identified by the Regional Administrator:

Within sixty (60) calendar days after the effective date of this permit, CWM will submit to the U.S. EPA a report on the current conditions of the Vickery facility. The format of the report should follow that of Section I.A.1 of the Corrective Action Scope of Work found in Attachment II. In addition the report should include a comprehensive section on contamination of all environmental media, using all previous data.

Within 30 calendar days after the submission of the report on current conditions, CWM will schedule a meeting with the U.S. EPA. The meeting will be held to discuss the current conditions report, specific objectives of the RFI, and content requirements for the RFI's Quality Assurance Project Plan.

3. Determination of No Further Action

a. Permit Modification

After completion of and based on the results of the RFI and other relevant information, the Permittee may submit an application to the Regional Administrator for a Class 3 permit modification under 40 CFR 270.42(c) to terminate the Corrective Action tasks of the Schedule of Compliance. Other tasks identified in the Schedule of Compliance shall remain in effect. This permit modification must conclusively demonstrate that there are no releases of hazardous waste(s), including hazardous constituents, from SWMUs at the facility that pose a threat to human health and the environment.

If, based upon review of the Permittee's request for a permit modification, the results of the completed RFI, and other information, including comments received during the 60-day public comment period required for Class 3 permit modifications, the Regional Administrator determines that releases or suspected releases which were investigated either are nonexistent or do not pose a threat to human health and the environment, the Regional Administrator will grant the requested modification.

b. Periodic Monitoring

A determination of no further action shall not preclude the Regional Administrator from requiring continued or periodic monitoring of air, soil, ground water, or surface water, if necessary to protect human health and the environment, when site-specific circumstances indicate that potential or actual releases of hazardous waste(s) including hazardous constituents are likely to occur.

c. Further Investigations

A determination of no further action shall not preclude the Regional Administrator from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates that a release or likelihood of a release from a SWMU at the facility is likely to pose a threat to human health or the environment. In such a case, the Regional Administrator shall initiate a modification to the Corrective Action Schedule of Compliance to rescind the determination made in accordance with Permit Condition III.F.3.a. Additionally, the Regional Administrator may determine that there is insufficient information on which to base a determination, and may require the Permittee to perform additional investigations as needed to generate the needed information.

4. Corrective Measures Study (CMS)

If the Regional Administrator determines, based on the results of the RFI and other relevant information, that corrective measures are necessary, the Regional Administrator will notify

the Permittee in writing that the Permittee shall conduct a CMS. The purpose of the CMS will be to develop and evaluate the corrective action alternative(s) and to outline one or more alternative corrective measure(s) which will satisfy the performance objectives specified by the Regional Administrator. The major tasks and required submittal dates are shown below. Additional tasks and associated submittal dates may also be specified in the Schedule of Compliance (Permit Condition VI.). The Scope of Work for each of the tasks is found in Attachment II.

a. CMS Workplan

The Permittee shall submit a written CMS Workplan to the Regional Administrator within forty-five (45) days from the notification of the requirement to conduct a CMS.

The Regional Administrator will approve, modify and approve, or disapprove and provide comments on the CMS Workplan in writing to the Permittee. Within thirty (30) days of receipt of such comments, the Permittee must modify the Workplan, so as to reflect the changes required in the Regional Administrator's comments, or submit a new plan for the Regional Administrator's approval. The CMS Workplan, as approved or as modified and approved, becomes an enforceable condition of this permit.

b. CMS Workplan Implementation

Within thirty (30) days of the Regional Administrator's written approval of the CMS Workplan, the Permittee shall implement the CMS Workplan according to the terms and schedule in the approved CMS Workplan.

c. CMS Final Report

Within sixty (60) days after the completion of the CMS, the Permittee shall submit a CMS Final Report to the Regional Administrator. The CMS Final Report shall summarize the results of the investigations for each remedy studied and must include an evaluation of each remedial alternative.

After the Permittee submits the CMS Final Report, the Regional Administrator shall either approve or disapprove the Report in writing. If the Regional Administrator disapproves the Report, the Regional Administrator shall notify the Permittee in writing of the deficiencies and specify a due date for submittal of a revised Report. The CMS Final Report, as approved, becomes an enforceable condition of this permit.

5. Corrective Measures Implementation (CMI)

Based on the results of the CMS, the Regional Administrator shall select one or more of the Corrective Measures in the CMS, and shall notify the Permittee in writing of the decision. The Regional Administrator's selection will be based on the corrective measures' long-term

reliability and effectiveness, short-term effectiveness, implementability, cost, reduction of toxicity, mobility, or volume.

a. Permit Modification

The Regional Administrator will initiate a major permit modification, as provided by 40 CFR 270.41, to require implementation of the corrective measure(s) selected.

b. Financial Assurance

As part of the permit modification of this permit to incorporate CMI, the Permittee shall provide financial assurance in the amount specified by the Regional Administrator for necessary corrective action activities as required by 40 CFR 264.101(b) and (c).

G. DISPUTE RESOLUTION

1. If the Permittee disagrees, in whole or in part, with the U.S. EPA'S disapproval or modification of any submission required by Condition III.F. of the permit, the Permittee shall notify the U.S. EPA of its objections by providing the Region 5 Associate Division Director, Waste Management Division, Office of RCRA, with a written statement of position within 14 days of receipt of the U.S. EPA's disapproval or modification. The Permittee's statement of position shall set forth the specific matters in dispute, the position that the Permittee asserts should be adopted as consistent with the requirements of this permit, the basis for the Permittee's position, and shall include any supporting documentation.

2. The U.S. EPA and the Permittee shall have an additional 14 days from the U.S. EPA's receipt of the Permittee's statement of position to meet or confer to attempt to resolve the dispute. If agreement is reached, the Permittee shall submit a revised submission, if necessary, and shall implement the submission in accordance with such agreement.

3. If the U.S. EPA and the Permittee are not able to reach agreement within the 14-day period, the Regional Administrator, Region 5, or his or her delegate will thereafter issue a written decision resolving the dispute which shall become an enforceable condition of this permit, and the Permittee shall comply with the terms and conditions of the U.S. EPA's decision resolving the dispute.

4. Notwithstanding the invocation of this dispute resolution procedure, the Permittee shall proceed to take any action required by those portions of the modified and approved submission that the U.S. EPA determines are not substantially affected by the dispute according to the schedule contained in the submission.

IV. TOXICITY CHARACTERISTIC

A. WASTE IDENTIFICATION

Early Terminated

B. WASTE CHARACTERIZATION

Early Terminated

C. OTHER WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Units
Liquid Waste	See list below	1,102,600 gallons	Tank Storage (S02)
Liquid Waste	See list below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See list below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See list below	2.4×10^9	Injection Well Disposal (D79)

EPA Hazardous Waste Numbers: K140, K169, K170, K171, K172, U408

D. CONDITIONS REGARDING UNITS

1. All units described in Condition IV.A. above shall be operated in accordance with the State permit conditions and the State Underground Injection Control Permit conditions pertaining to those units.

2. The Permittee shall follow the waste analysis procedures required in 40 CFR Part 264, and as described in the Waste Analysis plan found in Attachment III.

V. AIR EMISSION STANDARDS

A. PROCESS VENTS

The Permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart AA, regarding air emission standards for process vents.

B. EQUIPMENT LEAKS

The Permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart BB, regarding air emission standards for equipment leaks.

C. RECORDKEEPING

The Permittee shall comply with all applicable recordkeeping and reporting requirements described in 40 CFR 264.1035, 264.1036, 264.1064, and 264.1065.

D. NOTIFICATION OF REGULATED ACTIVITY

The Permittee shall notify the Regional Administrator of any waste management units which become subject to the requirements of 40 CFR Part 264, Subparts AA and BB, within 30 days of startup of the regulated activity.

E. DUTY TO COMPLY WITH FUTURE REQUIREMENTS

The Permittee shall comply with all self-implementing provisions of any future air regulations promulgated under the provisions of Section 3004(n) of RCRA, as amended by HSWA.

VI. SCHEDULE OF COMPLIANCE

FACILITY SUBMISSION SUMMARY

Below is a summary of the planned reporting and implementation requirements pursuant to this Schedule to Compliance.

Facility Submission Requirements	Due Date
Notification of newly-identified SWMUs.	Thirty (30) calendar days after discovery.
Notification of newly-discovered releases.	Thirty (30) calendar days after discovery.
Notification of waste management units subject to the requirements of 40 CFR Part 264, Subparts AA and BB.	Thirty (30) days after startup of the activity.
Progress reports on all activities.	Monthly, no later than thirty (30) calendar days after Permittee is required to begin implementation.
Report on current conditions	Within sixty (60) calendar days of the effective date of the permit.

Facility Submission Requirements	Due Date
Schedule a meeting with U.S. EPA	Within 30 calendar days after the submission of the report on current conditions, CWM will schedule a meeting with the U.S. EPA. The meeting will be held to discuss the current conditions report, specific objectives of the RFI, and content requirements for the RFI's Quality Assurance Project Plan.
RFI Workplan	Within one hundred and eighty (180) calendar days after the effective date of the permit.
RFI Workplan Implementation	Within thirty (30) calendar days of written approval of the RFI Workplan.
RFI Report and Summary Report	Within sixty (60) calendar days after completion of RFI.
CMS Workplan	Within forty-five (45) calendar days after notification of requirement to perform CMS.
CMS Workplan Implementation	Within thirty (30) calendar days of written approval of the CMS Workplan.
CMS Final Report	Within sixty (60) calendar days after completion of CMS.
Demonstration of Financial Assurance	Within one hundred twenty (120) calendar days after permit modification for remedy.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

August 30, 1999

REPLY TO THE ATTENTION OF
DW-8J

CERTIFIED MAIL: P 140 678 624
RETURN RECEIPT REQUESTED

Mr. Stephen C. Lonneman
General Manager
Waste Management of Ohio, Inc.
3956 State Route 412
Vickery, Ohio 43464

RE: Waste Management of Ohio, Inc.
Class 2 Federal RCRA Permit Modification
Waste Analysis Plan
OHD 020 273 819

Dear Mr. Lonneman:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of Waste Management of Ohio, Inc.'s (WMO) Class 2 Federal RCRA permit modification for its Vickery facility, dated May 20, 1999. WMO requested the modification to update its waste analysis plan (WAP), Attachment III of the Federal RCRA permit, to make it consistent with WMO's Ohio Environmental Protection Agency (OEPA) Part B RCRA permit WAP. The modification was submitted in accordance with Title 40 Code of Federal Regulations (40 C.F.R.) §270.42(b).

The U.S. EPA has reviewed the May 20, 1999, permit modification request and has determined it meets the requirements of 40 C.F.R. §270.42(b). Therefore, on August 24, 1999, the U.S. EPA approved WMO's Class 2 modification to its Federal RCRA permit to modify the WAP to update and make it consistent with the approved WAP in its OEPA Part B permit. WMO shall replace Attachment III of its Federal RCRA permit with the enclosed modified Attachment III.

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If you have any questions, please contact Thomas Matheson at (312) 886-7569.

Sincerely,

Karl E. Bremer, Chief
Waste Management Branch

Enclosure

cc: Chuck Hull, OEPA/NWDO
Ed Lim, OEPA/CO

If you have any questions, please contact Thomas Matheson at (312) 886-7569.

Sincerely,

Karl E. Bremer, Chief
Waste Management Branch

Enclosure

cc: Chuck Hull, OEPA/NWDO
Ed Lim, OEPA/CO

bcc: File
Section Reading
Author
Branch Reading

DW-8J:MATHESON:twm:6-7569:08/30/99:File -Class2 WAP ok.wpd

WASTE MANAGEMENT BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
				8/30/99
TYPIST/ AUTHOR	IL/IN/MI SECTION CHIEF	MN/OH/WI SECTION CHIEF	POL.PREV.& SPEC.INTIV SEC. CHIEF	WMB BRANCH CHIEF
8/30/99		8/30/99		8/30/99

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
Lazarus Government Center
122 South Front St.
Columbus, OH 43215

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
Lazarus Government Center
P. O. Box 1049
Columbus, OH 43216-1049

June 24, 1999

Re: Waste Management of Ohio, Inc.
US EPA ID No.: OHD 020 273 819
Ohio ID No.: 03-72-0191
Modified Hazardous Waste Permit

Waste Management of Ohio, Inc.
Attn: Mr. F. G. Nicar, General Manager
3956 State Route 412
Vickery, Ohio 43464

CERTIFIED MAIL

Dear Mr. Nicar:

On February 24, 1999, Ohio EPA received Class 2 permit modification applications from Waste Management of Ohio, Inc. (tracking numbers: OHD020273819 - 990224-2-1, 990224-2-2, 990224-2-3, 990224-2-4, and 990224-2-5). The enclosed modified hazardous waste permit is being issued to you today in final form in accordance with the requirements of Rule 3745-50-51 of the Ohio Administrative Code. Please note that the modified permit remains in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, withdrawn, suspended or revoked.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission (ERAC) pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the ERAC within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 236 E. Town Street, Room 300, Columbus, Ohio 43215.

Sincerely yours,

Thomas E. Crepeau

Thomas E. Crepeau, Manager
Data Management Section
Division of Hazardous Waste Management

TEC/dhs

cc: Jeremy Carroll, Supervisor, EU, RES, DHWM
Sudhir Singhal, RES, DHWM
Harriet Croke, U.S. EPA, Region V
Raymond Roe, Hazardous Waste Facility Board
Beth Ames, Group Leader, DHWM, NWDO
David Schilt, DHWM, NWDO
Beth Gianforcaro, Ohio EPA, PIC

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OHIO ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF HAZARDOUS WASTE MANAGEMENT

SUMMARY OF MODIFICATIONS TO HAZARDOUS WASTE INSTALLATION AND OPERATION PERMIT

Waste Management of Ohio, Inc.
U.S. EPA ID #: 03-72-0191
Ohio ID #: OHD 020 273 819

Modification of the Hazardous Waste Facility Installation and Operation Permit will authorize Waste Management of Ohio to make the following changes:

Class 2 Modifications:

1. Approval to inspect the surface water management gate system from weekly to monthly (tracking number - 990224-2-1).

2. Approval to remove the provision requring an annual check of the tank wall thickness as this is not applicable to the new double-walled tanks (tracking number - 990224-2-2).

3. Approval to change the reporting requirements from two (2) hours to twenty-four (24) hours for a reportable quantity spill and immediately for a release that could threaten human health and the environment outside the facility (tracking number - 990224-2-3).

4. Approval to add equipment to and remove equipment from the emergency equipment list (tracking number - 990224-2-4).

5. Approval to remove the requirement to inspect the closed landfill after a major storm event as the vegetative cover of the landfill has been fully established (tracking number - 990224-2-5).

summary/SS ao

A.19. Transfer of Permits
OAC Rules 3745-50-52; 3745-50-58(L)(3) and 3745-54-12

(a) The permit may be transferred to a new owner or operator only if such transfer is conducted in accordance with ORC Chapter 3734 and the rules adopted thereunder. This permit may be transferred by the Permittee to a new owner or operator only if the permit has been modified or revised under OAC Rule 3745-50-51. Before transferring ownership or operation of the facility the Permittee shall notify the new owner or operator in writing of the requirements of ORC Chapter 3734 and the rules adopted thereunder.

(b) The Permittee's failure to notify the new owner or operator of the requirements of the applicable Ohio law or hazardous waste rules does not relieve the new owner or operator of its obligation to comply with all applicable requirements.

A.20. Compliance Schedules
OAC Rule 3745-50-58(L)(5)

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted to the Ohio Environmental Protection Agency no later than fourteen (14) days following each scheduled date, unless otherwise specified in the compliance schedule.

A.21. Immediate Reporting of Noncompliance
OAC Rule 3745-50-58(L)(6)

(a) The Permittee shall report orally to the Ohio Environmental Protection Agency's Division of Emergency and Remedial Response within twenty-four hours from the time the Permittee becomes aware of the circumstances of any noncompliance with this permit, ORC Chapter 3734 or the rules adopted thereunder, which may endanger human health or the environment, including:

(i) information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies;

(ii) any information of a release or discharge of hazardous waste, or a fire or explosion from the hazardous waste management facility which could threaten the environment or human health outside the facility.

(b) The report shall consist of the following information:

(i) name, address, and telephone number of the owner or operator;

(ii) name, address, and telephone number of the facility;

(iii) date, time, and type of incident;

(iv) name and quantity of materials involved;

(v) the extent of injuries, if any;

(vi) an assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and

(vii) estimated quantity and disposition of recovered material that resulted from the incident.

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
Lazarus Government Center
122 South Front St.
Columbus, OH 43215

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
Lazarus Government Center
P. O. Box 1049
Columbus, OH 43216-1049

June 21, 1999

Re: Chemical Waste Management, Inc.
US EPA ID No.: OHD 020 273 819
Ohio ID No.: 03-72-0191
Modified Hazardous Waste Permit

Waste Management of Ohio, Inc.
Attn: Mr. F. G. Nicar, General Manager
3956 State Route 412
Vickery, Ohio 43464

CERTIFIED MAIL

Dear Mr. Nicar:

On March 8, 1999, Ohio EPA received a Class 2 permit modification application from Waste Management of Ohio, Inc. (tracking number: OHD020273819 - 990315-2-1). The enclosed modified hazardous waste permit is being issued to you today in final form in accordance with the requirements of Rule 3745-50-51 of the Ohio Administrative Code. Please note that the modified permit remains in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, withdrawn, suspended or revoked.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission (ERAC) pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the ERAC within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 236 E. Town Street, Room 300, Columbus, Ohio 43215.

Sincerely yours,

Thomas E. Crepeau

Thomas E. Crepeau, Manager
Data Management Section
Division of Hazardous Waste Management

TEC/dhs

cc: Jeremy Carroll, Supervisor, EU, RES, DHWM
Sudhir Singhal, RES, DHWM
Harriet Croke, U.S. EPA, Region V
Raymond Roe, Hazardous Waste Facility Board
Beth Ames, Group Leader, DHWM, NWDO
David Schilt, DHWM, NWDO
Beth Gianforcaro, Ohio EPA, PIC

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OHIO ENVIRONMENTAL PROTECTION AGENCY

Modified Ohio Hazardous Waste Facility Installation and Operation Permit

Date of Issuance: June 21, 1999
Effective Date: June 21, 1999

US EPA ID No: OHD 020 273 819
Ohio ID No: 03-92-0191

ENTERED DIRECTOR'S JOURNAL
JUN 21 1999
OHIO E.P.A.

Name of Facility:	Waste Management of Ohio, Inc.
Mailing Address:	3956 State Route 412 Vickery, Ohio 43464
Facility Location:	3956 State Route 412 Vickery, Ohio 43464
Person to Contact:	F. G. Nicar

This Modified Ohio Hazardous Waste Facility Installation and Operation Permit is issued pursuant and subject to Section 3734.05 (I) of the Ohio Revised Code and Rule 3745-50-51(D) of the Ohio Administrative Code.

The Ohio Hazardous Waste Facility Installation and Operation Permit with the above referenced permit number as renewed on October 24, 1994, is hereby incorporated by reference in its entirety except as it may be modified herein.

This modification of the permit shall remain in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended or revoked.

The Permittee shall comply with all requirements of the modified Part B permit application as amended or supplemented on March 8, 1999. The information contained in the modified Part B permit application is incorporated herein by reference. Specifically, all written statements regarding the specifications, locations, or capabilities of the processes, equipment, containment devices, safety devices or programs or other matters made by the applicant in the modified permit application are hereby incorporated as express, binding terms and conditions of this modified permit.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency
By: Jona K Clements Date 6-21-99

permitpg/SS ao

Christopher Jones
Director

OHIO ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF HAZARDOUS WASTE MANAGEMENT

SUMMARY OF MODIFICATIONS TO HAZARDOUS WASTE INSTALLATION AND OPERATION PERMIT

Waste Management of Ohio, Inc.
U.S. EPA ID #: OHD020273819
Ohio ID #: 03-72-191

Modification of the Hazardous Waste Facility Installation and Operation Permit will authorize Waste Management of Ohio, Inc. to make the following change:

Class 2 Modification:

1. Approval to update reporting requirement to notify the National Response Center when there is a reportable quantity release that leaves the facility (tracking number - 990315-2-1).

modsumry/SS ao

WASTE MANAGEMENT OF OHIO, INC.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

RECEIVED
JUN 8 1999
MNOHWI PERMIT SECTION - WMB
Waste, Pesticides & Toxics Division
U.S. EPA - REGION 5

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 289 177 981

June 2, 1999

Mr. Francis X. Lyons
Regional Administrator
U.S. Environmental Protection Agency Region V
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Waste Management of Ohio, Inc.
Documentation of Public Notice
Class 2 Modification Submitted 5/19/99

Dear Mr. Lyons:

In accordance with 40 CFR 270.14(b)(2), Waste Management of Ohio, Inc. submits the enclosed "Affidavit of Publication" for the public notice which appeared in the Fremont News Messenger on May 21, 1999. This notice was published to announce the Class 2 Public Meeting which will be held on Wednesday, June 30, 1999.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Should you have any questions regarding this matter, please contact Sandy Clark at 419-547-3335.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Stephen C. Lonneman
General Manager

Enclosure

cc w/: Thomas Matheson, USEPA (DRP-8J)

The News-Messenger

Box 1230 • 1700 Cedar Street • Fremont, Ohio 43420 • 419-332-5511

PUBLIC NOTICE

This notice is given pursuant to 40 CFR 270.42(b)(2). Waste Management of Ohio, Inc, Vickery facility (WMO) located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its US EPA Federal Hazardous Waste Operating Permit. The purpose of the modification is to update the facility's federal RCRA Waste Analysis Plan to be equivalent with the facility's Ohio Part B RCRA Waste Analysis Plan.

A 60 day comment period will be from May 21, 1999 through July 20, 1999. Comments may be sent to:

Mr. Thomas W. Matheson,
DRP-8J
USEPA Region V
Office of RCRA, Waste
Management Division
77 West Jackson Blvd.
Chicago, IL 60604-3590

WMO will host a Public Meeting to provide information related to this request. The meeting will be held at 7:00 pm Wednesday, June 30, 1999 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

WMO
Stephen C. Lonneman,
General Manager
(419) 547-7791
USEPA Region V
Thomas W. Matheson,
Corrective Action
(312) 886-7569

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

May 21, 1999

AFFIDAVIT OF PUBLICATION

STATE OF OHIO, County of Sandusky, ss:

Rita Wollenslegel, clerk of **The News-Messenger**, a daily newspaper printed and of general circulation in said county and state, makes oath that a notice of which the annexed is a copy was published in said newspaper for one day, publication being on **May 21, 1999.**

Signed Rita Wollenslegel

Sworn to before me and subscribed in my presence this 28 day of May, 1999.

Karen S. Kaspar
Karen S. Kaspar
Notary Public, State of Ohio
My commission expires March 3, 2004

Notary Seal

GANNETT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

May 20, 1999

REPLY TO THE ATTENTION OF
DW-8J

CERTIFIED MAIL: P 140 678 619
RETURN RECEIPT REQUESTED

Stephen C. Lonneman, General Manager
Waste Management of Ohio, Inc.
Vickery Facility
3956 State Route 412
Vickery, Ohio 43464

Re: Class 2 Federal RCRA Permit Modification
Addition of New Waste Codes
Waste Management of Ohio, Inc.
Vickery, Ohio
OHD 020 273 819

Dear Mr. Lonneman:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of Waste Management of Ohio, Inc.'s (WMO) Class 2 Federal Resource Conservation and Recovery Act (RCRA) permit modification request for its Vickery facility. The Class 2 modification request, dated February 22, 1999, was submitted in accordance with Title 40 Code of Federal Regulations (40 C.F.R.) §270.42(g)(1)(iv) for newly listed hazardous waste codes. WMO submitted a Class 1 Federal RCRA permit modification request in accordance with 40 C.F.R. §270.42(g)(1)(ii) for newly listed hazardous waste codes. WMO submitted its Class 1 Federal RCRA permit modification request January 21, 1999. The U.S. EPA approved the Class 1 Federal RCRA permit modification on February 10, 1999.

The U.S. EPA has reviewed the Class 2 Federal RCRA permit modification request and has determined it meets the requirements of 40 C.F.R §270.42(b). Therefore, the U.S. EPA approves WMO's modification to its Federal portion of its RCRA permit to add the newly listed waste codes K169, K170, K171, and K172.

The revisions to the permit are included as an enclosure to this letter. Please replace Page 17 of 19 of the original permit with the revised Page 17 of 19.

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Should you have any questions, please contact Thomas Matheson, a member of my staff at (312) 886-7569.

Sincerely,

Karl E. Bremer

Karl E. Bremer, Chief
Waste Management Branch

Enclosure

cc: Ed Lim, OEPA/CO
Chuck Hull, OEPA/NWDO
File

C. OTHER WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in containers, tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Units
Solid and Liquid Waste	See list below	678,920 gallons	Container Storage (S01)
Liquid Waste	See list below	1,102,600 gallons	Tank Storage (S02)
Liquid Waste	See list below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See list below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See list below	2.4×10^9	Injection Well Disposal (D79)

EPA Hazardous Waste Numbers: F032, F034, F035, K140, K141, K142, K143, K144, K145, K146, K147, K148, K149, K150, K151, K156, K157, K158, K159, K160, K161, K169, K170, K171, K172, P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199, P201, P202, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365, U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383, U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396, U400, U401, U402, U403, U404, U408, U409, U410, U411.

D. CONDITIONS REGARDING UNITS

1. All units described in Condition IV.A. above shall be operated in accordance with the State permit conditions and the State Underground Injection Control Permit conditions pertaining to those units.

2. The Permittee shall follow the waste analysis procedures required in 40 CFR Part 264, and as described in the Waste Analysis plan found in Attachment III.

V. AIR EMISSION STANDARDS

A. PROCESS VENTS

The Permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart AA, regarding air emission standards for process vents.

DW-8J:MATHESON:twm:6-7569:05/19/1999:File G:\user\share\tmath\Class2mod K169 170 171 172.wpd

WASTE MANAGEMENT BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
		5/19/99		5/19/99
TYPIST/ AUTHOR	IL/IN/MI SECTION CHIEF	MN/OH/WI SECTION CHIEF	POL.PREV.& SPEC.INTIV SEC. CHIEF	WMB BRANCH CHIEF
05/19/1999		5-19-99		5/19/99

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

May 20, 1999

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with the Code of Federal Regulations (CFR) 40 CFR 270.42, Waste Management of Ohio, Inc. (WMO) Vickery Facility has requested a Class 2 permit modification. The purpose of this request is to update the facility's federal RCRA Waste Analysis Plan to be equivalent with the facility's Ohio Part B RCRA Waste Analysis Plan.

As required by 40 CFR 270.42(b)(2), WMO is sending you this notification of the modification because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

If your mailing address requires updating or if you would no longer like to be on the facility's mailing list, please contact Ms. Sandy Clark at (419)547-3335.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Stephen C. Lonneman
General Manager

RECEIVED
MAY 21 1999
U.S. EPA REGION 5
OFFICE OF REGIONAL ADMINISTRATOR

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 289 177 893

May 19, 1999

Mr. Francis Lyons
Regional Administrator
U.S. Environmental Protection Agency Region V
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification
Waste Analysis Plan

Dear Mr. Lyons:

In accordance with 40 CFR 270.42(b), Waste Management of Ohio, Inc. Vickery facility (WMO) submits a Class 2 permit modification. The purpose of this modification is to update the facility's RCRA Waste Analysis Plan (WAP) located in it's Final Federal Permit to be equivalent with the facility's RCRA WAP contained in it's Ohio Part B Permit.

The facility is required to maintain both a federal and a state approved WAP because there are some waste codes that are recognized in the federal rules, but not in the Ohio rules. Currently, there are six waste codes that are regulated by the US EPA that have not yet been added to Ohio Rules. These codes are K140, K169, K170, K171, K172 and U408. The facility has not yet managed these waste codes; however, in the event that they are accepted, it would be less burdensome to have one approved WAP. The differences between the two documents are mostly administrative in nature and do not affect laboratory procedures. All of the proposed changes in this modification request have been submitted to and approved by the Ohio EPA under the permit modification

process required by OAC 3745-50-51, a rule which was made equivalent to it's federal counterpart in July, 1997.

Below is a summary of the attachments included in this submittal:

Attachment 1	Approved WAP from Facility's Ohio Part B Permit (Changes are shown utilizing the redline/strikeout format)
Attachment 2	Summary of the Modifications
Attachment 3	Clean Copy of the Facility's Approved Ohio Part B WAP (To Replace Attachment III of the Facility's Final Federal Permit)
Attachment 4	Summary of Information Required by 40 CFR 270.42(b)
Attachment 5	Letter of Notification and Public Notice
Attachment 6	Facility's Mailing List

Although the majority of the modifications may be considered Class 1 modifications, WMO submits this modification as a Class 2 modification based on the criteria presented in the B.1.d. of the Appendix to 40 CFR 270.42 and based on discussions with Mr. Thomas Matheson of the US EPA, Region V.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Sandy Clark at 419-547-3335.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Stephen C. Lonneman
General Manager

SCL/slc

Attachments

cc w/: Thomas W. Matheson, USEPA Region V (Mail Code DRP-8J)

cc w/out: Ken Kerik, SCBOH
David Schilt, OEPA Onsite Inspector

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

May 17, 1999

Mr. Thomas Crepeau (P 289 177 891)
Ohio Environmental Protection Agency
Division of Hazardous Waste Management
1800 WaterMark Drive, P.O. Box 1049
Columbus, Ohio 43216-1049

Ms. Harriet Croke, Chief (P 289 177 892)
Ohio Permitting Section (HRP-8-J)
Waste Management Division
US EPA Region 5
77 West Jackson Blvd.
Chicago, IL 60604

Re: Waste Management of Ohio, Inc. - Vickery Facility
OHD 020 273 819
Response to Comments on RCRA Class 2 Permit Modification

Dear Mr. Crepeau and Ms. Croke:

Waste Management of Ohio, Inc. Vickery facility (WMO) received correspondence from the Ohio EPA on May 12, 1999 which included comments on the facility's Class 2 Modification request dated February 12, 1999. (OEPA Tracking #990224-2-1) In response to the comments, enclosed you will find revised pages 608, 609, 620, 631, and 644 of the facility's RCRA Inspection Plan.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant

penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Sandy Clark at 419-547-3335.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Stephen C. Lonneman
General Manager

SCL/slc

Attachments

cc w/: Mr. David Schilt, OEPA-NWDO (2 copies)

INSPECTION PLAN

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- 1.1 Personnel Qualifications
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INSPECTION PLAN

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3.5 Container Inspection Schedule

3.6 Truck Unloading Wash Facility Waste Receiving System

3.7 Surface Water Drainage and Control Gate System

TABLE 1.1

INSPECTION FORMS AND SCHEDULE

FORM	AREA
(Daily)	
1D	Lab
2D	Truck Scale Area
4D	IAWTS
8D-11D	Wells
12D	Truck Unloading
(Weekly)	
3W	Emergency Response Equipment
5W	Lab
9W	Inject/Transfer Line Drain Pots
10W	Container Storage
(Monthly)	
1M	Security
11M	Surface Water Drainage

Inspection Report Form 12D is used in inspecting the truck unloading, sampling and wash facility.

3.7 Surface Water Drainage and Control Gate System Inspection

The types of potential problems which can occur in the facility's surface water management system are:

- Improper position and inoperability of water gate valves; and
- Accumulation and/or contamination of ditches from spilled materials with potential for off-site releases.

The elements of this inspection (Table 3.7) were developed in accordance with Section 264.15 of 40 CFR and OAC 3745-54-15. Inspection Report Form 11M is used in inspecting the surface water drainage and control gate system.

OhioEPA
State of Ohio Environmental Protection Agency

Northwest District Office
347 North Dunbridge Road
Bowling Green, Ohio 43402-9398
(419) 352-8461 **FAX** (419) 352-8468

George V. Voinovich
Governor

Re: ***NOTICE OF DEFICIENCY***
Waste Management of Ohio
OHD 020 273 819
03-72-0191

CERTIFIED MAIL Z 538 332 744

May 11, 1999

Mr. F. G. Nicar, General Manager
Waste Management of Ohio
3956 State Route 412
Vickery, Ohio 43464

Dear Mr. Nicar:

On February 24, 1999, Ohio EPA received a Class 2 permit modification application from Waste Management of Ohio.

The Ohio EPA, Division of Hazardous Waste Management (DHWM) has conducted a completeness/technical adequacy review of the above referenced modification application, and has determined it to be incomplete and technically inadequate. This application has been reviewed pursuant to the rules published in the Hazardous Waste Facility Standards Chapters in the Ohio Administrative Code and the corresponding Federal regulations.

We have enclosed completeness/technical adequacy comments that are the result of this review. Please provide detailed information addressing all areas indicated on the comment sheets to Ohio EPA within 30 days of the date of receipt of this correspondence. This submission shall be in accordance with the following editorial protocol or convention:

EDITORIAL PROTOCOL

1. Old language is overstruck. Delete language overstruck in previous versions as necessary to maintain only current language and its immediate antecedent overstruck language.

2. New language is capitalized or redlined.

3. Page headers should indicate date of submission or version designation.

4. If significant changes are necessary, pages should be renumbered, table of contents revised, and complete sections provided as required.

5. Each original application, or amended version must be prefaced by an updated "List of Effective Pages." The purpose of this requirement is to create a standard mechanism to specify and verify the content of the Part B permit application. Each "List of Effective Pages" must contain, at minimum, an inventory of pages for the entire document, posting directions, and a chronology of versions. The inventory of pages must positively identify each effective attachment by its page, drawing, figure, or table designation, and, unless an original page, by its current version designation or date of submission as specified in the inventory of pages. Attached are two examples of "List of Effective Pages" and associated page markings. RCRA Engineering Section, Division of Hazardous Waste Management, Central Office, Ohio EPA may authorize

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individual facilities to use an alternate method of specifying the content of their Part B permit application on a case-by-case basis.

6. Each original application, or version must be accompanied by a certification letter as specified in OAC Rule 3745-50-42(D).

Please send one copy each to:

Tom Crepeau, Manager
Ohio EPA, DHWM
Data Management Section
122 S. Front Street
Columbus, Ohio 43215

Harriet Croke, Chief
Ohio Permitting Section (HRP-8J)
Waste Management Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Please send two copies to:

David Schilt, Environmental Specialist
Ohio EPA, Northwest District Office
347 North Dunbridge Road
Bowling Green, Ohio 43402

In the course of the technical adequacy review, we may request additional information if it is necessary to clarify, modify, or supplement previous submissions of information in order to substantively evaluate the permit application for adequacy.

Failure to submit a complete permit application or to correct deficiencies in the application may result in the following:

1) Revocation of your existing Ohio Hazardous Waste Facility Installation and Operation Permit;

2) Denial of the permit application; and

3) Referral of the matter to the Ohio Attorney General's Office for appropriate enforcement action.

We request that the facility contact David Schilt of the Northwest District Office at 419-373-3071 or 419-547-6033 within ten (10) days of receipt of this NOD to discuss each of the enclosed comments in order to make clear the information being requested. This can be accomplished by a conference call or meeting.

Thereafter, any questions concerning the review of this permit application and the level of detail expected should also be addressed to David Schilt.

Sincerely,

David Schilt
Division of Hazardous Waste Management
/dlh

pc: Harriet Croke, Region V, USEPA
Jeremy Carroll, EU, DHWM, CO
Tom Crepeau, DMS, DHWM, CO
Pam Allen, CAS, DHWM, CO
David Schilt, DHWM, NWDO
Sudhir Singal, DHWM, CO
NWDO File

Chemical Waste Management, Inc.
Vickery Facility
OHD 020 273 819/03-72-0191
Review of Part B Permit Application Revisions

TECHNICAL ADEQUACY & COMPLETENESS COMMENTS

1. **Page 608.** The original language should be retained.

2. **Page 609.** The original language should be retained.

3. **Page 620.** Surface Water Drainage inspection should be moved from weekly to monthly.

4. **Page 631.** The original language should be retained in 3.7 Surface Water Drainage and Control Gate System Inspection.

5. **Page 609.** The original language should be retained in Table 3.7 Surface Water Drainage and Control Gate System Inspection. The Inspection Frequency may be change from weekly to monthly.

/dlh

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
1800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

May 3, 1999

Re: Chemical Waste Management, Inc.
US EPA ID No.: OHD 020 273 819
Ohio ID No.: 03-72-0191
Modified Hazardous Waste Permit

Waste Management of Ohio, Inc.
Attn: Mr. F. G. Nicar, General Manager
3956 State Route 412
Vickery, Ohio 43464

CERTIFIED MAIL

Dear Mr. Nicar:

On January 22, 1999, Ohio EPA received a Class 2 permit modification application from Waste Management of Ohio, Inc. (tracking numbers: OHD020273819 - 990122-2-1, 990122-2-2). The enclosed modified hazardous waste permit is being issued to you today in final form in accordance with the requirements of Rule 3745-50-51 of the Ohio Administrative Code. Please note that the modified permit remains in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, withdrawn, suspended or revoked.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission (ERAC) pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the ERAC within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 236 E. Town Street, Room 300, Columbus, Ohio 43215.

Sincerely yours,

Thomas E. Crepeau

Thomas E. Crepeau, Manager
Data Management Section
Division of Hazardous Waste Management

TEC/dhs

cc: Jeremy Carroll, Supervisor, EU, RES, DHWM
Sudhir Singhal, RES, DHWM
Harriet Croke, U.S. EPA, Region V
Raymond Roe, Hazardous Waste Facility Board
Beth Ames, Group Leader, DHWM, NWDO
David Schilt, DHWM, NWDO
Beth Gianforcaro, Ohio EPA, PIC

OHIO ENVIRONMENTAL PROTECTION AGENCY

Modified Ohio Hazardous Waste Facility Installation and Operation Permit

Date of Issuance: May 3, 1999
Effective Date: May 3, 1999

US EPA ID No: OHD 020 273 819
Ohio ID No: 03-92-0191

Name of Facility: Waste Management of Ohio, Inc.

Mailing Address: 3956 State Route 412
Vickery, Ohio 43464

Facility Location: 3956 State Route 412
Vickery, Ohio 43464

Person to Contact: F. G. Nicar

ENTERED DIRECTOR'S JOURNAL
MAY - 3 1999
OHIO E.P.A.

This Modified Ohio Hazardous Waste Facility Installation and Operation Permit is issued pursuant and subject to Section 3734.05 (I) of the Ohio Revised Code and Rule 3745-50-51(D) of the Ohio Administrative Code.

The Ohio Hazardous Waste Facility Installation and Operation Permit with the above referenced permit number as renewed on October 24, 1994, is hereby incorporated by reference in its entirety except as it may be modified herein.

This modification of the permit shall remain in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended or revoked.

The Permittee shall comply with all requirements of the modified Part B permit application as amended or supplemented on January 22, 1999. The information contained in the modified Part B permit application is incorporated herein by reference. Specifically, all written statements regarding the specifications, locations, or capabilities of the processes, equipment, containment devices, safety devices or programs or other matters made by the applicant in the modified permit application are hereby incorporated as express, binding terms and conditions of this modified permit.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Jona L Clements Date 5-3-99

The modified Terms and Conditions of this permit are attached hereto and are incorporated herein by reference. The modified Terms and Conditions supersede and replace the corresponding pages found in the October 24, 1994 renewal permit.

Christopher Jones
Director

permitpg/SS.ao

OHIO ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF HAZARDOUS WASTE MANAGEMENT

SUMMARY OF MODIFICATIONS TO HAZARDOUS WASTE INSTALLATION AND OPERATION PERMIT

Waste Management of Ohio, Inc.
U.S. EPA ID #: OHD020273819
Ohio ID #: 03-72-191

Modification of the Hazardous Waste Facility Installation and Operation Permit will authorize Waste Management of Ohio, Inc. to make the following changes:

Class 2 Modifications:

1. Approval to update the requirements as to when the Contingency Plan must be implemented based on Agency guidance (tracking number - 990122-2-1).

2. Approval to update the listing of the number and location of fire extinguishers on site in areas where hazardous waste is managed (tracking number - 990122-2-2).

modsumry/SS.ao

(b) When a State or local agency declines to enter into the arrangements set forth in OAC Rule 3745-54-37(A), the Permittee shall document the refusal in the operating record as required by OAC Rule 3745-54-37(B).

(c) The Permittee shall, in accordance with OAC Rule 3745-54-53, submit a copy of the approved contingency plan, including all amendments, revisions or modifications to all local police departments, fire departments, hospitals, and local emergency response teams that may be called upon to provide emergency services. The Permittee shall notify such agencies and the local authorities, in writing, within ten (10) days of the effective date of any amendments of, revisions to, or modifications to the contingency plan.

(d) The Permittee shall, in accordance with OAC Rule 3745-54-53, submit a copy of the approved contingency plan, and all revisions amendments and modifications to the Ohio Environmental Protection Agency's Division of Emergency and Remedial Response.

B.19. Surface Water Management Plan

The Permittee shall follow the Surface Water Management Plan as outlined in Section F.3.8 of the approved application.

B.20. Implementation of Contingency Plan
OAC Rules 3745-54-51 and 3745-54-56

The Permittee shall immediately carry out the provisions of the approved contingency plan and follow the emergency procedures described in OAC Rule 3745-54-56, whenever there is a fire, explosion, or release of hazardous waste or constituents which threatens or could threaten human health or the environment.

In regard to spills and related toxic gas releases, the plan must describe the criteria to be used by the emergency coordinator to determine when the plan will be implemented. At a minimum, the plan must be implemented in the following situations:

(a) Any fire involving hazardous waste; or

(b) Any explosion hazardous waste; or

(c) Any uncontrolled hazardous waste reaction that produces or has the potential to produce hazardous conditions, including noxious, poisonous, flammable and/or explosive gases, fumes, or vapors; harmful dust; or explosive conditions; or

(d) Any fire or explosive that has an increased potential to threaten human health or the environment due to its proximity to a hazardous waste management unit; or

(e) Any hazardous waste release, outside of a secondary containment system, that causes or has the potential to cause off-site soil and/or surface water contamination; or

(f) Any hazardous waste release that produces or has a potential to produce hazardous conditions, including noxious, poisonous, flammable, and/or explosive gases, fumes, or vapors; harmful dust; or explosive conditions.

B.21. Content of the Contingency Plan
OAC Rule 3745-54-52

The Permittee shall comply with OAC Rule 3745-54-52 and the contingency plan as set forth in Section G and Appendix 4 of the approved Part B permit application.

B.22. Contingency Plan - Released Material and Emergency Response Material and By-products
OAC Rule 3745-54-56

All liquid or solid material resulting from fire, explosion, released material or emergency response material and by-products that the Permittee is required to evaluate to determine whether such material is hazardous waste in accordance with OAC Rule 3745-52-11, shall be collected and managed as a hazardous waste until such time as the Permittee can demonstrate that such waste is not hazardous in accordance with OAC Rules 3745-51-03 (C) and (D) as required by OAC Rule 3745-54-56(G).

B.23. Amendments to Plan
OAC Rule 3745-54-54

The Permittee shall review the approved contingency plan at least annually and upon the occurrence of any event listed in OAC Rule 3745-54-54. If necessary or appropriate, the Permittee shall amend the contingency plan as required by OAC Rules 3745-54-54 and 3745-50-51.

WASTE MANAGEMENT OF OHIO, INC

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

RECEIVED

MAR 1 6 1999

U.S. EPA
OFFICE OF REGIONAL ADMINISTRATOR

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 311 952 145

March 9, 1999

Mr. David Ullrich
Regional Administrator
U.S. Environmental Protection Agency Region V
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Waste Management of Ohio, Inc.
Documentation of Public Notice
Class 2 Modification Submitted 2/22/99

Dear Mr. Ullrich:

In accordance with 40 CFR 270.14(b)(2), Waste Management of Ohio, Inc. submits the enclosed "Affidavit of Publication" for the public notice which appeared in the Fremont News Messenger on February 24, 1999. This notice was published to announce the Class 2 Public Meeting which will be held on Wednesday, March 31, 1999.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Should you have any questions regarding this matter, please contact Sandy Clark at 419-547-3335.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

F. G. Nicar
General Manager

Enclosure

cc w/: Thomas Matheson, USEPA (DRP-8J)

The News-Messenger

Box 1230 • 1700 Cedar Street • Fremont, Ohio 43420 • 419-332-5511

PUBLIC NOTICE

This notice is given pursuant to 40 CFR 270.42(b)(2). Waste Management of Ohio, Inc, Vickery facility (WMO) located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its US EPA Federal Hazardous Waste Operating Permit in accordance with 40 CFR 270.42 (g)(1)(iv). This request would allow the facility to continue to receive wastes which carry waste codes K169, K170, K171 and K172. These are newly listed wastes from the petroleum refining industry which were listed in the August 6, 1998 Federal Register.

A 60 day comment period will be from February 24, 1999 through April 25, 1999.

Comments may be sent to:
Mr. Thomas W. Matheson, DRP-8J
USEPA Region V
Office of RCRA, Waste Management Division
77 West Jackson Blvd.
Chicago, IL 60604-3590

WMO will host a Public Meeting to provide information related to this request. The meeting will be held at 7:00 pm on Wednesday, March 31, 1999 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

WMO
Fred G. Nicar
General Manager
(419) 547-7791

USEPA Region V
Thomas W. Matheson
Corrective Action
(312) 886-7569

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

February 24, 1999

AFFIDAVIT OF PUBLICATION

STATE OF OHIO, County of Sandusky, ss:

Before me, the undersigned, a notary public in and for said county, personally appeared Rita Wollenslegel who being duly sworn, says she is the clerk of The News-Messenger, a daily newspaper, printed and of general circulation in said county and state and a notice of which the annexed is a copy, was published in said newspaper for one day, publication being on February 24, 1999.

Signed Rita Wollenslegel

Sworn to before me and subscribed in my presence this 2 day of March, 1999.

Dolores M. Chamberlain
NOTARY PUBLIC

My commission expires June 22, 1999.

Notary Seal

GANNETT

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 311 952 137

February 22, 1999

Mr. David Ullrich
Regional Administrator
U.S. Environmental Protection Agency Region V
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Mr. Ullrich:

In accordance with 40 CFR 270.42(g)(1)(iv), Waste Management of Ohio, Inc. (WMO) submits a Class 2 permit modification for wastes from the petroleum refining industry. These are newly listed wastes from the petroleum industry which carry waste codes K169, K170, K171 and/or K172. This modification would permit the acceptance of these waste codes for waste types currently managed at this facility. This modification is classified as a Class 2 modification based on the criteria presented in 40 CFR 270.42(g)(iv). WMO submitted the Class 1 permit modification for these waste codes on January 21, 1999 in accordance with 40 CFR 270.42(g)(1)(ii).

These wastes will be treated (T01) and stored (S02) in tanks, treated by filtration (T04) and deepwell injected (D79). This change is necessary in order to manage wastes which are otherwise acceptable with the facility design.

Included as attachments to this letter is the information required by 40 CFR 270.42(b). Below is a listing of the attachments:

Attachment 1	Summary of Rule Requirements and Facility Response
Attachment 2	Federal Part A Application Waste Number List
Attachment 3	Revised Language of Section IV.C. of Federal Permit
Attachment 4	Letter of Notification and Public Notice
Attachment 5	Mailing List

As discussed in the summary included as Attachment 1, the addition of these codes will not require any additional or different management practices. There will be no addition to or change in the treatment process. Blending of wastes will still occur in tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. All wastes will pass the currently approved Waste Analysis Plan requirements, thereby demonstrating that they are the same type of waste the facility currently and previously has managed. No new fire protection is required.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Sandy Clark at 419-547-3335.

Sincerely,
WASTE MANAGEMENT OF OHIO, INC.

F.G. Nicar
General Manager

FGN/slc

Attachments

cc w/: [redacted]

cc w/out: Ken Kerik, SCBOH
David Schilt, OEPA Onsite Inspector

Attachment 1
Summary of Rule Requirements and Facility Response

Summary of Rule Requirements and Facility Response

Class 2 Modification 40 CFR 270.42(b)(1)...	Rule Requirement	Facility Response
(i)	Exact Change to be made to Permit	The addition of these four waste codes, K169, K170, K171 and K172, requires a revision to the listing of waste codes in the Part A Application and a revision to page 17 of the facility's US EPA Final Federal Permit (Permit). Included as Attachment 2 and 3, respectively, are the revised Part A Application and the revised page 17 of the Permit.
(ii)	Class 2 Modification	The facility submits this Class 2 modification as required by 40 CFR 270.42(g)(iv). The rule listing waste codes K169, K170, K171 and K172 was effective February 8, 1999. The Class 1 modification was submitted January 21, 1999 and subsequently approved by the USEPA.
(iii)	Why Modification Needed	The facility submits this Class 2 modification as required by 40 CFR 270.42(g)(iv). This modification would permit the continued acceptance of these waste codes for waste types currently managed at this facility.
(iv)	Information Required by 40 CFR 270.13-270.21; 270.62; 270.63.	See information provided below.
	40 CFR 270.13-Part A	See Attachment 2 for the Federal Part A Application Waste Number List.
	40 CFR 270.14-Part B	See Attachment 3 for the revised language of page 17 of the facility's Federal Permit. There are no revisions to the Part B Application. The addition of these codes will not require any additional or different management practices. There will be no addition to or change in the treatment process. Blending of wastes will still occur in tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. All wastes will pass the currently approved Waste Analysis Plan requirements, thereby demonstrating that they are the same type of waste the facility currently and previously has managed. No new fire protection is required.

Summary of Rule Requirements and Facility Response

Class 2 Modification 40 CFR 270.42(b)(1)...	Rule Requirement	Facility Response
(iv) (cont'd)	40 CFR 270.15-Containers	The facility does not manage hazardous wastes in these types of units under this rule.
	40 CFR 270.16-Tanks	The addition of these codes will not require any additional or different management practices. There will be no addition to or change in the treatment process. Blending of wastes will still occur in tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. All wastes will pass the currently approved Waste Analysis Plan requirements, thereby demonstrating that they are the same type of waste the facility currently and previously has managed. No new fire protection is required.
	40 CFR 270.17 to 40 CFR 270.21; 40 CFR 270.62 and 40 CFR 270.63 Surface Impoundments, waste piles, incinerators, land treatment.	The facility does not manage hazardous wastes in these types of units.

Summary of Rule Requirements and Facility Response

Class 2 Modification 40 CFR 270.42(b)(2)...	Rule Requirement	Facility Response
(2) and (2)(i) through (vi)	Notification to those on mailing list.	As required by 40 CFR 270.42(b)(2), WMO will send notification of the modification to all persons on the facility mailing list, as maintained by the Director and all appropriate State and local government. This notification will be made within 7 days after the submission of this modification application and will include all information required. The notice includes all information required by 40 CFR 270.42(2)(i) through (vi). Included as Attachment 4 is a copy of the notification sent to all persons on our facility mailing list including the public notice that is scheduled to appear in The Fremont News-Messenger newspaper on February 24, 1999. Included in Attachment 5 is a copy of our mailing list.
(3)	Copy of Modification	A copy of the permit modification application and supporting documents shall be available at the Birchard Public Library of Sandusky County in Fremont.
(4)	Public Meeting	A public meeting is scheduled for 7:00 pm, Wednesday, March 31, 1999 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.
(5)	Comment Period	The 60 day comment period shall be from February 24, 1999 to April 25, 1999.

Attachment 2

Federal Part A Application Waste Number List, Modified 2/22/99

Federal Part A Application Waste Number List, Modified 2/22/99

	WASTE CODE	PROCESS CODE
1.	D004	S01, S02, T01, T04, D79
2.	D005	S01, S02, T01, T04, D79
3.	D006	S01, S02, T01, T04, D79
4.	D007	S01, S02, T01, T04, D79
5.	D008	S01, S02, T01, T04, D79
6.	D009	S01, S02, T01, T04, D79
7.	D010	S01, S02, T01, T04, D79
8.	D011	S01, S02, T01, T04, D79
9.	D012	S01, S02, T01, T04, D79
10.	D013	S01, S02, T01, T04, D79
11.	D014	S01, S02, T01, T04, D79
12.	D015	S01, S02, T01, T04, D79
13.	D016	S01, S02, T01, T04, D79
14.	D017	S01, S02, T01, T04, D79
15.	D018	S01, S02, T01, T04, D79
16.	D019	S01, S02, T01, T04, D79
17.	D020	S01, S02, T01, T04, D79
18.	D021	S01, S02, T01, T04, D79
19.	D022	S01, S02, T01, T04, D79
20.	D023	S01, S02, T01, T04, D79
21.	D024	S01, S02, T01, T04, D79
22.	D025	S01, S02, T01, T04, D79
23.	D026	S01, S02, T01, T04, D79
24.	D027	S01, S02, T01, T04, D79
25.	D028	S01, S02, T01, T04, D79
26.	D029	S01, S02, T01, T04, D79
27.	D030	S01, S02, T01, T04, D79
28.	D031	S01, S02, T01, T04, D79
29.	D032	S01, S02, T01, T04, D79
30.	D033	S01, S02, T01, T04, D79
31.	D034	S01, S02, T01, T04, D79

Federal Part A Application Waste Number List, Modified 2/22/99

	WASTE CODE	PROCESS CODE
32.	D035	S01, S02, T01, T04, D79
33.	D036	S01, S02, T01, T04, D79
34.	D037	S01, S02, T01, T04, D79
35.	D038	S01, S02, T01, T04, D79
36.	D039	S01, S02, T01, T04, D79
37.	D040	S01, S02, T01, T04, D79
38.	D041	S01, S02, T01, T04, D79
39.	D042	S01, S02, T01, T04, D79
40.	D043	S01, S02, T01, T04, D79
41.	F032	S01, S02, T01, T04, D79
42.	F034	S01, S02, T01, T04, D79
43.	F035	S01, S02, T01, T04, D79
44.	K140	S01, S02, T01, T04, D79
45.	K141	S01, S02, T01, T04, D79
46.	K142	S01, S02, T01, T04, D79
47.	K143	S01, S02, T01, T04, D79
48.	K144	S01, S02, T01, T04, D79
49.	K145	S01, S02, T01, T04, D79
50.	K146	S01, S02, T01, T04, D79
51.	K147	S01, S02, T01, T04, D79
52.	K148	S01, S02, T01, T04, D79
53.	K149	S01, S02, T01, T04, D79
54.	K150	S01, S02, T01, T04, D79
55.	K151	S01, S02, T01, T04, D79
56.	K156	S01, S02, T01, T04, D79
57.	K157	S01, S02, T01, T04, D79
58.	K158	S01, S02, T01, T04, D79
59.	K159	S01, S02, T01, T04, D79
60.	K160	S01, S02, T01, T04, D79
61.	K161	S01, S02, T01, T04, D79
62.	K169	S01, S02, T01, T04, D79

Federal Part A Application Waste Number List, Modified 2/22/99

	WASTE CODE	PROCESS CODE
63.	K170	S01, S02, T01, T04, D79
64.	K171	S01, S02, T01, T04, D79
65.	K172	S01, S02, T01, T04, D79
66.	P127	S01, S02, T01, T04, D79
67.	P128	S01, S02, T01, T04, D79
68.	P185	S01, S02, T01, T04, D79
69.	P188	S01, S02, T01, T04, D79
70.	P189	S01, S02, T01, T04, D79
71.	P190	S01, S02, T01, T04, D79
72.	P191	S01, S02, T01, T04, D79
73.	P192	S01, S02, T01, T04, D79
74.	P194	S01, S02, T01, T04, D79
75.	P196	S01, S02, T01, T04, D79
76.	P197	S01, S02, T01, T04, D79
77.	P198	S01, S02, T01, T04, D79
78.	P199	S01, S02, T01, T04, D79
79.	P201	S01, S02, T01, T04, D79
80.	P202	S01, S02, T01, T04, D79
81.	P203	S01, S02, T01, T04, D79
82.	P204	S01, S02, T01, T04, D79
83.	P205	S01, S02, T01, T04, D79
84.	U271	S01, S02, T01, T04, D79
85.	U277	S01, S02, T01, T04, D79
86.	U278	S01, S02, T01, T04, D79
87.	U279	S01, S02, T01, T04, D79
88.	U280	S01, S02, T01, T04, D79
89.	U364	S01, S02, T01, T04, D79
90.	U365	S01, S02, T01, T04, D79
91.	U366	S01, S02, T01, T04, D79
92.	U367	S01, S02, T01, T04, D79
93.	U372	S01, S02, T01, T04, D79

Federal Part A Application Waste Number List, Modified 2/22/99

	WASTE CODE	PROCESS CODE
94.	U373	S01, S02, T01, T04, D79
95.	U375	S01, S02, T01, T04, D79
96.	U376	S01, S02, T01, T04, D79
97.	U377	S01, S02, T01, T04, D79
98.	U378	S01, S02, T01, T04, D79
99.	U379	S01, S02, T01, T04, D79
100.	U381	S01, S02, T01, T04, D79
101.	U382	S01, S02, T01, T04, D79
102.	U383	S01, S02, T01, T04, D79
103.	U384	S01, S02, T01, T04, D79
104.	U385	S01, S02, T01, T04, D79
105.	U386	S01, S02, T01, T04, D79
106.	U387	S01, S02, T01, T04, D79
107.	U389	S01, S02, T01, T04, D79
108.	U390	S01, S02, T01, T04, D79
109.	U391	S01, S02, T01, T04, D79
110.	U392	S01, S02, T01, T04, D79
111.	U393	S01, S02, T01, T04, D79
112.	U394	S01, S02, T01, T04, D79
113.	U395	S01, S02, T01, T04, D79
114.	U396	S01, S02, T01, T04, D79
115.	U400	S01, S02, T01, T04, D79
116.	U401	S01, S02, T01, T04, D79
117.	U402	S01, S02, T01, T04, D79
118.	U403	S01, S02, T01, T04, D79
119.	U404	S01, S02, T01, T04, D79
120.	U408	S01, S02, T01, T04, D79
121.	U409	S01, S02, T01, T04, D79
122.	U410	S01, S02, T01, T04, D79
123.	U411	S01, S02, T01, T04, D79

Attachment 3
Revised Language of Section IV.C. (Page 17 of 19) of the Permit

Revised Language of Section IV.C. (Page 17 of 19) of the Permit

C. OTHER WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in containers, tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Unit(s)
Solid and Liquid Waste	See list below	678,920 gallons	Container Storage (S01)
Liquid Waste	See list below	1,102,600	Tank Storage (S02)
Liquid Waste	See list below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See list below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See list below	2.4×10^9 gallons	Injection Well Disposal (D79)

EPA Hazardous Waste Numbers: F032, F034, F035, K140, K141, K142, K143, K144, K145, K146, K147, K148, K149, K150, K151, K156, K157, K158, K159, K160, K161, **K169, K170, K171, K172**, P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199, P201, P202, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365, U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383, U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396, U400, U401, U402, U403, U404, U408, U409, U410, U411.

Attachment 4
Letter of Notification and Public Notice

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

February 22, 1999

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with the Code of Federal Regulations (CFR) 40 CFR 270.42, Waste Management of Ohio, Inc. (WMO) Vickery Facility has requested a Class 2 permit modification. The purpose of this request is to allow the continued acceptance of waste codes associated with newly listed wastes from the petroleum industry, K169, K170, K171 and K172. The federal rules require for newly listed wastes that a Class 1 modification be submitted prior to the effective date of the rule. The effective date was February 8, 1999. The facility's Class 1 modification was submitted on January 21, 1999. The rules then require that the facility submit a Class 2 modification within 180 days following the effective date of the rule; hence the reason for the submittal of this modification application.

As required by 40 CFR 270.42(b)(2), WMO is sending you this notification of the modification because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Fred Nicar
General Manager

PUBLIC NOTICE

This notice is given pursuant to 40 CFR 270.42(b)(2). Waste Management of Ohio, Inc, Vickery facility (WMO) located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its US EPA Federal Hazardous Waste Operating Permit in accordance with 40 CFR 270.42(g)(1)(iv). This request would allow the facility to continue to receive wastes which carry waste codes K169, K170, K171 and K172. These are newly listed wastes from the petroleum refining industry which were listed in the August 6, 1998 Federal Register.

A 60 day comment period will be from February 24, 1999 through April 25, 1999. Comments may be sent to:

Mr. Thomas W. Matheson, DRP-8J
USEPA Region V
Office of RCRA, Waste Management Division
77 West Jackson Blvd.
Chicago, IL 60604-3590

WMO will host a Public Meeting to provide information related to this request. The meeting will be held at 7:00 pm on Wednesday, March 31, 1999 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

WMO
Fred G. Nicar, General Manager
(419) 547-7791

USEPA Region V
Thomas W. Matheson, Corrective Action
(312) 886-7569

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

Attachment 5
Mailing List

Ohio Conservation Congress
945 Wheeling Ave
:idge, OH 43725

Paul and Sue Yoder
Citizens to Perfect the Environment
16881 Peters Road
Middlefield, OH 44026

Richard Brinkman
Montgomery Co Env Serv
6589 North Webster Ave
Dayton, OH 45414

U.S. Dept of the Interior
Fish & Wildlife Service
Field Office
6950-H Americana Parkway
Reynoldsburg, OH 43068

Wallace H. Metcalf
Jackson County Env Comm
2536 Pattonsville Rd
Jackson, OH 45640

Ida Kay Keller, Chairperson
430 North Acadia
Spencerville, OH 45887

James W. Cowden
J.W. Cowden and Associates
9315 Glenwood Tail
Brecksville, OH 44141

James K Essman
Ohio Dept of Health
Bureau of Envir. Health
246 North High Street
Columbus, OH 43215

Jane Harf
Legislative Liaison
Ohio Chapter - Sierra Club
145 N. High St
Columbus, OH 43215

John A Paul, Supervisor
Reg Air Poll Control
451 W. Third St.
P.O. Box 972
Dayton, OH 45422

Julianna Bull
Executive Director
Ohio Hazardous Waste Facility
P.O. Box 1049
Columbus, OH 43266

Kent Kroonemeyer
Supervisor
U.S. Fish and Wildlife Services
6950 H American Parkway
Reynoldsburg, OH 43068

Laura Evans
Hazardous Substances Chair
Ohio League of Women Voters
226 South Main St
Granville, OH 43023

Laurence Butler
President of Clean
P.O. Box 5
West Chester, OH 45069

League of Ohio Sportsmen
3953 Indianola Ave
Columbus, OH 43214

Library
Baker & Hostetler
65 E. State St , 22nd Fl.
Columbus, OH 43215

Linda Welch
Chief, DSHWM
Ohio EPA
P.O. Box 1049
Columbus, OH 43266

Mack Industries
201 Columbia Road
Valleycity, OH 44208

Marcia Cooper
Legislative Services Committee
State House
Columbus, OH 43215

Mark R. Rowland
Water Mgmt Assoc of Ohio
Burgess & Niple, Ltd.
5085 Reed Road
Columbus, OH 43220

Michael Colvin
Environmental Review Coord
ODNR
Fountain Square Bldg Ac-3
Columbus, OH 43244

Mike Greenberg
Public Participation Coordinator
Ohio EPA
P.O. Box 1049
Columbus, OH 43216

Mike Ramsey
6011 Stillwell
Oxford, OH 45056

Tauny Rather
2840 Attleboro Road
'er Heights, OH 44120

Terri Swearingen
Box 39
Chester, West Virginia 26034

Thomas Hart
Ohio Manufacturers Association
33 North High Street
Suite 600
Columbus, OH 43215

Thomas J. Walsh
Div of Air Pollution
9127 Miles Ave
Cleveland, OH 44105

Thomas M. Berg
State Geologist and Chief
ODNR Div of Geological Survey
Fountain Sq. Bldg B
Columbus, OH 43224

TMACOG
P.O. Box 9508
Toledo, OH 43697-9508

Tom Crepeau
Ohio EPA
Central Office
P.O. Box 1049
Columbus, OH 43216-1049

Tom Breckenridge
Plain Dealer
1801 Superior Ave
Cleveland, OH 44114

Tony Casasanta
Canton Chamber of Commerce
Environmental Committee
101 E. Maple St
North Canton, OH 44720

U.S. Dept of Transportation
Federal Highway Adm
200 N. High St Room 328
Columbus, OH 43215

University of Toledo
College of Law Library
2801 W Bancroft St.
Toledo, OH 43606

University of Akron
Serials Dept
Bierce Library
Akron, OH 44325

Von Hill
Environmental Research & Action
1361 Francisco Rd
Columbus, OH 43220

William Howard
Associate Director
Ohio Petroledum Council
88 E Broad St Suite 1980
Columbus, OH 43215

Rebecca Petty, Administrator
Ohio Dept of Natural Resources
Division of Water
1939 Fountain Square
Columbus, OH 43224-1336

Acar Caner, Office Chief Eng.
ODNR Bldg D-2
1930 Belcher Drive
Columbus, OH 43224

Bob Carey
Tech Asst & Eng Sec DHSWM
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, OH 43266

Bur of National Affairs Inc.
BNA Plus
1231 25th St. NW, Room 215
Washington, D.C. 20037

Carolyn Buhl
Sierra Club
3080 Corydon Rd
Cleveland, OH 44118

Case Western Reserve Univ
Law Library
11075 E. Blvd.
Cleveland, OH 44107

Dan Chatfield
Ohio Dept of Health
246 N. High 6th Floor
Columbus, OH 43215

Edward Kitchen
Ohio EPA
Tech Asst & Eng Sect DSHWM
P.O. Box 1049
Columbus, OH 43266

Greg Studen
Sierra Club Conservation Chapter
7675 Squire Lane
Novelty, OH 44076

Honorable Ralph Regula
U.S. House of Representatives
2209 Rayburn House Office Bldg
Washington, D.C. 20515

Leslie Skuttle
Izaak Walton League of America
Ohio Division
3026 Ranfield Road
Kent, OH 44240

Mike Murer
Squire, Sanders & Dempsey
1300 Hunnington Ctr
415 High Street
Columbus, OH 43215

Mr. Bob Pattison
Air Pollution Control Div
Canton City Health Dept
Second Floor City Hall
Canton, OH 44702

Dick Fridley
Jefferson Water & Sewer Dist.
P.O. Box 116
:klick, OH 43004

Dr. Michael D. Craden
Office of Outdoor Recreation Serv
Ohio Dept of Natural Resources
Fountain Square Bldg G-2
Columbus, OH 43244

Eric Anderson
Cecos Intl
4879 Spring Cove
Cincinnati, OH 4S232

Glenn Stevenson
Legislative Services Comm
State House
Columbus, OH 43215

Honorable Jerry Luebbers
Ohio House of Representatives
State House, Riffe Center, 11th Floor
Columbus, OH 43215

Honorable Carole Kolb
Mayor, City of Addyston
235 Main Street
Addyston, OH 45001

Honorable Stanley Aronoff
Ohio Senate
State House, 2nd Floor
Columbus, OH 43215

Honorable Sherrod Brown
U.S. House of Representatives
Washington, D.C. 20515

Honorable John Boehner
U.S. House of Representatives
1020 Longworth House Office Bldg
Washington, D.C. 20515

Dominic Hanket
Ohio Attorney General's Office
Environmental Section
30 East Broad Street
Columbus, OH 43215

Dr. Robert Alrutz
Denison University
Coordinator of Env Studies
One Sunset Hill
Granville, OH 43023

Gary Smith
Systech Corp
245 N. Valley Rd
Xenia, OH 45385

Governor of Ohio
State House
Columbus, OH 43215

Honorable Cooper Snyder
Ohio Senate
State House
Columbus, OH 43215

Honorable James A. Traficant
U.S. House of Representatives
312 Cannon House Office Bldg.
Washington, D.C. 20515

Honorable Thomas Sawyer
U.S. House of Representatives
1518 Longworth House Offic eBldg
Washington, D.C. 20515

Honorable Marcie Kaptur
U.S. House of Representatives
1630 Longworth House Office Bldg
Washington, D.C. 20515

Honorable Tony Hall
U.S. House of Representatives
1020 Longworth House Office Bldg
Washington, D.C. 20515

Donald R. Schregardus
Director
Ohio EPA
P.O. Box 1049
Columbus, OH 43266

Ed Lim
Tech Asst & Eng Section, DSHWM
Ohio EPA
P.O. Box 1049
Columbus, OH 43216-1049

Gary Sommerville
Sr. Environmental Specialist
Ohio Electric Utilitic Institute
215 North Front Street
Columbus, OH 43215

Harry Courtright
Ohio EPA, DSHWM
Northeast District Office
2110 E. Aurora Road
Twinsburg, OH 44087

Honorable Louis Stokes
U.S. House of Representatives
2465 Rayburn House Office Bldg
Washington, D.C. 20515

Honorable David Hobson
U.S. House of Representatives
1338 Longworth House Office Bldg.
Washington, D.C. 20515

Honorable Michael Oxley
U.S. House of Representatives
1108 Longworth House Office Bldg
Washington, D.C. 20515

Director
Office of Ocean & Coastal
Resources Management NOAA
3300 Whitehaven St. N.W.
Washington, D.C. 20235

Honorable John Kasich
U.S. House of Representatives
1020 Longworth House Office Bldg
Washington, D.C. 20515

Nature Conservancy
Ohio Office
6375 Riverside Drive #50
n, OH 43017-5045

Air Pollution Control Agency
Attn: Mr. Leon Weitzel
Administrative Bldg
105 Main St
Painesville, OH 44077

Al Franks
Public Interest Ctr
Ohio EPA
P.O. Box 1049
Columbus, OH 43266

Alan Kuper, Chairman
Sierra Club
2265 Delaware Road
Cleveland, OH 44106

Arlene Frederick
2672 E. Water Street
Rock Creek, OH 44084

B. Hodenbosi
PSD Permits, Air Programs
Ohio EPA
P.O. Box 1049
Colulumbus, OH 43266

Bill Costello
Ohio Mfg Assoc.
33 N. High St
Columbus, OH 43215

Bill Warner, Past Pres.
6191 C.R. 247
Vickery, OH 43464

Honorable John Dowlin
County Administration Building
138 East Court Street, #603
Cincinnati, OH 45202

Braxton Tewart
Ohio Lung Assoc
1700 Arlingate Lane
Columbus, OH 43228

Allen County Citizens for the Environment
1123 Rice Avenue
Lima, OH 45802

Bryan Zima
Ohio Attorney General's Office
Environmental Sectin, 25th Floor
30 East Broad Street
Columbus, OH 43215

Raymond Rowe
HWFB
P.O. Box 1049
1700 Watermark Drive
Columbus, OH 43266-1049

Byrd Finney, Jr Adm
Bur Env Services
Ohio Dept of Transportation
25 South Front St, Room 808
Columbus, OH 43215

Honorable Paul Gillmor
U.S. House of Representatives
1203 Longworth House Office Bldg
Washington, D.C. 20515

Chairman, Senate, Energy, Natural Resources & Env Committee
State House
Columbus, OH 43215

Richard Sahli
Ohio Environmental Council
1207 Grandview Avenue #201
Columbus, OH 43212-3449

Charlene Dwin
Advisory Council on Historic Preservation
1100 Pennsylvania Ave, NW #809
Washington, D.C. 20004

Concerned Citizens About Hazardous Wastes
Terry and Pat Adams
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Chillicothe, OH 45601

Scott Miller
Environ Design Group
450 Grant Street
Akron, OH 44311-1183

Daniel Mcintyre
Columbus Water & Chemical Test Lab
American Council of Ind Labs
4628 Indianola
Columbus, OH 43214

Daryl Hawkins
U.S. Army Corp. of Engineers
CEORL-OR-F
P.O. Box 59
Louisville, KY 40201-0059

Dave Lore
Columbus Dispatch
34 S. Third St
Columbus, OH 43215

David Chenault
Ohio EPA, DSHWM
Southeast District Office
2195 Front Street
Logan, OH 43138

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State Waste Programs Branch
U.S. EPA
JFK Federal Bldg
Boston, MA 02203

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POB 15159
230 East Town Street
Columbus, OH 43215-0159

Diana Sheaufman
946 Township Road 150
Nova, OH 44859

Mr. Norman Keckler
Air Pollution Control
S. Broadway
on, OH 44308

Mr. Bob Wysenski
Ohio EPA
1800 Watermark Drive
Columbus, OH 43215

Mr. Don Klama
Advisory Council on Historic
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Ms. Ann Berger
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Ms. Patricia Walling
1800 Watermark Drive
Columbus, OH 43215

Ms. Judy Kitchen
State Historic Preservation Officer
1982 Velma Avenue
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537 N. Sandusky County Rd 220
Fremont, OH 43420

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Ohio Dept of Energy
Peter Kochman
State Office Tower, 34th Floor
30 E. Broad Street
Columbus, OH 43215

Ohio Academy of Science
P.O. Box 12507
1500 W 3rd Ave., #223
Columbus, OH 43212-2817

Ohio Edison Co
Attn: Manager Environmental
Special Projects
76 S. Main St
Akron, OH 44308

Ohio Historical Society
1982 Velma Ave
Columbus, OH 43211

Ohio Biological Survey
Museum of Biological Diversity
Ohio State University
1315 Kinnear Road
Columbus, OH 43212-1192

Paul Novak, Manager
Water Resource Management Sect
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P.O. Box 1049
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Northeast District Office
2110 E. Aurora Road
Twinsburg, OH 44087

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Ohio Farm Bureau Federation
35 E. Chestnut St, Box 479
Columbus, OH 43215

Ronald F Scott
Asst Administrator
Div of Sewage & Drainage
910 Dublin Rd
Columbus, OH 43215

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513 East 1st Street
Spencerville, OH 45887

Sandusky County Sanitary
Engineering Dept.
Courthouse
Fremont, OH 43420

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City of Oregon
5330 Seaman Rd
Oregon, OH 43616

Sierra Club Ohio Chapter
6557 Rainbow Lane
Cincinnati, OH 45230

Squire, Sanders & Dempsey
Library
1800 Huntington Bldg
Cleveland, OH 44115

Steve Levy
U.S. EPA
Office of Solid Waste Rm 264G
401 M Street SW
Washington, D.C. 20460

Steven Hindall, Dist Chief
U.S. Geeological Survey
975 W. Third Ave
Columbus, OH 43212

Sue Harding
S. Valley Ridge Farm
Hunting Valley, OH 44022

Blackbur Carter
3131 Eastside Ste 450
:on, Texas 77908

The Honorable Rex Damschroder
Ohio House of Representatives
Riffe Center
Columbus, OH 43266-0603

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1884 State Route 412
Fremont, OH 43420

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946 TR 150
Nova, OH 44859

Riley Township Clerk
Joseph Halbeisen
1829 US 6 E
Fremont, OH 43420

Lorey Roggenkamp
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TWO
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Riley Township Trustee
Danny Polter
2275 CR 239
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Riley Township Trustee
John Antesberger
1062 N CR 220
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Vickery, Ohio 43464

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Clerk of Courts
Courthouse 100 N Park Ave
Fremont, Ohio 43420

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3677 N St Rt 590
Lindsey, Ohio 43442

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3044 CR 265
Fremont, OH 43420

Geneva Eisenhour
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Zilphia Street
Burgon, Ohio 43407

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Jack Gibbs
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nt, Ohio 43420

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Vickery, Ohio 43464

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Toledo, Ohio 43605

Kirk Stemple
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Helena, Ohio 43435

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Bedford, Ohio 44146

Rick Sunshine
100 Glenborough 1400
Houston, Texas 77067

Virgil Swartzlander
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Fremont, Ohio 43420

Robert Teer
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Columbus, Ohio 43212

The Thorbahn Family
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Vickery, Ohio 43464

Linda Thorbahn
4428 County Rd 247
Vickery, Ohio 43464

Paul Tornow
Village of Hellena
504 Church St
Helena, Ohio 43435

Norm Walker
3275 County Road 229
Fremont, Ohio 43420

William Warner, Warner Farm
6191 County Road 247
Vickery, Ohio 43464

William Warner Jr.
6214 County Road 247
Vickery, Ohio 43464

Bob Whiteside
TWO
520 Post Oak, Ste 650
Houston, Texas 77027

Kenneth Winke
City of Clyde
222 N. Main Street
Clyde, Ohio 43410

Melissa Winzeler
829 Brookfield
Perrysburg, Ohio 43551

Chris Manthley
Environmental Background Info Center
12 Graham Terrace
Montclair, NJ 07042

Mr. Ken Kerik
Sandusky County Health Department
Chairman of Citizen Public Information Committee
2000 Countryside Dr.
Fremont, Ohio 43420

U.S. Army Corp. of Engineers
Attn: Mr. Allen Sissleman
1776 Niagara Street
Buffalo, NY 14207-3199

Trustee John Antesberger, Chairman
Riley Township Trustee
1062 County Road 220
Fremont, OH 43420

The Honorable Larry Mumper
Ohio Senate
Senate Office Building
Columbus, OH 43215-4211

The Honorable Paul E. Gillmor
United States Representative
613 West Third Street
Defiance, OH 43512

The Honorable John H. Glenn
United States Senate
200 N. High Street, Rm. 600
Columbus, OH 43215

The Honorable Michael DeWine
United States Senate
37 West Broad Street
Columbus, OH 43215

U.S. EPA, Region V
Attn: Ms. Harriet Croke
RCRA Permitting Branch, HRP-8J
77 W. Jackson Blvd.
Chicago, IL 60604

Hazardous Waste Facility Board
Attn: Mr. Raymond Roe
1700 WaterMark Drive
Columbus, OH 43215

Public Interest Center
Attn: Ms. Carol Hester
1800 WaterMark Drive
Columbus, OH 43215

Ohio EPA
Northwest District Office
Attn: Mr. Chuck Hull
347 N. Dunbridge Road
Bowling Green, OH 43402

Village of Gibsonburg
Office of the Mayor
129 N. Main Street
Gibsonburg, OH 43431

Mary Anne Koebel
2000 Countryside Drive
Fremont, OH 43420

Village of Lindsey
Office of the Mayor
240 S. Main Street
Lindsey, OH 43442

Mr. Dwight Wise
7523 C.R. 39
Fremont, OH 43420

Mr. George Huston
Townsend Township Trustee
6195 SR 101
Clyde, OH 43410

Ms. Cathy Bales, Clerk
Townsend Township Trustee
2739 CR 306
Vickery, OH 43464

Mr. Kerry Bruce
City of Toledo, Dept. of Public Utilities
Div. of Administrative Services
420 Madison Avenue, Suite 100
Toledo, OH 43604

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Gibsonburg, Ohio 43431

Mr. Dan Liskai
Sandusky County Commissioner
100 N. Park Ave.
Fremont, Ohio 43420

Mrs. Jean Leber
Townsend Township Trustee
1560 CR 310
Clyde, OH 43410

Mr. Andy Meyer
1006 Crystal Avenue
Findlay, OH 45840

Mr. Cleve Parkhurst
Townsend Township Trustee
6751 CR 263
Vickery, OH 43464

Mr. Terry Thatcher
Sandusky County Commissioner
100 N. Park Ave.
Fremont, Ohio 43420

Mr. David Forgatsch
Sandusky County Commissioner
100 N. Park Ave.
Fremont, Ohio 43420

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

February 22, 1999

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with the Code of Federal Regulations (CFR) 40 CFR 270.42, Waste Management of Ohio, Inc. (WMO) Vickery Facility has requested a Class 2 permit modification. The purpose of this request is to allow the continued acceptance of waste codes associated with newly listed wastes from the petroleum industry, K169, K170, K171 and K172. The federal rules require for newly listed wastes that a Class 1 modification be submitted prior to the effective date of the rule. The effective date was February 8, 1999. The facility's Class 1 modification was submitted on January 21, 1999. The rules then require that the facility submit a Class 2 modification within 180 days following the effective date of the rule; hence the reason for the submittal of this modification application.

As required by 40 CFR 270.42(b)(2), WMO is sending you this notification of the modification because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Fred Nicar
General Manager

PUBLIC NOTICE

This notice is given pursuant to 40 CFR 270.42(b)(2). Waste Management of Ohio, Inc, Vickery facility (WMO) located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its US EPA Federal Hazardous Waste Operating Permit in accordance with 40 CFR 270.42(g)(1)(iv). This request would allow the facility to continue to receive wastes which carry waste codes K169, K170, K171 and K172. These are newly listed wastes from the petroleum refining industry which were listed in the August 6, 1998 Federal Register.

A 60 day comment period will be from February 24, 1999 through April 25, 1999. Comments may be sent to:

Mr. Thomas W. Matheson, DRP-8J
USEPA Region V
Office of RCRA, Waste Management Division
77 West Jackson Blvd.
Chicago, IL 60604-3590

WMO will host a Public Meeting to provide information related to this request. The meeting will be held at 7:00 pm on Wednesday, March 31, 1999 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

WMO
Fred G. Nicar, General Manager
(419) 547-7791

USEPA Region V
Thomas W. Matheson, Corrective Action
(312) 886-7569

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

February 19, 1999

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Waste Management of Ohio, Inc. (WMO) Vickery Facility has requested a Class 2 permit modification. The purpose of this request is to update the reporting requirements and the listing of emergency response equipment in the Contingency Plan, to remove inspection requirements in it's RCRA Inspection Plan that are already included in the facility's Stormwater Pollution Prevention Plan required under it's NPDES Permit and to remove inspection requirements that are not applicable to closed landfill units.

As required by OAC 3745-50-51(D)(2)(b), WMO is sending you this notification of the modification because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Fred

Fred Nicar
General Manager

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Waste Management of Ohio, Inc (WMO), located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its Ohio Hazardous Waste Operating Permit in accordance with OAC 3745-50-51(D)(1)(c). The purpose of this request is to update the reporting and inspection requirements in the facility's Contingency Plan, Inspection Plan and Post Closure Plan.

A 60 day comment period will be from February 24, 1999 to April 25, 1999. Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Thomas E. Crepeau
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2977

WMO will host a Public Meeting to provide information related to this request. The meeting will be held at 7:00 pm on Wednesday, March 31, 1999 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

WMO
Fred G. Nicar, General Manager
(419) 547-7791

Ohio EPA
David Schilt, On-Site Inspector
(419) 547-6033
(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

February 11, 1999

REPLY TO THE ATTENTION OF
DW-8J

CERTIFIED MAIL: P 140 678 614
RETURN RECEIPT REQUESTED

Fred G. Nicar, General Manager
Waste Management of Ohio, Inc.
Vickery Facility
3956 State Route 412
Vickery, Ohio 43464

Re: Class 2 Federal RCRA Permit Modification
Addition of New Waste Codes
Waste Management of Ohio, Inc.
Vickery, Ohio
OHD 020 273 819

Dear Mr. Nicar:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of Waste Management of Ohio, Inc.'s (WMO) Class 2 Federal Resource Conservation and Recovery Act (RCRA) permit modification request for its Vickery facility. The Class 2 modification request, dated November 5, 1998, was submitted in accordance with Title 40 Code of Federal Regulations (40 C.F.R.) §270.42(g)(1)(iv) for newly listed hazardous waste codes. WMO submitted a Class 1 Federal RCRA permit modification request in accordance with 40 C.F.R. §270.42(g)(1)(ii) for newly listed hazardous waste codes. WMO originally submitt Class 1 Federal RCRA permit modification request on October 2, 1998, however, it was r and resubmitted on January 21, 1999. The U.S. EPA approved the Class 1 Federal RC permit modification on February 10, 1999.

The U.S. EPA has reviewed the Class 2 Federal RCRA permit modification reques determined it meets the requirements of 40 C.F.R §270.42(b). Therefore, the U.S WMO's modification to its Federal portion of its RCRA permit to add the newl codes K140 and U408.

The revisions to the permit are included as an enclosure to this letter. Plea 19 of the original permit with the revised Page 17 of 19.

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Should you have any questions, please contact Thomas Matheson, a member of my staff at (312) 886-7569.

Sincerely,

Karl E. Bremer, Chief
Waste Management Branch

Enclosure

cc: Ed Lim, OEPA/CO
Chuck Hull, OEPA/NWDO
File

C. OTHER WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in containers, tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Units
Solid and Liquid Waste	See list below	678,920 gallons	Container Storage (S01)
Liquid Waste	See list below	1,102,600 gallons	Tank Storage (S02)
Liquid Waste	See list below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See list below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See list below	2.4×10^9	Injection Well Disposal (D79)

EPA Hazardous Waste Numbers: F032, F034, F035, K140, K141, K142, K143, K144, K145, K146, K147, K148, K149, K150, K151, K156, K157, K158, K159, K160, K161, P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199, P201, P202, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365, U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383, U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396, U400, U401, U402, U403, U404, U408, U409, U410, U411.

D. CONDITIONS REGARDING UNITS

1. All units described in Condition IV.A. above shall be operated in accordance with the State permit conditions and the State Underground Injection Control Permit conditions pertaining to those units.

2. The Permittee shall follow the waste analysis procedures required in 40 CFR Part 264, and as described in the Waste Analysis plan found in Attachment III.

V. AIR EMISSION STANDARDS

A. PROCESS VENTS

The Permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart AA, regarding air emission standards for process vents.

DW-8J:MATHESON:twm:6-7569:02/09/99:File -G:\user\share\tmath\Class2mod K140 U408.wpd

WASTE MANAGEMENT BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
		2-11-99		2/12/99
TYPIST/ AUTHOR	IL/IN/MI SECTION CHIEF	MN/OH/WI SECTION CHIEF	POL.PREV.& SPEC.INTIV SEC. CHIEF	WMB BRANCH CHIEF
2/11/99		2/11/99		2/16/99

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
1800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

December 16, 1998

Re: Chemical Waste Management, Inc.
US EPA ID No.: OHD 020 273 819
Ohio ID No.: 03-72-0191
Modified Hazardous Waste Permit

Waste Management of Ohio, Inc.
Attn: Mr. F. G. Nicar, General Manager
3956 State Route 412
Vickery, Ohio 43464

CERTIFIED MAIL

Dear Mr. Nicar:

On August 18, 1998, Ohio EPA received a Class 2 permit modification application from Waste Management of Ohio, Inc, (tracking number: OHD020273819-980821-2-1). The enclosed modified hazardous waste permit is being issued to you today in final form in accordance with the requirements of Rule 3745-50-51 of the Ohio Administrative Code. Please note that the modified permit remains in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, withdrawn, suspended or revoked.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission (ERAC) pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the ERAC within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 236 E. Town Street, Room 300, Columbus, Ohio 43215.

Sincerely yours,

Thomas E. Crepeau

Thomas E. Crepeau, Manager
Data Management Section
Division of Hazardous Waste Management

TEC/dhs

cc: Jeremy Carroll, Supervisor, EU, RES, DHWM
Sudhir Singhal, RES, DHWM
Harriet Croke, U.S. EPA, Region V
Raymond Roe, Hazardous Waste Facility Board
Beth Ames, Group Leader, DHWM, NWDO
David Schilt, DHWM, NWDO
Beth Gianforcaro, Ohio EPA, PIC

c:\modcvrlt.wpd

OHIO ENVIRONMENTAL PROTECTION AGENCY

MODIFIED OHIO HAZARDOUS WASTE FACILITY INSTALLATION AND OPERATION PERMIT

Date of Issuance: December 16, 1998
Effective Date: December 16, 1998

U.S. EPA ID No.: OHD 020 273 819
Ohio Permit No.: 03-72-0191

Name of Permittee: Waste Management of Ohio, Inc.

Mailing Address: 3956 State Route 412
Vickery, Ohio 43464

Facility Location: 3956 State Route 412
Vickery, Ohio 43464

Person to Contact: F. G. Nicar

This Modified Ohio Hazardous Waste Facility Installation and Operation Permit is issued pursuant and subject to Section 3734.05(I) of the Ohio Revised Code and Rule 3745-50-51(D) of the Ohio Administrative Code.

The Ohio Hazardous Waste Facility Installation and Operation Permit with the above-referenced permit number as issued by the Ohio Environmental Protection Agency and journalized on October 24, 1994 is hereby incorporated by reference in its entirety except as it may be modified herein.

This modification of the permit shall remain in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, withdrawn, suspended or revoked.

The permittee shall comply with all requirements of the modified Part B permit application as amended or supplemented on August 18, 1998. The information contained in the revised Part B permit application is incorporated herein by reference. Specifically, all written statements regarding the specifications, locations or capabilities of the processes, equipment, containment devices, safety devices or programs or other matters made by the applicant in the revised permit application are hereby incorporated as express, binding terms and conditions of this revised permit.

The modified Terms and Conditions of this permit are attached hereto and are incorporated herein by reference. The modified Terms and Conditions supersede and replace the corresponding page 47 found in the October 24, 1994 renewal permit.

Donald R. Schregardus
Director

OHIO E.P.A.

DEC 16 98

ENTERED DIRECTOR'S JOURNAL

revpmt.mar/ss

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Zona L Clements Date 12-16-98

OHIO ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF HAZARDOUS WASTE MANAGEMENT

SUMMARY OF MODIFICATIONS TO HAZARDOUS WASTE INSTALLATION AND OPERATION PERMIT

Waste Management of Ohio, Inc.
U.S. EPA ID #: OHD020273819
Ohio ID #: 03-72-191

Modifications of the Hazardous Waste Facility Installation and Operation Permit will authorize Waste Management of Ohio, Inc. to make the following changes:

Class 2 Modification:

1. Approval to install a bag filter system in accordance with the modification application dated August 18, 1998.

ex_summ.feb/ss

MODULE E - MISCELLANEOUS TREATMENT (Filtration)

E.1. Module Highlights

Filtration units at the facility have been categorized as miscellaneous units. The filtration system consists of Grit Filters, Basket Strainers, Bag Filters, Press Filters, Leaf Filters and Guard Filters. These individual units may either be used in series or parallel.

E.2. Process Capacity

Filtration system is restricted to 126,000,000 gallons/year throughput and shall not exceed 650,000 gallons/day throughput.

E.3. Design of the facility

The Permittee shall always provide and maintain the filter presses with adequate containment for purposes of collecting liquid residues generated by the filter presses.

E.4. Operation

All units shall be operated as described in Section D.2.3 of the approved permit application and to minimize fugitive emissions to the atmosphere during dumping of the filter cake. The Permittee shall clean up the floor area immediately after removing the filter cake.

E.5. Disposal of Residues

The Permittee shall dispose or recycle the filter cake and other residues generated as result of filtration operation at a RCRA approved facility.

OhioEPA
State of Ohio Environmental Protection Agency
Northwest District Office
347 North Dunbridge Road
Bowling Green, Ohio 43402
(419) 352-8461 **FAX** (419) 352-8468

George V. Voinovich
Governor

Re: ***NOTICE OF DEFICIENCY***
Waste Management of Ohio
OHD 020 273 819
03-72-0191

CERTIFIED MAIL Z 092 090 548

December 16, 1998

Mr. F. G. Nicar, General Manager
Waste Management of Ohio
3956 State Route 412
Vickery, Ohio 43464

Dear Mr. Nicar:

On November 6, 1998, Ohio EPA received a Class 2 permit modification application from Waste Management of Ohio.

The Ohio EPA, Division of Hazardous Waste Management (DHWM) has conducted a completeness/technical adequacy review of the above referenced modification application, and has determined it to be incomplete and technically inadequate. This application has been reviewed pursuant to the rules published in the Hazardous Waste Facility Standards Chapters in the Ohio Administrative Code and the corresponding Federal regulations.

We have enclosed completeness/technical adequacy comments that are the result of this review. Please provide detailed information addressing all areas indicated on the comment sheets to Ohio EPA within 30 days of the date of receipt of this correspondence. This submission shall be in accordance with the following editorial protocol or convention:

EDITORIAL PROTOCOL

1. Old language is overstruck. Delete language overstruck in previous versions as necessary to maintain only current language and its immediate antecedent overstruck language.

2. New language is capitalized or redlined.

3. Page headers should indicate date of submission or version designation.

4. If significant changes are necessary, pages should be renumbered, table of contents revised, and complete sections provided as required.

5. Each original application, or amended version must be prefaced by an updated "List of Effective Pages." The purpose of this requirement is to create a standard mechanism to specify and verify the content of the Part B permit application. Each "List of Effective Pages" must contain, at minimum, an inventory of pages for the entire document, posting directions, and a chronology of versions. The inventory of pages must positively identify each effective attachment by its page, drawing, figure, or table designation, and, unless an original page, by its current version designation or date of submission as specified in the inventory of pages. Attached are two examples of "List of Effective Pages" and associated page markings. RCRA Engineering Section, Division of Hazardous Waste Management, Central Office, Ohio EPA may authorize individual facilities to use an alternate method of specifying the content of their Part B permit application on a case-by-case basis.

6. Each original application, or version must be accompanied by a certification letter as specified in OAC Rule 3745-50-42(D).

Please send one copy each to:

Tom Crepeau, Manager
Ohio EPA, DHWM
Data Management Section
Lazarus Government Building
122 South Front Street
Columbus, Ohio 43215

Harriet Croke, Chief
Ohio Permitting Section (HRP-8J)
Waste Management Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Please send two copies to:

David Schilt, Environmental Specialist
Ohio EPA, Northwest District Office
347 North Dunbridge Road
Bowling Green, Ohio 43402

In the course of the technical adequacy review, we may request additional information if it is necessary to clarify, modify, or supplement previous submissions of information in order to substantively evaluate the permit application for adequacy. Failure to submit a complete permit application or to correct deficiencies in the application may result in the following:

1) Revocation of your existing Ohio Hazardous Waste Facility Installation and Operation Permit;

2) Denial of the permit application; and

3) Referral of the matter to the Ohio Attorney General's Office for appropriate enforcement action.

We request that the facility contact David Schilt of the Northwest District Office at 419-373-3071 or 419-547-6033 within ten (10) days of receipt of this NOD to discuss each of the enclosed comments in order to make clear the information being requested. This can be accomplished by a conference call or meeting.

Thereafter, any questions concerning the review of this permit application and the level of detail expected should also be addressed to David Schilt.

Sincerely,

for

David Schilt
Environmental Specialist
Division of Hazardous Waste Management

/dlh

Enclosure

pc: Harriet Croke, Region V, USEPA
Jeremy Carroll, EU, DHWM, CO
Tom Crepeau, DMS, DHWM, CO
Pam Allen, CAS, DHWM, CO
David Schilt, DHWM, NWDO
Sudhir Singal, DHWM, CO
NWDO Follow-up File
NWDO File

Chemical Waste Management, Inc.
Vickery Facility
OHD 020 273 819/03-72-0191
Review of Part B Permit Application Revisions

TECHNICAL ADEQUACY & COMPLETENESS COMMENTS

Appendices 3 - Inspection Plan

1. WMO's definitions for the terms weekly, monthly, semi-annually and annually do not meet the Ohio EPA's definitions and should be revised accordingly. See the enclosed guidance for the Agencies definitions.

Appendices 5 - Training Plan

2. See Above

Appendices 8 - Post-Closure Plan

3. See Above

/dlh

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
1800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

December 2, 1998

Re: Chemical Waste Management, Inc.
US EPA ID No.: OHD 020 273 819
Ohio ID No.: 03-72-0191
Modified Hazardous Waste Permit

Waste Management of Ohio, Inc.
Attn: Mr. F. G. Nicar, General Manager
3956 State Route 412
Vickery, Ohio 43464

CERTIFIED MAIL

Dear Mr. Nicar:

On August 5, 1998, Ohio EPA received a Class 2 permit modification application from Waste Management of Ohio, Inc. The enclosed modified hazardous waste permit is being issued to you today in final form in accordance with the requirements of Rule 3745-50-51 of the Ohio Administrative Code. Please note that the modified permit remains in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, withdrawn, suspended or revoked.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission (ERAC) pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the ERAC within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 236 E. Town Street, Room 300, Columbus, Ohio 43215.

Sincerely yours,

Thomas E. Crepeau

Thomas E. Crepeau, Manager
Data Management Section
Division of Hazardous Waste Management

TEC/dhs

cc: Jeremy Carroll, Supervisor, EU, RES, DHWM
Sudhir Singhal, RES, DHWM
Harriet Croke, U.S. EPA, Region V
Raymond Roe, Hazardous Waste Facility Board
Beth Ames, Group Leader, DHWM, NWDO
David Schilt, DHWM, NWDO
Beth Gianforcaro, Ohio EPA, PIC

c:\modcvrlt.wpd

OHIO ENVIRONMENTAL PROTECTION AGENCY

MODIFIED OHIO HAZARDOUS WASTE FACILITY INSTALLATION AND OPERATION PERMIT

Date of Issuance: December 2, 1998
Effective Date: December 2, 1998

U.S. EPA ID No.: OHD 020 273 819
Ohio Permit No.: 03-72-0191

Name of Permittee: Waste Management of Ohio, Inc.

Mailing Address: 3956 State Route 412
Vickery, Ohio 43464

Facility Location: 3956 State Route 412
Vickery, Ohio 43464

Person to Contact: F. G. Nicar

OHIO E.P.A.
DEC -2 98
ENTERED DIRECTOR'S JOURNAL

This Modified Ohio Hazardous Waste Facility Installation and Operation Permit is issued pursuant and subject to Section 3734.05(I) of the Ohio Revised Code and Rule 3745-50-51(D) of the Ohio Administrative Code.

The Ohio Hazardous Waste Facility Installation and Operation Permit with the above-referenced permit number as issued by the Ohio Environmental Protection Agency and journalized on October 24, 1994 is hereby incorporated by reference in its entirety except as it may be modified herein.

This modification of the permit shall remain in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, withdrawn, suspended or revoked.

The permittee shall comply with all requirements of the modified Part B permit application as amended or supplemented on August 5, 1998. The information contained in the revised Part B permit application is incorporated herein by reference. Specifically, all written statements regarding the specifications, locations or capabilities of the processes, equipment, containment devices, safety devices or programs or other matters made by the applicant in the revised permit application are hereby incorporated as express, binding terms and conditions of this revised permit.

Donald R. Schregardus
Director

permitpg/wmo/ss

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Zora L. Clements Date 12-2-98

OHIO ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF HAZARDOUS WASTE MANAGEMENT

SUMMARY OF MODIFICATIONS TO HAZARDOUS WASTE INSTALLATION AND OPERATION PERMIT

Waste Management of Ohio, Inc.
U.S. EPA ID #: OHD020273819
Ohio ID #: 03-72-191

Modifications of the Hazardous Waste Facility Installation and Operation Permit will authorize Waste Management of Ohio, Inc. to make the following changes:

Class 2 Modifications:

1. To install a basket strainer to assist in solids removal. If the basket strainer provides efficient and adequate solids removal, they would replace the existing grit filter system (tracking number 980805-2-1).

2. To modify their waste analysis plan (WAP) to clarify the PCB analysis requirements for tanker trucks loaded from railcars that were sampled and analyzed (tracking number 980805-2-2).

3. To change the procedure for sampling and analysis of tanker trucks loaded from railcars (tracking number 980805-2-3).

4. To update Section 7.11.4 of the site specific procedure for SW-846, Method 3510C, "Separatory Funnel Liquid-Liquid Extraction" to change the apparent volume from 1 mL to "usually less than 10 mL" (tracking number 980805-2-5).

sumrymod/wmo/ss

OHIO E.P.A.
DEC -2 98
ENTERED DIRECTOR'S JOURNAL

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
1800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

Certified Mail
Return Receipt Requested

Re: CLASS 2 DISAPPROVAL
Waste Management of Ohio, Inc.
OHD 020273819
03-72-0191

December 2, 1998

Mr. Frederick G. Nicar
Waste Management of Ohio, Inc.
3956 State Route 412
Vickery, Ohio 43464

OHIO E.P.A.
DEC -2 98
ENTERED DIRECTOR'S JOURNAL

Dear Mr. Nicar:

On August 5, 1998, Ohio EPA received a request for a Class 2 hazardous waste permit modification from Waste Management of Ohio, Inc. to modify Section 10 and appendix WAP-C to remove the preexisting requirement to perform quantitative analysis to determine whether received wastes meet the facility acceptance conditions for reactive cyanides and sulfides. WMO is requesting to rely solely on gas detector tube screening methods to determine if acceptance criteria are met (tracking number 980805-2-4). In accordance with paragraph (D) of Ohio Administrative Code (OAC) Rule 3745-50-51, the Director may disapprove a Class 2 permit modification for any of the following reasons:

(i) the modification application is incomplete;

(ii) the requested modification does not comply with the applicable requirements of Chapters 3745-54 to 3745-57 of the OAC or other applicable requirements; or

(iii) the conditions of the requested modification are inadequate to protect human health and the environment.

The staff of Ohio EPA has reviewed the Class 2 modification request and is recommending that it be disapproved. WMO is prohibited in their permit from receiving waste with cyanide levels above 250 ppm and sulfides above 500 ppm. The sole reliance on gas detector tubes in lieu of a quantitative test method will not enable WMO to demonstrate that wastes received are within the facility acceptance conditions for reactive cyanides and sulfides. Gas detector tubes are recommended for screening purposes only. The Ohio EPA does not believe that exclusive use of gas detector tubes is protective of human health and the environment. Therefore, with this letter, Ohio EPA **disapproves** the above referenced Class 2 modification submitted pursuant to OAC Rule 3745-50-51.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.
By: Zona L Clements Date 12-2-98

You are notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission ("ERAC") pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Review Appeals Commission within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the ERAC. An appeal may be filed with the ERAC at the following address: Environmental Review Appeals Commission, 236 East Town Street, Room 300, Columbus, Ohio 43266-0557.

If you have any questions concerning this action, please contact Dave Schilt at the Ohio EPA Northwest District Office.

Sincerely,

Donald R. Schregardus
Director

disapltr/JC.ao

pc: Tom Crepeau, Manager, DMS, DHWM, CO
Jeremy Carroll, Supervisor, Engineering Unit, DHWM, CO
Sudhir Singhal, Engineering Unit, DHWM, CO
Dave Schilt, DHWM, NWDO
Beth Ames, DHWM, NWDO

OHIO E.P.A.

DEC -2 98

ENTERED DIRECTOR'S JOURNAL

WASTE MANAGEMENT OF OHIO, INC.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

RECEIVED
NOV 20 1998
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA - REGION 5

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 311 952 194

November 20, 1998

Mr. David Ullrich
Regional Administrator
U.S. Environmental Protection Agency Region V
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Waste Management of Ohio, Inc.
Documentation of Public Notice
Class 2 Modification Submitted 11/5/98

Dear Mr. Ullrich:

In accordance with 40 CFR 270.149b)(2), Waste Management of Ohio, Inc. submits the enclosed "Affidavit of Publication" for the public notice which appeared in the Fremont News Messenger on November 6, 1998. This notice was published to announce the Class 2 Public Meeting which will be held on December 10, 1998.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Should you have any questions regarding this matter, please contact Sandy Clark at 419-547-3335.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

F. G. Nicar
General Manager

Enclosure

cc w/: Thomas Matheson, USEPA (DRP-8J)

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

November 5, 1998

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Waste Management of Ohio, Inc. (WMO) Vickery Facility has requested a Class 2 permit modification. The purpose of this request is to incorporate language in the facility's Inspection Plan, Post Closure Plan and Training Plan to clarify the terminology utilized for inspection frequency and training frequency.

As required by OAC 3745-50-51(D)(2)(b), WMO is sending you this notification of the modification because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Fred

Fred Nicar
General Manager

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Waste Management of Ohio, Inc (WMO), located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its Ohio Hazardous Waste Operating Permit in accordance with OAC 3745-50-51(D)(1)(c). The purpose of this request is to incorporate language in the facility's Inspection Plan, Post Closure Plan and Training Plan to clarify the terminology utilized for inspection frequency and training frequency.

A 60 day comment period will be from November 5, 1998 to January 4, 1999. Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Thomas E. Crepeau
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2977

WMO will host a Public Meeting to provide information related to this request. The meeting will be held at 7:00 pm on Thursday, December 10, 1998 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

WMO
Fred G. Nicar, General Manager
(419) 547-7791

Ohio EPA
David Schilt, On-Site Inspector
(419) 547-6033
(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

Waste Analysis Plan requirements, thereby demonstrating that they are the same type of waste the facility currently and previously has managed. No new fire protection is required.

The only change in the permit would be to add these two waste codes, K140 and U408 to the current listing a acceptable waste codes on page 17 of the facility's US EPA Final Federal Permit(Permit). Attached is a copy of the revised language for Section IV.C of page 17 of the Permit.

As required by 40 CFR 270.42(b)(2), WMO will send notification of the modification to all persons on the facility mailing list, as maintained by the Director and all appropriate State and local government. This notification will be made within 7 days after the submission of this modification application and will include all information required. Attached is a copy of the notification sent to all persons on our facility mailing list and the public notice that is scheduled to appear in The Fremont News-Messenger newspaper on November 6, 1998. Also attached is a copy of our mailing list.

In addition, WMO will perform all activities required by 40 CFR 270.42(b)(3), (4) and (5). A copy of the permit modification application and supporting documents shall be available at the Birchard Public Library of Sandusky County in Fremont. A public meeting is scheduled for 7:00 pm, Thursday, December 10, 1998 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio. The 60 day comment period shall be from November 6, 1998 to January 5, 1999.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Sandy Clark at 419-547-3335.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

F.G. Nicar
General Manager

FGN/slc

Enclosures

cc w/: Thomas W. Matheson, USEPA Region V (Mail Code DRP-8J)

cc w/out: Ken Kerik, SCBOH
David Schilt, OEPA Onsite Inspector

Revised Language of Section IV.C. (Page 17 of 19) of the Permit - **Attachment**

C. OTHER WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in containers, tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Unit(s)
Solid and Liquid Waste	See list below	678,920 gallons	Container Storage (S01)
Liquid Waste	See list below	1,102,600	Tank Storage (S02)
Liquid Waste	See list below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See list below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See list below	2.4×10^9 gallons	Injection Well Disposal (D79)

EPA Hazardous Waste Numbers: F032, F034, F035, K140*, K141, K142, K143, K144, K145, K146, K147, K148, K149, K150, K151, K156, K157, K158, K159, K160, K161, P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199, P201, P202, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365, U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383, U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396, U400, U401, U402, U403, U404, U408*, U409, U410, U411.

*Waste Numbers added as Class 1 Modification on October 2, 1998 and requested in this Class 2 Modification.

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 311 952 189

RECEIVED
NOV 10 1998
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

November 5, 1998

Mr. David Ullrich
Regional Administrator
U.S. Environmental Protection Agency Region V
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Mr. Ullrich:

In accordance with 40 CFR 270.42(g)(1)(iv), Waste Management of Ohio, Inc. (WMO) submits a Class 2 permit modification for two organobromine wastes. These are newly listed wastes, waste codes K140 and U408. WMO submitted the Class 1 permit modification for these waste codes on October 2, 1998 in accordance with 40 CFR 270.42(g)(1)(ii). This modification would permit the acceptance of waste codes listed below for waste types currently managed at this facility.

These wastes will be treated (T01) and stored (S02) in tanks, treated by filtration (T04) and deepwell injected (D79). This change is necessary in order to manage wastes which are otherwise acceptable with the facility design.

This modification is classified as a Class 2 Modification based on the criteria presented in 40 CFR 270.42(g)(iv).

The addition of these codes will not require any additional or different management practices. There will be no addition to or change in the treatment process. Blending of wastes will still occur in tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. All wastes will pass the currently approved

Waste Analysis Plan requirements, thereby demonstrating that they are the same type of waste the facility currently and previously has managed. No new fire protection is required.

The only change in the permit would be to add these two waste codes, K140 and U408 to the current listing a acceptable waste codes on page 17 of the facility's US EPA Final Federal Permit(Permit). Attached is a copy of the revised language for Section IV.C of page 17 of the Permit.

As required by 40 CFR 270.42(b)(2), WMO will send notification of the modification to all persons on the facility mailing list, as maintained by the Director and all appropriate State and local government. This notification will be made within 7 days after the submission of this modification application and will include all information required. Attached is a copy of the notification sent to all persons on our facility mailing list and the public notice that is scheduled to appear in The Fremont News-Messenger newspaper on November 6, 1998. Also attached is a copy of our mailing list.

In addition, WMO will perform all activities required by 40 CFR 270.42(b)(3), (4) and (5). A copy of the permit modification application and supporting documents shall be available at the Birchard Public Library of Sandusky County in Fremont. A public meeting is scheduled for 7:00 pm, Thursday, December 10, 1998 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio. The 60 day comment period shall be from November 6, 1998 to January 5, 1999.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Sandy Clark at 419-547-3335.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

F.G. Nicar
General Manager

FGN/slc

Enclosures

cc w/: Thomas W. Matheson, USEPA Region V (Mail Code DRP-8J)

cc w/out: Ken Kerik, SCBOH
David Schilt, OEPA Onsite Inspector

Revised Language of Section IV.C. (Page 17 of 19) of the Permit - **Attachment**

C. OTHER WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in containers, tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Unit(s)
Solid and Liquid Waste	See list below	678,920 gallons	Container Storage (S01)
Liquid Waste	See list below	1,102,600	Tank Storage (S02)
Liquid Waste	See list below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See list below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See list below	2.4×10^9 gallons	Injection Well Disposal (D79)

EPA Hazardous Waste Numbers: F032, F034, F035, K140*, K141, K142, K143, K144, K145, K146, K147, K148, K149, K150, K151, K156, K157, K158, K159, K160, K161, P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199, P201, P202, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365, U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383, U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396, U400, U401, U402, U403, U404, U408*, U409, U410, U411.

*Waste Numbers added as Class 1 Modification on October 2, 1998 and requested in this Class 2 Modification.

ATTACHMENT

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

November 5, 1998

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with the Code of Federal Regulations (CFR) 40 CFR 270.42, Waste Management of Ohio, Inc. (WMO) Vickery Facility has requested a Class 2 permit modification. The purpose of this request is to allow the continued acceptance of waste codes associated with two newly listed organobromine wastes, K140 and U408. The federal rules require for newly listed wastes that a Class 1 modification be submitted prior to the effective date of the rule. The effective date was November 4, 1998. The facility's Class 1 modification was submitted on October 2, 1998. The rules then require that the facility submit a Class 2 modification within 180 days following the effective date of the rule; hence the basis for the submittal of this modification application.

As required by 40 CFR 270.42(b)(2), WMO is sending you this notification of the modification because your name appears on our facility mailing list, as maintained by the Director. Included on the back of this letter is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Fred Nicar
General Manager

Attachment

PUBLIC NOTICE

This notice is given pursuant to 40 CFR 270.42(b)(2). Waste Management of Ohio, Inc, Vickery facility (WMO) located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its US EPA Federal Hazardous Waste Operating Permit in accordance with 40 CFR 270.42(g)(1)(iv). This request would allow the facility to continue to receive wastes which carry waste codes K140 and U408. These are newly listed organobromine wastes which were listed in the May 4, 1998 and June 29, 1998 Federal Registers.

A 60 day comment period will be from November 6, 1998 through January 5, 1999. Comments may be sent to:

Mr. Thomas W. Matheson, DRP-8J
USEPA Region V
Office of RCRA, Waste Management Division
77 West Jackson Blvd.
Chicago, IL 60604-3590

WMO will host a Public Meeting to provide information related to this request. The meeting will be held at 7:00 pm Thursday, December 10, 1998 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

WMO
Fred G. Nicar, General Manager
(419) 547-7791

USEPA Region V
Thomas W. Matheson, Corrective Action
(312) 886-7569

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

Attachment

Nature Conservancy
Ohio Office
6375 Riverside Drive #50
lin, OH 43017-5045

Air Pollution Control Agency
Attn: Mr. Leon Weitzel
Administrative Bldg
105 Main St
Painesville, OH 44077

Al Franks
Public Interest Ctr
Ohio EPA
P.O. Box 1049
Columbus, OH 43266

Alan Kuper, Chairman
Sierra Club
2265 Delaware Road
Cleveland, OH 44106

Arlene Frederick
2672 E. Water Street
Rock Creek, OH 44084

B. Hodenbosi
PSD Permits, Air Programs
Ohio EPA
P.O. Box 1049
Colulumbus, OH 43266

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Ohio Mfg Assoc.
33 N. High St
Columbus, OH 43215

Bill Warner, Past Pres.
6191 C.R. 247
Vickery, OH 43464

Honorable John Dowlin
County Administration Building
138 East Court Street, #603
Cincinnati, OH 45202

Braxton Tewart
Ohio Lung Assoc
1700 Arlingate Lane
Columbus, OH 43228

Allen County Citizens for the
Environment
1123 Rice Avenue
Lima, OH 45802

Bryan Zima
Ohio Attorney General's Office
Environmental Sectin, 25th Floor
30 East Broad Street
Columbus, OH 43215

Raymond Rowe
HWFB
P.O. Box 1049
1700 Watermark Drive
Columbus, OH 43266-1049

Byrd Finney, Jr Adm
Bur Env Services
Ohio Dept of Transportation
25 South Front St, Room 808
Columbus, OH 43215

Honorable Paul Gillmor
U.S. House of Representatives
1203 Longworth House Office Bldg
Washington, D.C. 20515

Chairman, Senate, Energy, Natural
Resources & Env Committee
State House
Columbus, OH 43215

Richard Sahli
Ohio Environmental Council
1207 Grandview Avenue #201
Columbus, OH 43212-3449

Charlene Dwin
Advisory Council on Historic
Preservation
1100 Pennsylvania Ave, NW #809
Washington, D.C. 20004

Cleveland Electric III
David Whitehead-704
P.O. Box 5000
Cleveland, OH 44101

Concerned Citizens About Hazardous
Wastes
Terry and Pat Adams
225 Caldwell
Chillicothe, OH 45601

Scott Miller
Environ Design Group
450 Grant Street
Akron, OH 44311-1183

Daniel Mcintyre
Columbus Water & Chemical Test Lab
American Council of Ind Labs
4628 Indianola
Columbus, OH 43214

Daryl Hawkins
U.S. Army Corp. of Engineers
CEORL-OR-F
P.O. Box 59
Louisville, KY 40201-0059

Dave Lore
Columbus Dispatch
34 S. Third St
Columbus, OH 43215

David Chenault
Ohio EPA, DSHWM
Southeast District Office
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Logan, OH 43138

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State Waste Programs Branch
U.S. EPA
JFK Federal Bldg
Boston, MA 02203

Ohio Chamber of Commerce
POB 15159
230 East Town Street
Columbus, OH 43215-0159

Diana Sheaufman
946 Township Road 150
Nova, OH 44859

Dick Fridley
Jefferson Water & Sewer Dist.
P.O. Box 116
Blacklick, OH 43004

Dominic Hanket
Ohio Attorney General's Office
Environmental Section
30 East Broad Street
Columbus, OH 43215

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Director
Ohio EPA
P.O. Box 1049
Columbus, OH 43266

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Office of Outdoor Recreation Serv
Ohio Dept of Natural Resources
Fountain Square Bldg G-2
Columbus, OH 43244

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Coordinator of Env Studies
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Tech Asst & Eng Section, DSHWM
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Columbus, OH 43216-1049

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Cincinnati, OH 45232

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Xenia, OH 45385

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Ohio Electric Utilitic Institute
215 North Front Street
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State House
Columbus, OH 43215

Governor of Ohio
State House
Columbus, OH 43215

Harry Courtright
Ohio EPA, DSHWM
Northeast District Office
2110 E. Aurora Road
Twinsburg, OH 44087

Honorable Jerry Luebbers
Ohio House of Representatives
State House, Riffe Center, 11th Floor
Columbus, OH 43215

Honorable Cooper Snyder
Ohio Senate
State House
Columbus, OH 43215

Honorable Louis Stokes
U.S. House of Representatives
2465 Rayburn House Office Bldg
Washington, D.C. 20515

Honorable Carole Kolb
Mayor, City of Addyston
235 Main Street
Addyston, OH 45001

Honorable James A. Traficant
U.S. House of Representatives
312 Cannon House Office Bldg.
Washington, D.C. 20515

Honorable David Hobson
U.S. House of Representatives
1338 Longworth House Office Bldg.
Washington, D.C. 20515

Honorable Stanley Aronoff
Ohio Senate
State House, 2nd Floor
Columbus, OH 43215

Honorable Thomas Sawyer
U.S. House of Representatives
1518 Longworth House Offic eBldg
Washington, D.C. 20515

Honorable Michael Oxley
U.S. House of Representatives
1108 Longworth House Office Bldg
Washington, D.C. 20515

Honorable Sherrod Brown
U.S. House of Representatives
Washington, D.C. 20515

Honorable Marcie Kaptur
U.S. House of Representatives
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Office of Ocean & Coastal
Resources Management NOAA
3300 Whitehaven St., N.W.
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U.S. House of Representatives
1020 Longworth House Office Bldg
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hington, D.C. 20515

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1800 Watermark Drive
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1825 Connecticut Ave., NW
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1800 Watermark Drive
Columbus, OH 43215

Ms. Judy Kitchen
State Historic Preservation Officer
1982 Velma Avenue
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Peter Kochman
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Ohio Academy of Science
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Columbus, OH 43212-2817

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Attn: Manager Environmental
Special Projects
76 S. Main St
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Ohio Historical Society
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Ohio Biological Survey
Museum of Biological Diversity
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1800 Huntington Bldg
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U.S. EPA
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veland, OH 44114

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North Canton, OH 44720

U.S. Dept of Transportation
Federal Highway Adm
200 N. High St Room 328
Columbus, OH 43215

University of Toledo
College of Law Library
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Case Western Reserve Univ
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U.S. House of Representatives
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Izaak Walton League of America
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415 High Street
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Mr. Bob Pattison
Air Pollution Control Div
Canton City Health Dept
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Canton, OH 44702

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Fish & Wildlife Service
Field Office
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Reynoldsburg, OH 43068

Wallace H. Metcalf
Jackson County Env Comm
2536 Pattonsville Rd
Jackson, OH 45640

Blackbur Carter
3131 Eastside Ste 450
ton, Texas 77908

The Honorable Rex Damschroder
Ohio House of Representatives
Riffe Center
Columbus, OH 43266-0603

Joe Ale
1884 State Route 412
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Diana Schlaufman
946 TR 150
Nova, OH 44859

Riley Township Clerk
Joseph Halbeisen
1829 US 6 E
Fremont, OH 43420

Lorey Roggenkamp
7308 Sadie Thomas Road
Alexandria, OH 43001

James Sandt
TWO
520 Port Oak Blvd; Suite #450
Houston, Texas 77027

Riley Township Trustee
Danny Polter
2275 CR 239
Fremont, OH 43420

George Burroughs
2882 County Road 195
Clyde Ohio 43410

Riley Township Trustee
John Antesberger
1062 N CR 220
Fremont, OH 43420

Sally Colvin
2089 County Road 250
Vickery, Ohio 43464

Linda Connors
Clerk of Courts
Courthouse 100 N Park Ave
Fremont, Ohio 43420

Jane Dicker
1872 County Road 250
Vickery, Ohio 43464

Harold Draeger
3677 N St Rt 590
Lindsey, Ohio 43442

Riley Township Trustee
Paul Ohms
3044 CR 265
Fremont, OF 43420

Geneva Eisenhour
Village of Burgoon
Zilphia Street
Burgon, Ohio 43407

Paula Fable
2600 County Road 82
Lindsey, Ohio 43442

The Parkhurst Family
3458 State Rte 412
Fremont, Ohio 43420

Mr Harry Manning
122 Amanda Street
Clyde, OH 43410

The Ferkels Family
4242 Co Rd 231
Clyde, Ohio 43410

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Clyde Ohio 43410

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1320 Highland CT
Fremont, Ohio 43420

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Sandusky County Sheriff
2323 Countryside Dr
Fremont, Ohio 43420

Rondal Geller
240 S. Main Street
Lindsey, Ohio 43442

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Sandusky, Ohio 44870

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5121 Country Road 175
Clyde, Ohio 43410

Hazel Gibbs
3131 Country Road 257
Fremont, Ohio 43420

Roy Gibbs
3139 County Road 247
ont, Ohio 43420

Jack Gibbs
3172 County Road 247
Fremont, Ohio 43420

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Wayne Longanbach
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Lindsey, Ohio 43442

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Fremont, Ohio 43420

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Clyde, Ohio 43410

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222 N. Main Street
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Mr. Rob Clements
643 Wallace
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Ms. Shirley Lauer
120 West Stevenson Street
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Columbus, Ohio 43229

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Trustee & Clerks Assn.
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e, Ohio 43410

The Schwochow Family
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Fremont, Ohio 43420

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Linda Thorbahn
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Village of Hellena
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Vickery, Ohio 43464

William Warner Jr.
6214 County Road 247
Vickery, Ohio 43464

Bob Whiteside
TWO
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Melissa Winzeler
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Perrysburg, Ohio 43551

Chris Manthley
Environmental Background Info Center
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Montclair, NJ 07042

Mr. Ken Kerik
Sandusky County Health Department
Chairman of Citizen Public Information Committee
2000 Countryside Dr.
Fremont, Ohio 43420

U.S. Army Corp. of Engineers
Attn: Mr. Allen Sissleman
1776 Niagara Street
Buffalo, NY 14207-3199

Trustee John Antesberger, Chairman
Riley Township Trustee
1062 County Road 220
Fremont, OH 43420

The Honorable Larry Mumper
Ohio Senate
Senate Office Building
Columbus, OH 43215-4211

The Honorable Paul E. Gillmor
United States Representative
613 West Third Street
Defiance, OH 43512

The Honorable John H. Glenn
United States Senate
200 N. High Street, Rm. 600
Columbus, OH 43215

The Honorable Michael DeWine
United States Senate
37 West Broad Street
Columbus, OH 43215

U.S EPA, Region V
Attn: Ms. Harriet Croke
RCRA Permitting Branch, HRP-8J
77 W. Jackson Blvd.
Chicago, IL 60604

Hazardous Waste Facility Board
Attn: Mr. Raymond Roe
1700 WaterMark Drive
Columbus, OH 43215

Public Interest Center
Attn: Ms. Carol Hester
1800 WaterMark Drive
Columbus, OH 43215

Ohio EPA
Northwest District Office
Attn: Mr. Chuck Hull
N. Dunbridge Road
ling Green, OH 43402

Village of Gibsonburg
Office of the Mayor
129 N. Main Street
Gibsonburg, OH 43431

Mary Anne Koebel
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Fremont, OH 43420

Village of Lindsey
Office of the Mayor
240 S. Main Street
Lindsey, OH 43442

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City of Toledo, Dept. of Public Utilities
Div. of Administrative Services
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Mr. Andy Meyer
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Mr. Cleve Parkhurst
Townsend Township Trustee
6751 CR 263
Vickery, OH 43464

Mr. George Huston
Townsend Township Trustee
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Clyde, OH 43410

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Sandusky County Commissioner
100 N. Park Ave.
Fremont, Ohio 43420

Mr. Terry Thatcher
Sandusky County Commissioner
100 N. Park Ave.
Fremont, Ohio 43420

Ms. Cathy Bales, Clerk
Townsend Township Trustee
2739 CR 306
Vickery, OH 43464

Mrs. Jean Leber
Townsend Township Trustee
1560 CR 310
Clyde, OH 43410

Mr. David Forgatsch
Sandusky County Commissioner
100 N. Park Ave.
Fremont, Ohio 43420

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

RECEIVED
AUG 25 1998
DIVISION ... OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

August 19, 1998

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Waste Management of Ohio, Inc. (WMO) Vickery Facility has requested a Class 2 permit modification. The purpose of this request is to allow installation of a bag filtration system in Filter Building #2.

As required by OAC 3745-50-51(D)(2)(b), WMO is sending you this notification of the modification because your name appears on our facility mailing list, as maintained by the Director of Ohio EPA. Enclosed is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

F.G. Nicar

F.G. Nicar
General Manager

Enclosure

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Waste Management of Ohio, Inc (WMO), located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its Ohio Hazardous Waste Operating Permit. The purpose of this request is to allow installation of a bag filtration system in Filter Building #2.

A 60 day comment period will be from August 21, 1998 to October 20, 1998. Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Thomas E. Crepeau
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2977

WMO will host a Public Meeting to provide information related to this request. The meeting will be held at 7:00 pm on Tuesday, September 22, 1998 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

WMO
Fred G. Nicar, General Manager
(419) 547-7791

Ohio EPA
David Schilt, On-Site Inspector
(419) 547-6033
(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

August 3, 1998

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification

Dear Citizen:

In accordance with Ohio Administrative Code (OAC) 3745-50-51, Waste Management of Ohio, Inc. (WMO) Vickery Facility has requested a Class 2 permit modification. The purpose of this request is to allow installation of basket strainers on the unloading lines, to change the requirements for the sampling and analysis of the tanker trucks that are loaded with material from the railcar, when the railcar has been sampled and analyzed in accordance with the facility's Waste Analysis Plan, and to recognize the use of the facility's gas detector tube screening methods for screening waste receipts for reactive cyanide and reactive sulfide.

As required by OAC 3745-50-51(D)(2)(b), WMO is sending you this notification of the modification because your name appears on our facility mailing list, as maintained by the Director of Ohio EPA. Enclosed is a copy of the public notice providing the necessary information on the public comment period, the public meeting and contact persons.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

F.G. Nicar

F.G. Nicar
General Manager

Enclosure

PUBLIC NOTICE

This notice is given pursuant to OAC Rule 3745-50-51(D)(2)(b). Waste Management of Ohio, Inc (WMO), located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its Ohio Hazardous Waste Operating Permit. The purpose of this request is to allow installation of basket strainers on the unloading lines, to change the requirements for the sampling and analysis of the tanker trucks that are loaded with material from the railcar, when the railcar has been sampled and analyzed in accordance with the facility's Waste Analysis Plan, and to recognize the use of the facility's gas detector tube screening methods for screening waste receipts for reactive cyanide and reactive sulfide.

A 60 day comment period will be from August 5, 1998 to October 3, 1998. Comments may be sent to:

Ohio EPA, Division of Hazardous Waste Management
Data Management Section
Attn: Thomas E. Crepeau
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2977

WMO will host a Public Meeting to provide information related to this request. The meeting will be held at 7:00 pm on Wednesday, August 26, 1998 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

WMO
Fred G. Nicar, General Manager
(419) 547-7791

Ohio EPA
David Schilt, On-Site Inspector
(419) 547-6033
(800) 686-6930

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County, Fremont, Ohio. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
.800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

June 22, 1998

Re: Chemical Waste Management, Inc.
US EPA ID No.: OHD 020 273 819
Ohio ID No.: 03-72-0191
Modified Hazardous Waste Permit

Waste Management of Ohio, Inc.
Attn: Mr. F. G. Nicar, General Manager
3956 State Route 412
Vickery, Ohio 43464

CERTIFIED MAIL

Dear Mr. Nicar:

On February 20, 1998, Ohio EPA received two (2) Class 2 permit modification applications from Waste Management of Ohio, Inc. The enclosed modified hazardous waste permit is being issued to you today in final form in accordance with the requirements of Rule 3745-50-51 of the Ohio Administrative Code. Please note that the modified permit remains in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, withdrawn, suspended or revoked.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission (ERAC) pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the ERAC within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 236 E. Town Street, Room 300, Columbus, Ohio 43215.

Sincerely yours,

Thomas E. Crepeau

Thomas E. Crepeau, Manager
Data Management Section
Division of Hazardous Waste Management

TEC/dhs

cc: Jeremy Carroll, Supervisor, EU, RES, DHWM
Sudhir Singhal, RES, DHWM
Harriet Croke, U.S. EPA, Region V
Raymond Roe, Hazardous Waste Facility Board
Beth Ames, Group Leader, DHWM, NWDO
David Schilt, DHWM, NWDO
Beth Gianforcaro, Ohio EPA, PIC

c \modcvrlt wpd

OHIO ENVIRONMENTAL PROTECTION AGENCY

Modified Ohio Hazardous Waste Facility Installation and Operation Permit

Date of Issuance:	June 22, 1998
Effective Date:	June 22, 1998
US EPA ID No:	OHD 020 273 819
Ohio ID No:	03-92-0191

Name of Facility:	Waste Management of Ohio, Inc.
Mailing Address:	3956 State Route 412 Vickery, Ohio 43464
Facility Location:	3956 State Route 412 Vickery, Ohio 43464
Person to Contact:	F. G. Nicar

This Modified Ohio Hazardous Waste Facility Installation and Operation Permit is issued pursuant and subject to Section 3734.05 (I) of the Ohio Revised Code and Rule 3745-50-51(D) of the Ohio Administrative Code.

The Ohio Hazardous Waste Facility Installation and Operation Permit with the above referenced permit number as renewed on October 24, 1994, is hereby incorporated by reference in its entirety except as it may be modified herein.

This modification of the permit shall remain in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended or revoked.

The Permittee shall comply with all requirements of the modified Part B permit application as amended or supplemented on February 16, 1998, April 27, 1998 and June 1, 1998. The information contained in the modified Part B permit application is incorporated herein by reference. Specifically, all written statements regarding the specifications, locations, or capabilities of the processes, equipment, containment devices, safety devices or programs or other matters made by the applicant in the modified permit application are hereby incorporated as express, binding terms and conditions of this modified permit.

Donald R. Schregardus
Director

dirsig/SS.ao

OHIO E.P.A.

JUN 22 98

ENTERED DIRECTOR'S JOURNAL

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Jona L Clement Date 6-22-98

OHIO ENVIRONMENTAL PROTECTION AGENCY
Division of Hazardous Waste Management

Summary of Modifications

US EPA ID No: *OHD020273819*
Ohio ID No: *03-72-191*

Name of Facility:	Waste Management of Ohio, Inc.
Mailing Address:	3956 State Route 412 Vickery, Ohio 43464
Facility Location:	3956 State Route 412 Vickery, Ohio 43464
Person to Contact:	F. G. Nicar, General Manager

1. Approval to install replacement tanks for the existing V-Tank system (V-4, V-5, V-6 and V-7). The facility will replace the existing V-Tanks with double-walled tanks. The new tanks will have the same design as the existing tanks but will have a second shell to provide secondary containment. In addition, a new leak detection system will be installed for the system inlet piping, tank primary containment, pump seals and valves which have seals. (tracking number - 980220-2-1)

2. A modification to the application to include performance standards for certain miscellaneous units at the facility, the thief pole rinsing system and the sand interceptor system. (tracking number - 980220-2-3)

mod2app/SS.ao

OHIO E.P.A.

JUN 22 98

ENTERED DIRECTOR'S JOURNAL

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
00 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

+ MATH

Certified Mail
Return Receipt Requested

Re: CLASS 2 DISAPPROVAL
Chemical Waste Management, Inc.
OHD020273819
03-72-0191

June 22, 1998

EIVED
3 0 1998
RONT OFFICE
s & Toxics Division
– REGION 5

OHIO E.P.A.
JUN 22 98
ENTERED DIRECTOR'S JOURNAL

Mr. Frederick G. Nicar
Waste Management of Ohio, Inc.
3956 State Route 412
Vickery, Ohio 43464

Dear Mr. Nicar:

On February 20, 1998, Ohio EPA received a request for a Class 2 hazardous waste permit modification (tracking number - 980220-2-2) from Waste Management of Ohio, Inc, (WMO) requesting to modify its Inspection Plan to change the frequency of inspections for certain emergency response equipment from weekly to monthly. In accordance with paragraph (D) of Ohio Administrative Code (OAC) Rule 3745-50-51, the Director may disapprove a Class 2 permit modification for any of the following reasons:

(i) the modification application is incomplete;

(ii) the requested modification does not comply with the applicable requirements of Chapters 3745-54 to 3745-57 of the OAC or other applicable requirements; or

(iii) the conditions of the requested modification are inadequate to protect human health and the environment.

The staff of Ohio EPA has reviewed the Class 2 modification request and has found it to be incomplete. WMO has not adequately demonstrated that changing the frequency of inspections for emergency response equipment from weekly to monthly is protective of human health and the environment. In addition, WMO, being a large quantity generator, is required to inspect the emergency response equipment weekly in accordance with OAC rules 3745-52-34(A)(4) and 3745-65-33. Therefore, with this letter, Ohio EPA **disapproves** the above referenced Class 2 modification submitted pursuant to (OAC) Rule 3745-50-51.

You are notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission ("ERAC") pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Review Appeals Commission within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: _____ Date 6/22/98

George V. Voinovich, Governor
Nancy P. Hollister, Lt. Governor
Donald R. Schregardus, Director

Printed on Recycled Paper

Director of the Ohio Environmental Protection Agency within three (3) days of filing with the ERAC. An appeal may be filed with the ERAC at the following address: Environmental Review Appeals Commission, 236 East Town Street, Room 300, Columbus, Ohio 43266-0557.

If you have any questions concerning this action, please contact Dave Schilt at the Ohio EPA Northwest District Office.

Sincerely,

Jennifer Dell

Donald R. Schregardus for
Director

c2disapr/SS.so

pc: Tom Crepeau, Manager, DMS, DHWM, CO
Jeremy Carroll, Supervisor, Engineering Unit, DHWM, CO
Dave Schilt, DHWM, NWDO
Beth Ames, DHWM, NWDO

OHIO E.P.A.

JUN 22 98

ENTERED DIRECTOR'S JOURNAL

CHEMICAL WASTE MANAGEMENT, INC.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

FEDERAL EXPRESS

September 29, 1997

Mr. Valdus Adamkus
Regional Administrator
U.S. Environmental Protection Agency Region V
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Chemical Waste Management, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 1 Permit Modification

Dear Mr. Adamkus:

Chemical Waste Management, Inc. (CWM) at Vickery, Ohio requests a permit modification for it's Federal RCRA Permit (Permit) to change the name of the facility's owner and operator to Waste Management of Ohio, Inc. On December 29, 1997, CWM Holdings, Inc., the owner of the Vickery facility, will merge into Waste Management of Ohio, Inc. Both of these companies are wholly owned subsidiaries of Waste Management, Inc. This intra-company merger will affect no change in personnel or operations at the facility.

CWM has been in discussions and correspondence with the Ohio EPA in regards to the classification of this change. Included as an attachment to this letter are copies of some of the correspondence. CWM's correspondence, dated May 21, 1997, is a response to Ohio EPA's list of questions the Agency determined would be helpful in determining how to handle the transfer. The August 22, 1997 correspondence from the Ohio EPA is the conclusion that the Ohio EPA staff would consider the proposed reorganization an administrative and information change.

Based on this information and CWM's understanding of the transfer, this modification appears to meet the criteria of A.1. of Appendix I to 40 CFR 270.42 - Classification of Permit Modifications. However, as discussed with Mr. Thomas Matheson of US EPA,

CWM is submitting this request 90 days prior to the scheduled change and in accordance with 40 CFR 270.40. This is being done in the instance that the US EPA determines that this modification meets the criteria of A.7 of Appendix I to 40 CFR 270.42. Included as an attachment to this permit is a revised Part A Application, with the appropriate signatures. As noted, the specific date for transfer will be December 29, 1997. Both parties have signed the Part A Application, confirming that date.

The Permit does not include requirements under Subpart H of 40 CFR 264; therefore, the requirements noted in 40 CFR 270.40(b) in regards to Subpart H are not applicable. The financial requirements are included in the facility's Ohio EPA Part B Permit and will be continuously maintained.

It would be helpful if the US EPA would inform the facility as soon as possible when the determination is made as to the classification of this modification.

This request is to allow treatment (T01) and storage (S02) in tanks, filtration (T04) and injection well disposal (D79). In addition, CWM requests that this code be approved for storage in containers (S01).

This transfer will not result in any additional or different management practices. No new tanks or tank system designs are requested. No new fire protection is required. There will be no addition or change in the treatment process. Blending of wastes will still occur in the tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. Container storage will be performed as previously approved in the USEPA Hazardous Waste Management Permit issued October 24, 1994.

As required by 40 CFR 270.42(a)(1)(ii), CWM will send notification of the modification to all persons on the facility mailing list, as maintained by the Director and all appropriate State and local government. These notifications will be made within 90 days after the Director approves this request.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my

knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

CHEMICAL WASTE MANAGEMENT, INC.

F.G. Nicar
General Manager

FGN/SLC

Attachments

cc w/: Thomas W. Matheson, USEPA Region V, DRP-8J

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Form Approved. OMB No. 2050-0034 Expires 12-31-91
GSA No. 0246-EPA-OT

OHD020273819

WASTE MANAGEMENT OF OHIO, INC.

3956 STATE ROUTE 412

VICKERY OH 43464-

072 SANDUSKY

P 412219N 082584 0W 111919 80

3956 STATE ROUTE 412

VICKERY OH 43464-

NICAR FRED

GENERAL MANAGER 419-547-7791

X

-

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Form Approved OMB No. 2050-0034 Expires 12-31-91
GSA No. 0246-EPA-OT

OHD020273819

WASTE MANAGEMENT OF OHIO, INC.

3956 STATE ROUTE 412

VICKERY OH 43464-

419-547-7791 P X 1229997

WASTE MANAGEMENT OF OHIO, INC.

3956 STATE ROUTE 412

VICKERY OH 43464-

Telephone (area code and number)

419-547-7791 P X 1229997

4953	(description) Hazardous Waste Mgmt Services	(description)
	(description)	(description)

N	2	I	N	0	0	0	1	6	*	F	D		NPDES - Stormwater
R	0	3	-	7	2	-	0	1	9	1			Ohio Part B
U	0	3	-	7	2	-	0	0	9				Well #2
U	0	3	-	7	2	-	0	1	1				Well #4
U	0	3	-	7	2	-	0	1	2				Well #5
U	0	3	-	7	2	-	0	1	3				Well #6
E	0	7	-	7	2	-	0	0	0	1	0	5	Air Permit - P001, T007-T008,
													T017-T020, T022-T025, T036-T041

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Form Approved. OMB No 2050-0034 Expires 12-31-91
GSA No. 0246-EPA-OT

EPA I.D. Number (enter from page 1) | Secondary ID Number (enter from page 1)

O	H	D	0	2	0	2	7	3	8	1	9

[illegible]

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

[illegible] ... of measure ... must be converted into one of the required ... appropriate ... of the waste.

D. PROCESSES

1. PROCESS CODES:

... For each ... listed in column A select the code(s) from the list of process codes contained in Item XII A. on page 2 to indicate how the waste will be stored, treated, and/or disposed of at the facility.

... For ... entered in column A, select the code(s) ... all the processes that will be used to store, treat ... hazardous waste ... characteristic or toxic contaminant.

... PROVIDED ... PROCESS CODES. IF MORE ARE NEEDED:

... described ...

2. Enter "000" in the extreme right box of Item XIV-D(1).

... the space provided on page ..., Item XIV-E, the ... number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form (D.(2)).

... HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE HAZARDOUS WASTE NUMBER - Hazardous wastes ... described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

... of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns ... estimating the total annual quantity of the waste and describing all the processes to be used to treat ... of the waste.

... line enter ... EPA Hazardous Waste Number that ... used to describe the ... (2) on that line enter ... make no other entries on that line.

... EPA ... hazardous waste.

... X-4 below ... will treat and ... chrome ... finishing operation. In addition, the facility ... Treatment ...

[illegible]

LINE NO.						ESTIMATED ANNUAL QUANTITY	UNIT OF MEASURE (enter code)	PROCESS CODES (enter)									(2) PROCESS DESCRIPTION (if a code is not entered)
X	1	[illegible]	[illegible]	[illegible]	[illegible]	900	P	[illegible]	0	3	D	[illegible]	0				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	P	[illegible]	0	[illegible]	D	[illegible]	0				
X	3	D	0	0	1	100	P	T	0	3	D	[illegible]	0				
X	4	D	0	0	2												Included With Above

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O	H	D	0	2	0	2	7	3	8	1	9													

																								See attached pages 16 & 17
																								of facility's permit.

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EPA I.D. Number [illegible]

O	H	D	0	2	0	2	7	3	8	1	9

[illegible]

EXAMPLE FOR COMPLETING ITEM XII [illegible] hold 200 gallons and the other can hold 400 [illegible]

Line Number		A. PROCESS CODE (from list above)			B. PROC[illegible] 1. AMOUNT [illegible]	[illegible] UNIT OF MEASURE [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
X	1	S	0	2	[illegible]										
X	2	T	0	3	20										
	1	* See attached pages 16 & 17 of facility's permit.													
	2														
	3														
	4														
	5														
	6														
	7														
	8														
	9														
1	0														
1	1														
1	2														

NOTE: If you need to list more than 12 [illegible] above. Number the lines sequentially [illegible] XIII.

XIII. Additional Treatment Pro[illegible]

Line Number (enter numbers in sequence with item XII)		A. PROCESS CODE			B. TREATMENT PROC[illegible] DESIGN CAPACITY 1. AMOUNT (specify)	2. UNIT [illegible] MEASU[illegible] (enter code)	[illegible]	[illegible]	[illegible]
		T	0	4					
		T	0	4					
		T	0	4					
		T	0	4					

*See attached pages 16-17 of facility's permit.

O	H	D	0	2	0	2	7	3	8	1	9

The Vickery facility receives aqueous wastes for treatment and storage in a series of treatment and storage tanks totalling over 1,000,000 gallons. - These wastes are blended, filtered and disposed of through deepwell injection. Historically, wastes were received in surface impoundments prior to filtration and deepwell injection. All of these surface impoundments have been closed. The sludges from surface impoundments #4, 5, 7, 11, and 12 were placed in a cell. This closure cell is certified closed. This information is being provided for the transfer of the facility's USEPA Corrective Action Permit.

PROCESS CODE	PROCESS	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
	DISPOSAL:	
D79	INJECTION WELL	GALLONS; LITERS; GALLONS PER DAY; OR LITERS PER DAY
D80	LANDFILL	ACRE-FEET OR HECTARE-METER
D81	LAND APPLICATION	ACRES OR HECTARES
D82	OCEAN DISPOSAL	GALLONS PER DAY OR LITERS PER DAY
D83	SURFACE IMPOUNDMENT	GALLONS OR LITERS
	STORAGE:	
S01	CONTAINER (barrel, drum, etc.)	GALLONS OR LITERS
S02	TANK	GALLONS OR LITERS
S03	WASTE PILE	CUBIC YARDS OR CUBIC METERS
S04	SURFACE IMPOUNDMENT	GALLONS OR LITERS
	TREATMENT:	
T01	TANK	GALLONS PER DAY OR LITERS PER DAY
T02	SURFACE IMPOUNDMENT	GALLONS PER DAY OR LITERS PER DAY
T03	INCINERATOR	SHORT TONS PER HOUR; METRIC TONS PER HOUR; GALLONS PER HOUR; LITERS PER HOUR; OR BTU'S PER HOUR
T04	OTHER TREATMENT (Use for physical, chemical, thermal or biolgical treatment processes not occurring in tanks, surface impoundment or incinerators. Describe the processes in the space provided in Item XIII.)	GALLONS PER DAY; LITERS PER DAY; POUNDS PER HOUR; SHORT TONS PER HOUR; KILOGRAMS PER HOUR; METRIC TONS PER DAY; METRIC TONS PER HOUR; OR SHORT TONS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
GALLONS PER HOUR	E
GALLONS PER DAY	U
LITERS	L
LITERS PER HOUR	H
LITERS PER DAY	V
SHORT TONS PER HOUR	D
METRIC TONS PER HOUR	W
SHORT TONS PER DAY	N
METRIC TONS PER DAY	S
POUNDS PER HOUR	J
KILOGRAMS PER HOUR	R
CUBIC YARDS	Y
CUBIC METERS	C
ACRES	B
ACRE-FEET	A
HECTARES	Q
HECTARE-METER	F
BTU's PER HOUR	K

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Form Approved. OMB No. 2050-0034 Expires 12-31-91
GSA No. 0246-EPA-OT

EPA I.D. Number (enter from page 1)	Secondary ID Number (enter from page 1)
O H D 0 2 0 2 7 3 8 1 9	

XIV. Description of Hazardous Waste (continued)

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 6.

Line Number	Additional Process Codes (enter)
	See attached pages 16 & 17 of permit.

XV. Map

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in this map area. See instructions for precise requirements. No Change from Original application.

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (see instructions for more detail). No change from original application.

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

XVIII. Certification(s)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Signature	Date Signed
Robert E. Leininger	9-29-97

Name and Official Title *(type or print)*
Robert E. Leininger, Vice President/Secretary of Waste Management of Ohio, Inc.

Operator Signature	Date Signed
F.G. Nicar	9-26-97

Name and Official Title *(type or print)*
F.G. Nicar, General Manager

XIX. Comments

On 12/29/97, CWM Holdings, Inc. the owner of the Vickery facility, will merge into Waste Management of Ohio, Inc. Both of these companies are wholly owned subsidiaries of Waste Management, Inc. This intra-company merger will affect no change in personnel or operations at the facility.

Note: Mail completed form to the appropriate EPA Regional or State Office. (refer to instructions for more information)

3. If the U.S. EPA and the Permittee are not able to reach agreement within the 14-day period, the Regional Administrator, Region 5, or his or her delegate will thereafter issue a written decision resolving the dispute which shall become an enforceable condition of this permit, and the Permittee shall comply with the terms and conditions of the U.S. EPA's decision resolving the dispute.

4. Notwithstanding the invocation of this dispute resolution procedure, the Permittee shall proceed to take any action required by those portions of the modified and approved submission that the U.S. EPA determines are not substantially affected by the dispute according to the schedule contained in the submission.

IV. TOXICITY CHARACTERISTIC

A. WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in containers, tanks, filtration units and injection wells, at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Unit(s)
Solid and Liquid Waste	D004-D043	678,920 gallons	Container Storage (S01)
Liquid Waste	D004-D043	1,102,600 gallons	Tank Storage (S02)
Liquid Waste	D004-D043	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	D004-D043	650,000 gallons/day	Filtration (T04)
Liquid Waste	D004-D043	2.4×10^9	Injection Well Disposal (D79)

B. WASTE CHARACTERIZATION

The Permittee must use the Toxicity Characteristic Leaching Procedure (TCLP) (Appendix II of 40 CFR Part 261), or use knowledge of the waste to determine whether a waste exhibits the characteristic of toxicity, as defined in 40 CFR 261.24. Use of the TCLP does not exempt the Permittee from also using the Extraction Procedure (EP) toxicity test if required by the State permit conditions.

C. OTHER WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in containers, tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Unit(s)
Solid and Liquid Waste	See List Below	678,920 gallons	Container Storage (S01)
Liquid Waste	See List Below	1,102,600 gallons	Tank Storage (S02)
Liquid Waste	See List Below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See List Below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See List Below	2.4×10^9 gallons	Injection Well Disposal (D79)

EPA Hazardous Wste Numbers: F032, F034, F035, K141, K142, K143, K144, K145, K146, K147, K148, K149, K150, K151, K156, K157, K158, K159, K160, K161, P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199, P201*, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365, U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383, U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396, U400, U401, U402, U403, U404, U409, U410, U411.

*P202 Added 6/19/97 as Cl-1 Typo.

D. CONDITIONS REGARDING UNITS

1. All units described in Condition IV.A. above shall be operated in accordance with the State permit conditions and the State Underground Injection Control Permit conditions pertaining to those units.

2. The Permittee shall follow the waste analysis procedures required in 40 CFR Part 264, and as described in the Waste Analysis plan found in Attachment III.

V. AIR EMISSION STANDARDS

A. PROCESS VENTS

The Permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart AA, regarding air emission standards for process vents.

WMX

Vickery

Waste Management, Inc.

A WMX Technologies Company
17250 Newburgh Road
Suite 100
Livonia, MI 48152-2618
Phone 313 462 6900

VIA FEDERAL EXPRESS MAIL

May 21, 1997

Mark J. Navarre, Supervising Attorney
State of Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, OH 43216-1049

Re: CWM Holdings, Inc.; Vickery, Ohio

Dear Mark:

As I have indicated to both you and Bill Haak, Waste Management is planning on making an intra-corporate transfer of ownership of CWM Holdings, Inc. In my earlier correspondence, I indicated that the current owner (Chemical Waste Management, Inc.) would transfer ownership of CWM Holdings, Inc. to Waste Management, Inc. and thereafter merge CWM Holdings, Inc. into Waste Management of Ohio, Inc. During the annual meeting of shareholders which occurred this month, the following corporate name changes were approved:

- WMX Technologies, Inc. will change its name back to Waste Management, Inc.
- Waste Management, Inc. will change its name back to Waste Management of North America, Inc.

We are still planning on going ahead with the transaction as originally contemplated, however, the name of one of the entities involved (Waste Management, Inc.) has been changed to Waste Management of North America, Inc.

I believe that this intra-company transfer of ownership should not be classified by the Director as a modification which would require Hazardous Waste Facility Board approval. There will be absolutely no changes in the facility or its operations as the result of this transfer, including personnel, site activities, environmental compliance measures, reporting responsibilities, supervisory responsibilities or any other aspect of the facility whatsoever.

In your letter to me of April 15, 1997 you provided a letter with a list of questions which would be helpful to the Agency in determining how to handle this transfer. The purpose of this letter is to provide a response to the eight categories of information which Ohio EPA customarily requests:

1. *List the names and titles of the officers and directors of the existing permittee corporation (CWM Holdings, Inc.) and the names and titles of the officers and directors of the existing permittee corporation's current parent (Chemical Waste Management, Inc.), grandparent (Waste Management, Inc.) and subsidiary corporations that were previously in a position to influence the operation of the hazardous waste facility.*

   Response: See Attachment A, the names and titles of the officers and directors of CWM Holdings, Inc., Chemical Waste Management, Inc. and Waste Management, Inc.

2. *List the names and titles of the officers and directors of the proposed permittee corporation (Waste Management of Ohio, Inc.) and the names and titles of the officers and directors of proposed permittee corporation's parent (Waste Management of North America, Inc.), grandparent (Waste Management, Inc.) and subsidiary corporations that may be in a position to influence the operation of the facility.*

   Response: See Attachment B (Waste Management of Ohio, Inc. and Waste Management of North America)

3. *Explain the decision-making hierarchy/process between the proposed permittee (and parent, grandparent, and/or subsidiary) corporations in the existing permittee (and parent, grandparent, and/or subsidiary) corporations regarding hazardous waste facility operations, environmental compliance measures, and hiring, supervisor and training of facility personnel.*

   (a) List the names and titles of existing permittee corporation's facility environmental managers and compliance officers/personnel.

   (b) List the names and titles of the supervisors of the persons listed above and include a table of organization and a narrative description of the facility decision-marking hierarchy/chain of command.

(c) *List the names and titles of any other facility environmental managers, compliance officers/personnel or persons in a position to influence the operation of the facility.*

Response: A copy of the facility organization chart and the organization chart for hazardous waste activities is attached hereto as Attachment "C". No aspect of the reporting structure or organizational hierarchy will be modified as the result of this transfer. As you can see, Fred Nicar, the General Manager, is at top of the organization chart. He currently reports to James Logsdon, Business Development Vice President, who reports to Gregg Asciutto, Region President, who reports to Ronald S. Baker, WM President. These reporting responsibilities will not change in any way following the transfer.

4. *Describe the financial relationship between the existing permittee (and parent, grandparent, and/or subsidiary) corporation and the proposed permittee (and parent, grandparent, and/or subsidiary) corporations.*

(a) *Explain the monetary control and/or fiscal responsibility for facility operations, including budgets, accounts, expenditures, etc. for facility improvements, pollution control equipment, etc. both before and after the completed/proposed change of ownership/operational control of the facility.*

(b) *List the names and titles of the financial officers of the existing permittee (and parent, grandparent, and/or subsidiary) corporations and the proposed permittee (and parent, grandparent, and/or subsidiary) corporations.*

Response: There will be no changes in the monetary control or fiscal responsibility for facility operations, budgets, accounts, expenditures, etc. as a result of this change. Fred Nicar, as General Manager, has responsibility for putting together a budget for approval through his hierarchy of supervisors (who are identified in #3 above). Mr. Nicar has authority for approving expenditures up to a certain limit beyond which he must obtain concurrence from his supervisors. The Assistant Controller who provides the on-site accounting function for Mr. Nicar is Karen Bowman. Her role will not change after the transfer. The facility Controller is Lori McDaniel and the Vice President-Controller is John Lychos. They both work out of our Detroit offices and their roles will not change following the transfer. The

Chief Financial Officer for Chemical Waste Management, Inc. is Royal Johnson, Treasurer; the Chief Financial Officer for Waste Management of North America, Inc. is Donald R. Chappel, Treasurer; and the Chief Financial Officer for Waste Management, Inc. is Bruce D. Tobecksen, Treasurer.

5. *Describe the previous, current and new prospective financial assurance arrangements.*

Response: This transfer will result in no changes in the financial assurance mechanism (a copy of which is attached hereto as Attachment "D") except to change the name of the insured from Chemical Waste Management, Inc. to Waste Management of Ohio, Inc.

6. *Describe in detail the asset acquisition, stock transfer and/or transaction which has effectuated/is expected to effectuate the completed/proposed change of ownership or operational control of the facility.*

Response: The proposed transaction consists of the following steps:

(a) Chemical Waste Management, Inc. will issue a dividend to its shareholders, Waste Management, Inc. (formerly WMX Technologies, Inc.), Mountain Indemnity Insurance Company, and National Guaranty Insurance Company, in the form of 100% of the stock of CWM Holdings, Inc. CWM Holdings, Inc. has 100 shares of common stock outstanding. Waste Management, Inc. is a 95.50806% shareholder of Chemical Waste Management, Inc. and will therefore receive 95.50806 shares of CWM Holdings, Inc. Mountain Indemnity Insurance Company is a 2.38933% shareholder of Chemical Waste Management, Inc. and will therefore receive 2.38933 shares of CWM Holdings, Inc. National Guaranty Insurance Company is a 2.10261% shareholder of Chemical Waste Management, Inc. and will therefore receive 2.10261 shares of CWM Holdings, Inc.

(b) Mountain Indemnity Insurance Company will issue a dividend to its sole shareholder, Waste Management, Inc., in the form of all of the stock of CWM Holdings, Inc. owned by it (2.38933 shares).

(c) National Guaranty Insurance Company, will issue a dividend to its sole shareholder, Waste Management, Inc., in the form of all of the stock of CWM Holdings, Inc. owned by it (2.10261 shares). As a result of steps 1 - 3, Waste Management, Inc. will own 100% of the stock of CWM Holdings, Inc.

(d) Waste Management, Inc. will contribute to its wholly-owned subsidiary, Waste Management of North America, Inc. (formerly known as Waste Management, Inc.), 100 shares, or 100% of the outstanding stock, of CWM Holdings, Inc.

(e) Waste Management of North America, Inc. will cause two of its wholly-owned subsidiaries, CWM Holdings, Inc. and Waste Management of Ohio, Inc. to merge. Waste Management of Ohio, Inc. will be the surviving corporation. Pursuant to state law (Ohio Code §1701.82 and 8 Del. Code. §259), all assets and liabilities, rights and obligations of CWM Holdings, Inc. will pass to Waste Management of Ohio, Inc. as of the effective date of the merger.

7. *Provide a copy of the purchase agreement and/or transaction documents which have effectuated/are expected to effectuate the completed/proposed change of ownership or operational control of the facility.*

Response: The enclosed documents (Attachment "E") are substantially similar to the documents that will be used to effectuate each step listed in response to Item 6, above (any possible differences in the final documents from those enclosed are noted):

(a) Action by Unanimous Written Consent of the Board of Directors of Chemical Waste Management, Inc. declaring a dividend of its stock in CWM Holdings, Inc. The effective date will be changed to a date after approval of the transaction is received from the necessary regulatory authorities. In addition, the Directors of the Corporation may change before that time.

(b) Action by Unanimous Written Consent of the Board of Directors of Mountain Indemnity Insurance Company declaring a dividend of its stock in CWM Holdings, Inc. The effective date will be changed to a date after approval of the transaction is received from the necessary regulatory authorities. In addition, the Directors of the Corporation may change before that time.

(c) Action by Unanimous Written Consent of the Board of Directors of National Guaranty Insurance Company declaring a dividend of its stock in CWM Holdings, Inc. The effective date will be changed to a date after approval of the transaction is received from the necessary regulatory authorities. In addition, the Directors of the Corporation may change before that time.

(d) Action by Unanimous Written Consent of the Executive Committee of the Board of Directors of WMX Technologies, Inc. contributing all of the stock of CWM Holdings, Inc. to Waste Management, Inc. The effective date will be changed to a date after approval of the transaction is received from the necessary regulatory authorities. The Members of the Executive Committee of the Board of Directors of the Corporation have changed and may change again before that time. In addition, these two corporations are likely to change their names before this transaction is implemented: WMX Technologies, Inc. will become Waste Management, Inc., and the current Waste Management, Inc. will be renamed.

(e) Certificate of Merger of CWM Holdings, Inc. Into Waste Management of Ohio, Inc. and Plan of Merger. The documents will be finalized and the effective date inserted after approval of the transaction is received from the necessary regulatory authorities.

8. *Describe any other completed/intended changes in the facility or its operations, including personnel, activities, environmental compliance measures, etc.*

Response: As I continue to emphasize, this is simply an internal change within the Waste Management family of companies and will not result in any change whatsoever in personnel, operations, environmental compliance measures, or any other aspect of the facility.

I hope that the information provided herein will be sufficient to allow the Agency to conclude that no formal proceedings are necessary to effectuate our proposed transaction. I would be most grateful if you could expedite the review and approval of this matter. If there is anything further you may need, it will promptly be provided to you.

Sincerely,

WASTE MANAGEMENT - DETROIT OFFICE

Robert E. Leininger

Robert E. Leininger
Senior Environmental Counsel

REL/gsc/files/ohio/vickery/0519mn.doc

Attachments

cc: Bill Haak

ATTACHMENT A

Privileged & Confidential WMI-M:EAST/OH

CWM HOLDINGS, INC.

Federal Tax Id: 36-3473092

State of Incorporation: DE Date of Incorporation: 08/22/86

Business Address: 3956 STATE ROUTE 412
VICKERY, OH 43464

Capital Stock Class:	Authorized Shares:	Issued Shares:	Outstanding Shares:	Treasury Shares:	Par Value:
COMMON	1,000	100	100	0	$1.00

Stockholder: CHEMICAL WASTE MANAGEMENT, INC.

States Qualified In: OH

Registered Agent: THE CORPORATION TRUST COMPANY
Address: 1209 ORANGE STREET
WILMINGTON, DE 19801

Charter Amendments:

Officers

RONALD S. BAKER	PRESIDENT
PAUL JENKS	VICE PRESIDENT
JOHN O. LYCHOS	VICE PRESIDENT
FRED NICAR	VICE PRESIDENT
MICHAEL K. SLATTERY	VICE PRESIDENT
MICHAEL K. SLATTERY	SECRETARY
BARBARA L. BIER	ASSISTANT SECRETARY
DAVID A. DOMZAL	ASSISTANT SECRETARY
JEFFREY C. EVERETT	ASSISTANT SECRETARY
THOMAS R. FRANK	ASSISTANT SECRETARY
DONALD S. HAUPE	ASSISTANT SECRETARY
ROBERT E. LEININGER	ASSISTANT SECRETARY
DALE B. TAUKE	ASSISTANT SECRETARY
JOHN O. LYCHOS	TREASURER
H. VAUGHN HOOKS	ASSISTANT TREASURER
SUSAN C. NUSTRA	ASSISTANT TREASURER
LORNA M. TURNER	ASSISTANT TREASURER

Directors

RONALD S. BAKER
JOHN O. LYCHOS
MICHAEL K. SLATTERY

Divisions:

Last Updated Date: 11/24/96 Printed: 05/21/97

Privileged & Confidential CWM

CHEMICAL WASTE MANAGEMENT, INC.

Federal Tax Id: 36-2989152

State of Incorporation: DE Date of Incorporation: 05/17/78

Business Address: 3001 BUTTERFIELD ROAD
OAK BROOK, IL 60521

Capital Stock Class:	Authorized Shares:	Issued Shares:	Outstanding Shares:	Treasury Shares:	Par Value:
COMMON	1,000	100	100	0	$1.00

Stockholder: WMX TECHNOLOGIES, INC. (95.50806)
MOUNTAIN INDEMNITY INSURANCE COMPANY (2.38933)
NATIONAL GUARANTY INSURANCE COMPANY (2.10261)

States Qualified In: AK AL AR AZ BC CA CO CT FL GA HI IA ID IL IN KS KY LA MA MD MI MN MO MS MT NC ND NE NH NJ NM NV NY OH OK ON OR PA RI SC SD TN TX UT VA VT WA WI WV WY

Registered Agent: THE CORPORATION TRUST COMPANY
Address: 1209 ORANGE STREET
WILMINGTON, DE 19801

Charter Amendments:

Officers

MICHAEL J. COLE	PRESIDENT
BRIAN J. CLARKE	VICE PRESIDENT AND GENERAL COUNSEL
KEVIN IGLI	VICE PRESIDENT - ENVIRONMENT, HEALTH AND SAFETY
ROYAL JOHNSON	VICE PRESIDENT
RICHARD C. SCHERR	VICE PRESIDENT
THOMAS A. WITT	SECRETARY
BARBARA L. BIER	ASSISTANT SECRETARY
BRIAN J. CLARKE	ASSISTANT SECRETARY
JEFFREY C. EVERETT	ASSISTANT SECRETARY
THOMAS R. FRANK	ASSISTANT SECRETARY
DONALD S. HAUTE	ASSISTANT SECRETARY
ROYAL JOHNSON	TREASURER
H. VAUGHN HOOKS	ASSISTANT TREASURER
SUSAN C. NUSTRA	ASSISTANT TREASURER
LORNA M. TURNER	ASSISTANT TREASURER

Directors
BRIAN J. CLARKE
MICHAEL J. COLE
ROYAL JOHNSON

Subsidiaries: ADVANCED ENVIRONMENTAL TECHNICAL SERVICES, L.L.C.
CEMTECH MANAGEMENT, INC.*
CHEM-NUCLEAR SYSTEMS, INC.
CHEMICAL WASTE MANAGEMENT CLEMSON TECHNICAL CENTER, INC.
CHEMICAL WASTE MANAGEMENT DE MEXICO, S.A. DE C.V.*

Last Updated Date: 05/15/97 Printed: 05/20/97

Privileged & Confidential CWM

CHEMICAL WASTE MANAGEMENT, INC.

CHEMICAL WASTE MANAGEMENT OF KANSAS, INC.
CHEMICAL WASTE MANAGEMENT OF NEW JERSEY, INC.
CHEMICAL WASTE MANAGEMENT OF PENNSYLVANIA, INC.
CNS HOLDINGS, INC.
CNSI SUB, INC.
CONTROLLED WASTE MATERIALS, INC.
CWM CEMENT, INC.
CWM HOLDINGS, INC.
CWM RESOURCE MANAGEMENT, INC.
CWM RESOURCE RECOVERY, INC.
OIL & SOLVENT PROCESS COMPANY
RESIDUOS INDUSTRIALES MULTIQUIM, S.A. DE C.V.*
RUST INTERNATIONAL INC.*
TC, INC.
TIJUANA EQUILIBRIO ECOLOGICO, S.A. DE C.V.*
TWI TRANSPORTATION, INC.
WESTERN COMPLIANCE SERVICES, INC.

Divisions: TRADE WASTE INCINERATION

* Not wholly Owned

Privileged & Confidential WMX/LEGAL

WASTE MANAGEMENT, INC.

Federal Tax Id: 36-2660763

State of Incorporation: DE Date of Incorporation: 09/23/68

Business Address: 3003 BUTTERFIELD ROAD
OAK BROOK, IL 60521

Capital Stock Class:	Authorized Shares:	Issued Shares:	Outstanding Shares:	Treasury Shares:	Par Value:
COMMON	1,500,000,000				$1.00
PREFERRED	50,000,000				$1.00

* Number of Treasury shares and Issued shares varies from day-to-day.

Stockholder: PUBLIC

States Qualified In: FL IL

Registered Agent: THE CORPORATION TRUST COMPANY
Address: 1209 ORANGE STREET
WILMINGTON, DE 19801

Charter Amendments: FORMER NAME: WASTE MANAGEMENT, INC.; WMX TECHNOLOGIES, INC.

Officers

DEAN L. BUNTROCK	CHAIRMAN OF THE BOARD (ACTING CHIEF EXECUTIVE OFFICER)
JOSEPH M. HOLSTEN	EXECUTIVE VICE PRESIDENT AND CHIEF OPERATING OFFICER
JAMES E. KOENIG	EXECUTIVE VICE PRESIDENT (PRESIDENT - WASTE MANAGEMENT SHARED SERVICES)
HERBERT A. GETZ	SENIOR VICE PRESIDENT AND GENERAL COUNSEL
D. P. PAYNE	SENIOR VICE PRESIDENT - MARKETING AND COMMUNICATIONS
JOHN D. SANFORD	SENIOR VICE PRESIDENT AND CHIEF FINANCIAL OFFICER
JOHN J. GOODY	VICE PRESIDENT - CHIEF INFORMATION OFFICER
THOMAS C. HAU	VICE PRESIDENT AND CONTROLLER
DR. DEBORAH HOCKMAN	VICE PRESIDENT - ENVIRONMENT, HEALTH, SAFETY & TECHNOLOGY
H. VAUGHN HOOKS	VICE PRESIDENT - TAX
RONALD M. JERICHO	VICE PRESIDENT - CORPORATE REPORTING
FRANK E. MOORE	VICE PRESIDENT - GOVERNMENT AFFAIRS
SUSAN C. MUSTRA	VICE PRESIDENT - TREASURY
WILLIAM J. PLUNKETT	VICE PRESIDENT - COMMUNICATIONS
MICHAEL P. ROGAN	VICE PRESIDENT - BUSINESS SERVICES
BRUCE D. TORECKSEN	VICE PRESIDENT - FINANCE
THOMAS A. WITT	VICE PRESIDENT AND ASSOCIATE GENERAL COUNSEL
HERBERT A. GETZ	SECRETARY
THOMAS A. WITT	ASSISTANT SECRETARY

Last Updated Date: 05/13/97 Printed: 05/20/97

Privileged & Confident. WMX/LEGAL

WASTE MANAGEMENT, INC.

JOHN D. SANFORD	TREASURER
H. VAUGHN HOOKS	ASSISTANT TREASURER
RONALD M. JERICHO	ASSISTANT TREASURER
SUSAN C. NUSTRA	ASSISTANT TREASURER
BRUCE D. TOBECKSEN	ASSISTANT TREASURER

Directors

H. JESSE ARNELLE
DEAN L. BUNTROCK
PASTORA SAN JUAN CAFFERTY
JERRY E. DEMPSEY
DR. JAMES B. EDWARDS
DONALD F. FLYNN
ROBERT S. MILLER
PAUL M. MONTRONE
PEER PEDERSEN
JAMES R. PETERSON
STEVEN G. ROTHMEIR
ALEXANDER B. TROWBRIDGE

Subsidiaries: BRUNDIDGE WASTE DISPOSAL CENTER, INC.
CALIFORNIA ACQUISITION SUB, INC.
CHEMICAL WASTE MANAGEMENT, INC.*
DEBRIS PROCESSORS, INC.
GRUPO WMX, S.A. DE C.V.*
KAHLE LANDFILL, INC.
MOUNTAIN INDEMNITY INSURANCE COMPANY
NATIONAL GUARANTY INSURANCE COMPANY
WASTE AWAY GROUP, INC.
WASTE MANAGEMENT INTERNATIONAL PLC*
WASTE MANAGEMENT INTERNATIONAL, INC.
WASTE MANAGEMENT OF CAMBRIDGE, INC.
WASTE MANAGEMENT OF EASTERN SHORE, INC.
WASTE MANAGEMENT OF GRASS VALLEY, INC.
WASTE MANAGEMENT OF GREATER WASHINGTON, INC.
WASTE MANAGEMENT OF LAGRANGE, INC.
WASTE MANAGEMENT OF MICHIGAN, INC.
WASTE MANAGEMENT OF NORTH AMERICA, INC.
WASTE MANAGEMENT OF TROUTDALE, INC.
WASTE MANAGEMENT OF WISCONSIN, INC.
WASTE MANAGEMENT PAPER STOCK COMPANY, INC.
WASTE MANAGEMENT PARTNERS, INC.
WASTE MANAGEMENT RECYCLING AND DISPOSAL SERVICES OF ILLINOIS, INC.
WHEELABRATOR TECHNOLOGIES INC.*
WM OF NEW YORK, INC.
WMI MEXICO HOLDINGS, INC.
WMI URBAN SERVICES, INC.
WMX TECHNOLOGIES (ASIA), INC.
WMX TECHNOLOGY CENTER, INC.

Divisions:

* Not wholly Owned

Comments: NUMBER OF TREASURY SHARES AND ISSUED SHARES VARIES ON A
Last Updated Date: 05/13/97 Printed: 05/20/97

ATTACHMENT B

Privileged & Confidential WMI-M:EAST/OH

WASTE MANAGEMENT OF OHIO, INC.

Federal Tax Id: 36-3617434

State of Incorporation: DE Date of Incorporation: 12/09/88

Business Address: 3003 BUTTERFIELD ROAD
OAK BROOK, IL 60521

Capital Stock Class:	Authorized Shares:	Issued Shares:	Outstanding Shares:	Treasury Shares:	Par Value:
COMMON	1,000	100	100	0	$1.00

Stockholder: WASTE MANAGEMENT, INC.

States Qualified In: KY OH WV

Registered Agent: THE CORPORATION TRUST COMPANY
Address: 1209 ORANGE STREET
WILMINGTON, DE 19801

Charter Amendments:

Officers

RONALD S. BAKER	PRESIDENT
PAUL JENKS	VICE PRESIDENT
JOHN O. LYCHOS	VICE PRESIDENT
MICHAEL K. SLATTERY	VICE PRESIDENT
MICHAEL K. SLATTERY	SECRETARY
BARBARA L. BIER	ASSISTANT SECRETARY
DAVID A. DOMZAL	ASSISTANT SECRETARY
JEFFREY C. EVERETT	ASSISTANT SECRETARY
THOMAS R. FRANK	ASSISTANT SECRETARY
DONALD S. HAUFE	ASSISTANT SECRETARY
ROBERT E. LEININGER	ASSISTANT SECRETARY
DALE E. TAUKE	ASSISTANT SECRETARY
JOHN O. LYCHOS	TREASURER
E. VAUGHN HOOKS	ASSISTANT TREASURER
SUSAN C. NUSTRA	ASSISTANT TREASURER
LORNA M. TURNER	ASSISTANT TREASURER
CINDY GIACONA	ASSISTANT TREASURER

Directors
RONALD S. BAKER
JOHN O. LYCHOS
MICHAEL K. SLATTERY

Subsidiaries: MUNICIPAL WASTE AND SERVICE CORPORATION*
WARNER HILL DEVELOPMENT COMPANY
WARNER HILL IMPROVEMENT COMPANY

Divisions: COUNTYWIDE RECYCLING AND DISPOSAL FACILITY
ELDA RECYCLING AND DISPOSAL FACILITY
EVERGREEN RECYCLING AND DISPOSAL FACILITY
HERRICK VALLEY RECYCLING AND DISPOSAL FACILITY
LAKE COUNTY RECYCLING AND DISPOSAL FACILITY

Last Updated Date: 05/19/97 Printed: 05/21/97

Privileged & Confidential WMI-M:EAST/OH

WASTE MANAGEMENT OF OHIO, INC.

PINNACLE ROAD RECYCLING AND DISPOSAL FACILITY
SENECA EAST RECYCLING AND DISPOSAL FACILITY
STONY HOLLOW RECYCLING AND DISPOSAL FACILITY
SUBURBAN RECYCLING AND DISPOSAL FACILITY
WASTE MANAGEMENT OF OHIO - AKRON
WASTE MANAGEMENT OF OHIO - BLAYLOCK
WASTE MANAGEMENT OF OHIO - CLEVELAND
WASTE MANAGEMENT OF OHIO - CLEVELAND TRANSFER AND RECYCLING FACILITY
WASTE MANAGEMENT OF OHIO - COLUMBUS
WASTE MANAGEMENT OF OHIO - COLUMBUS TRANSFER AND RECYCLING FACILITY
WASTE MANAGEMENT OF OHIO - FINDLAY
WASTE MANAGEMENT OF OHIO - GREATER CINCINNATI
WASTE MANAGEMENT OF OHIO - IWD
WASTE MANAGEMENT OF OHIO - KOOGLER
WASTE MANAGEMENT OF OHIO - LIMA
WASTE MANAGEMENT OF OHIO - LIMA TRANSFER AND RECYCLING FACILITY
WASTE MANAGEMENT OF OHIO - M & M SANITATION
WASTE MANAGEMENT OF OHIO - NEWARK
WASTE MANAGEMENT OF OHIO - NORTHWEST
WASTE MANAGEMENT OF OHIO - RECYCLE AMERICA/TOLEDO
WASTE MANAGEMENT OF OHIO - S.E.M.
WASTE MANAGEMENT OF OHIO - SHELBY COUNTY TRANSFER
WASTE MANAGEMENT OF OHIO - SUBURBAN SANITATION SERVICE
WASTE MANAGEMENT OF OHIO - WESTERN RESERVE
WASTE MANAGEMENT OF OHIO - YOUNGSTOWN
WMI SERVICES - OHIO

* Not wholly Owned

Privileged & Confidenti... WMX/LEGAL

WASTE MANAGEMENT OF NORTH AMERICA, INC.

Federal Tax Id: 36-3135921

State of Incorporation: IL Date of Incorporation: 06/11/81

Business Address: 3003 BUTTERFIELD ROAD
OAK BROOK, IL 60521

Capital Stock Class:	Authorized Shares:	Issued Shares:	Outstanding Shares:	Treasury Shares:	Par Value:
COMMON	1,000	100	100	0	$1.00

Stockholder: WASTE MANAGEMENT, INC.

States Qualified In: LA MA PA

Registered Agent: C T CORPORATION SYSTEM
Address: 208 SOUTH LASALLE STREET
CHICAGO, IL 60604

Charter Amendments: FORMER NAME: WASTE MANAGEMENT OF NORTH AMERICA, INC.; WASTE MANAGEMENT, INC.

Officers

JOSEPH M. HOLSTEN	PRESIDENT
WILLIAM P. HULLIGAN	VICE PRESIDENT
DONALD R. CHAPPEL	VICE PRESIDENT AND CONTROLLER
T. MICHAEL O'BRIEN	VICE PRESIDENT
T. MICHAEL O'BRIEN	SECRETARY
CARRIE L. COZZI	ASSISTANT SECRETARY
JEFFREY C. EVERETT	ASSISTANT SECRETARY
DONALD S. HAUPE	ASSISTANT SECRETARY
DALE B. TAUKE	ASSISTANT SECRETARY
DONALD R. CHAPPEL	TREASURER
H. VAUGHN HOOKS	ASSISTANT TREASURER
SUSAN C. NUSTRA	ASSISTANT TREASURER
LORNA M. TURNER	ASSISTANT TREASURER

Directors

DONALD R. CHAPPEL
T. MICHAEL O'BRIEN
JOSEPH M. HOLSTEN

Subsidiaries: AUTOMATED DISPOSAL SYSTEMS, INC.
BAXTER HEALTHCARE CORPORATION JOINT VENTURE
CENTRAL SERVICE CORPORATION
CWM CHEMICAL SERVICES, INC.
DECKER DISPOSAL, INC.
DIVERSIFIED SCIENTIFIC SERVICES, INC.
GENERAL SANITATION CORPORATION
GEORGIA WASTE SYSTEMS, INC.
M.S.T.S., INC.*
NATIONAL SEAL COMPANY*
NEW ENGLAND CR INC.
RANCHO ESTATES PROPERTIES, INC.

Last Updated Date: 05/13/97 Printed: 05/20/97

WASTE MANAGEMENT OF NORTH AMERICA, IN

REFUSE SERVICES, INC.
RRT-RECYCLE AMERICA, INC.
S.V. FARMING CORP.
SALEM WASTE DISPOSAL CENTER, INC.
SC HOLDINGS, INC.
THE WOODLANDS OF VAN BUREN, INC.
TRAIL RIDGE LANDFILL, INC.
WARNER COMPANY
WASHINGTON WASTE HAULING & RECYCLING, INC.
WASHINGTON WASTE SYSTEMS, INC.
WASTE MANAGEMENT COLLECTION AND RECYCLING, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF ARIZONA, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF COLORADO, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF MARYLAND, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF MASSACHUSETTS, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF MONTANA, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF NEW YORK, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF OREGON, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF PENNSYLVANIA, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF VIRGINIA, INC.
WASTE MANAGEMENT DISPOSAL SERVICES OF WASHINGTON, INC.
WASTE MANAGEMENT INC. OF FLORIDA
WASTE MANAGEMENT OF ALABAMA, INC.
WASTE MANAGEMENT OF ALAMEDA COUNTY, INC.
WASTE MANAGEMENT OF ARIZONA, INC.
WASTE MANAGEMENT OF ARKANSAS, INC.
WASTE MANAGEMENT OF CALIFORNIA, INC.
WASTE MANAGEMENT OF CAROLINAS, INC.
WASTE MANAGEMENT OF CENTRAL FLORIDA, INC.
WASTE MANAGEMENT OF COLORADO, INC.
WASTE MANAGEMENT OF COLUMBUS, INC.
WASTE MANAGEMENT OF CONNECTICUT, INC.
WASTE MANAGEMENT OF DELAWARE, INC.
WASTE MANAGEMENT OF FLORIDA HOLDING COMPANY, INC.
WASTE MANAGEMENT OF FLORIDA, INC.
WASTE MANAGEMENT OF GEORGIA, INC.
WASTE MANAGEMENT OF IDAHO, INC.
WASTE MANAGEMENT OF ILLINOIS, INC.
WASTE MANAGEMENT OF INDIANA HOLDINGS ONE, INC.
WASTE MANAGEMENT OF INDIANA HOLDINGS TWO, INC.
WASTE MANAGEMENT OF IOWA, INC.
WASTE MANAGEMENT OF KANSAS, INC.
WASTE MANAGEMENT OF KENTUCKY HOLDINGS, INC.
WASTE MANAGEMENT OF LEON COUNTY, INC.
WASTE MANAGEMENT OF LOUISIANA, INC.
WASTE MANAGEMENT OF MAINE, INC.
WASTE MANAGEMENT OF MARYLAND, INC.
WASTE MANAGEMENT OF MASSACHUSETTS, INC.
WASTE MANAGEMENT OF MINNESOTA, INC.
WASTE MANAGEMENT OF MISSISSIPPI, INC.
WASTE MANAGEMENT OF MISSOURI, INC.
WASTE MANAGEMENT OF MONTANA, INC.
WASTE MANAGEMENT OF NEBRASKA, INC.
WASTE MANAGEMENT OF NEW HAMPSHIRE, INC.

WASTE MANAGEMENT OF NORTH AMERICA, INC.

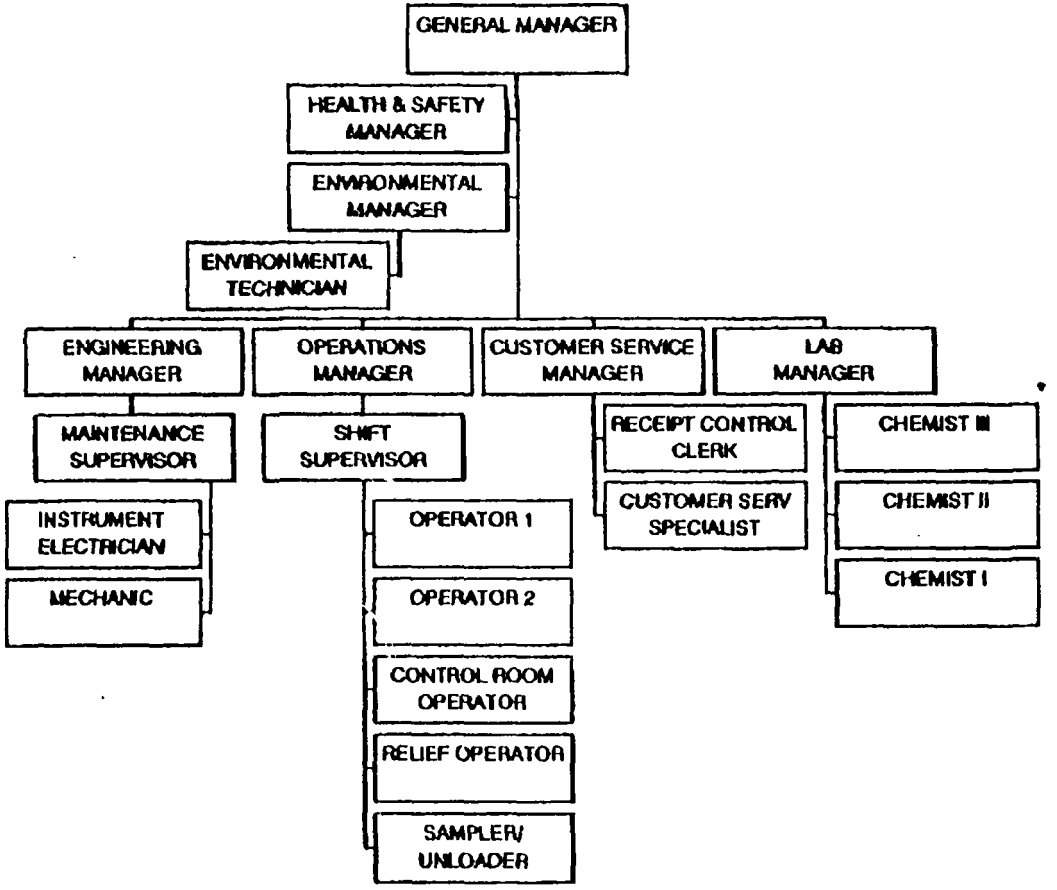
WASTE MANAGEMENT OF NEW JERSEY, INC.
WASTE MANAGEMENT OF NEW MEXICO, INC.
WASTE MANAGEMENT OF NEW YORK, INC.
WASTE MANAGEMENT OF NORTH DAKOTA, INC.
WASTE MANAGEMENT OF OHIO, INC.
WASTE MANAGEMENT OF OKLAHOMA, INC.
WASTE MANAGEMENT OF ORANGE COUNTY, INC.
WASTE MANAGEMENT OF OREGON, INC.
WASTE MANAGEMENT OF PENNSYLVANIA, INC.
WASTE MANAGEMENT OF PINELLAS COUNTY, INC.
WASTE MANAGEMENT OF RHODE ISLAND, INC.
WASTE MANAGEMENT OF SOUTH CAROLINA, INC.
WASTE MANAGEMENT OF SOUTH DAKOTA, INC.
WASTE MANAGEMENT OF TEXAS, INC.
WASTE MANAGEMENT OF TRI-CITIES, INC.
WASTE MANAGEMENT OF UTAH, INC.
WASTE MANAGEMENT OF VIRGINIA, INC.
WASTE MANAGEMENT OF WEST VIRGINIA, INC.
WASTE MANAGEMENT OF WILMINGTON, INC.
WASTE MANAGEMENT OF WYOMING, INC.
WASTE MANAGEMENT PLASTIC PRODUCTS, INC.
WASTE MANAGEMENT RECYCLING AND DISPOSAL SERVICES OF CALIFORNIA, INC.
WASTE MANAGEMENT, INC. OF TENNESSEE
WASTE RESOURCES OF TAMPA BAY, INC.
WASTE RESOURCES OF TENNESSEE, INC.
WM PAPER RECYCLING, INC.
WM PARTNERSHIP HOLDINGS, INC.
WMI MEDICAL SERVICES OF INDIANA, INC.*
WMI MEDICAL SERVICES OF OHIO, INC.
WMI MEDICAL SERVICES OF TEXAS, INC.
WMI MEDICAL WASTE SERVICES OF NORTH CAROLINA, INC.
WMI MEXICO HOLDINGS, INC.
WMI PROPERTIES, INC.
WMI SERVICES OF NEVADA, INC.
WMI WASTE MANAGEMENT OF CANADA INC.
WMNA CONTAINER RECYCLING, INC.
WMNA RAIL-CYCLE SUB, INC.

Divisions:

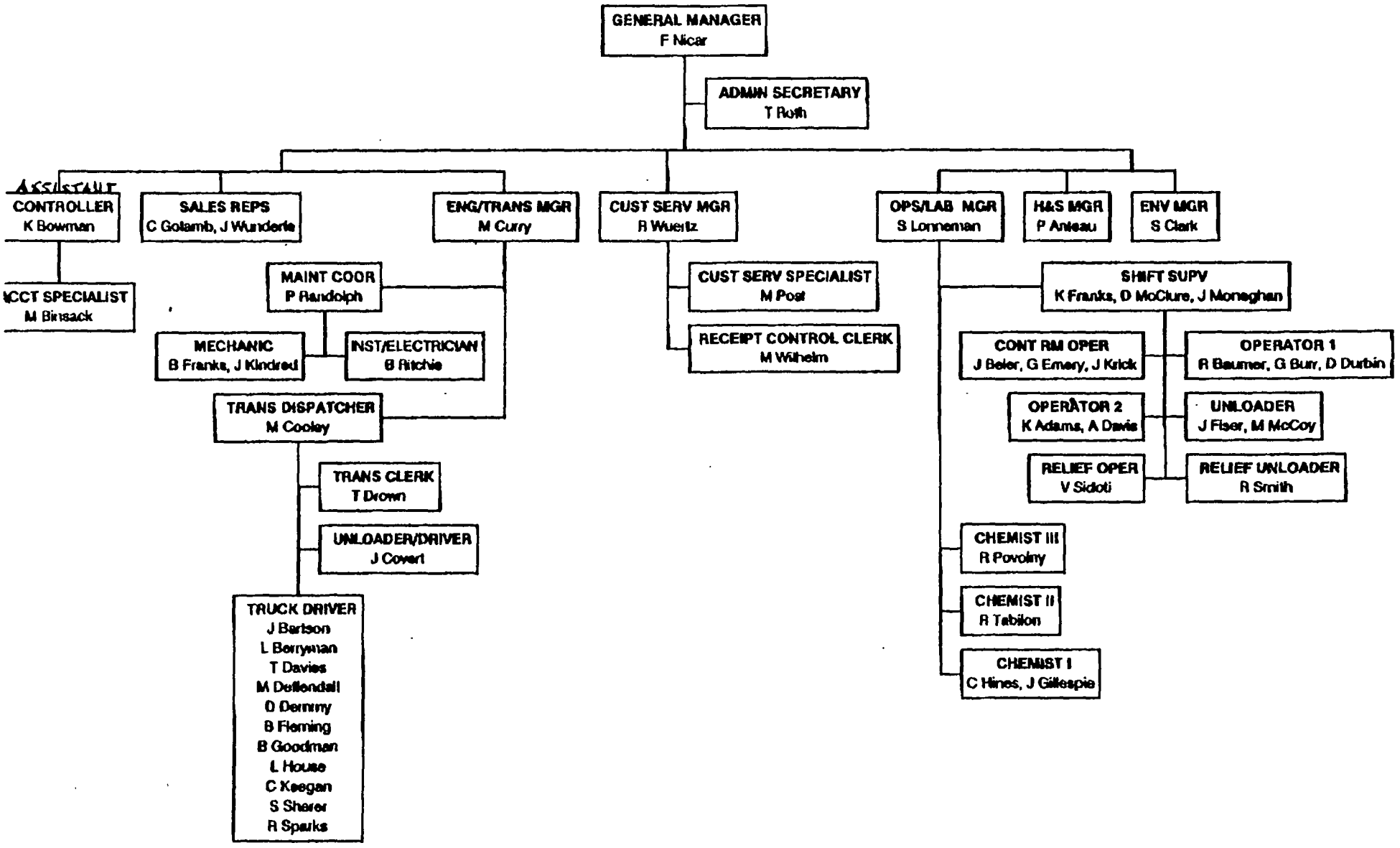
* Not wholly Owned

ATTACHMENT C

VICKERY ORGANIZATION CHART FOR HAZARDOUS WASTE ACTIVITIES
FIGURE
12/15/95



CWM VICKERY ORGANIZATION CHART



Revised 1/13/97

ATTACHMENT D

NATIONAL GUARANTY INSURANCE COMPANY

7 BURLINGTON SQUARE, 6th FLOOR • BURLINGTON, VT 05401 • 1-800-876-6442

CERTIFICATE OF INSURANCE
CLOSURE AND POST-CLOSURE

Name and Address of Insurer (hereinafter called the "Insurer"):

NATIONAL GUARANTY INSURANCE COMPANY

7 Burlington Square, 6th Floor, P.O. Box 530 Burlington, Vermont 05402-0530

Name and Address of Insured (hereinafter called the "Insured"):

CHEMICAL WASTE MANAGEMENT, INC.

3956 State Route 412, Vickery, Ohio 43464

Facilities Covered:

EPA ID Number: OHD020273819 Ohio Permit Number: 03720191

Name: VICKERY LANDFILL

Address: 3956 State Route 412

Vickery, Ohio 43464

Policy Face Amount $8,280,149.00

Closure: A. $3,086,076.00

Post-Closure B. $5,194,073.00

Policy Number: CPCH92-0003

Effective Date: March 1, 1992

The Insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance for closure and post-closure care for the facility identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of Paragraph (E) of Rules 3745-55-43 and 3745-55-45, and Paragraph (D) of Rules 3745-66-43 and 3745-66-45 of the Administrative Code, as applicable and as such rules were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such rules is hereby amended to eliminate such inconsistency.

Whenever requested by the Director of the Ohio Environmental Protection Agency, the Insurer agrees to furnish to the Director a duplicate original of the policy listed above including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in Paragraph (E) of Rule 3745-55-51 of the Administrative code as such rules were constituted on the date shown immediately below.

Authorized signature for Insurer — Date: February 1, 1997

Donald S. Haufe — Name of person signing

President — Title of person signing

Witness (Rosemary Kerrigan)

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

1. tional Union Fire Insurance Company of Pittsburgh, PA, (the "Insurer") f 70 Pine St., New York, NY 10270 hereby certifies that it has issued liability insurance covering bodily injury and property damage to WMX Technologies, Inc. and its subsidiaries (the "Insured"), of 3003 Butterfield Road, Oak Brook, Illinois 60521 in connection with the insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147. The coverage applies at:

Name, Address	Ohio Permit # Number	EPA Identification
Chemical Waste Management, Inc.- Vickery 3956 State Route 412 Vickery, OH 43464	03-72-0191	OHD020273819

for sudden accidental occurrences. The limits of liability are $1,000,000 each occurrence and $2,000,000 annual aggregate exclusive of legal defense costs. The coverage is provided under policy number PRM-9210461, issued on 4/25/97. The effective date of said policy is 4/25/97.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1.

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.
(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147(f) or 265.147(f).
(c) Whenever requested by a Regional Administrator of the U.S. Environmental Protection Agency (EPA) the Insurer agrees to furnish to the Regional Administrator a signed duplicate original of the policy and all endorsements.
(d) Cancellation of the insurance, whether by the Insurer or the Insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Regional Administrator of the EPA Region in which the facility is located.
(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Regional Administrator of the EPA Region in which the facility is located.

I hereby certify that the wording of this instrument is identical to the wording specified in 40 CFR 264.151 (j), as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

Jo h E. Sander
A tant Secretary
A orized Representative of
National Union Fire Insurance Co. of
Pittsburgh, PA
70 Pine Street
New York, New York 10270

CERTIFICATE ISSUED TO:

Regional Administrator
USEPA - Region V
230 S. Dearborn
Chicago, IL 60604

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

:ional Union Fire Insurance Company of Pittsburgh, PA, (the "Insurer") : 70 Pine Street, New York, NY 10270 hereby certifies that it has issued liability insurance covering bodily injury and property damage to WMX Technologies, Inc. and its subsidiaries (the "Insured"), of 3003 Butterfield Road, Oak, Brook, IL 60521 in connection with the Insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147. The coverage applies at:

Name, Address	Ohio Permit #	EPA Identification Number
Chemical Waste Management, Inc.- Vickery 3956 State Route 412 Vickery, OH 43464	03-72-0191	OHD020273819

for non-sudden accidental occurrences. The limits of liability are $3,000,000 each occurrence and $6,000,000 annual aggregate exclusive of legal defense costs. The coverage is provided under Policy No. PRM-9210461 issued on April 25, 1997. The effective date of said policy is April 25, 1997.

The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.
(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the Insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147(f) or 265.147(f).
(c) Whenever requested by a Regional Administrator of the U.S. Environmental Protection Agency (EPA) the Insurer agrees to furnish to the Regional Administrator a signed duplicate original of the policy and all endorsements.
(d) Cancellation of the insurance, whether by the Insurer or the Insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Director.
(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Regional Administrator of the EPA Region in which the facility is located.

I hereby certify that the wording of this instrument is identical to the wording specified in 40 CFR 264.151 (j), as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

J h E. Sander
Ass stant Secretary
Au rized Representative of
Na nal Union Fire Insurance Co.
or Pittsburgh, PA
70 Pine St.
New York, New York 10270

CERTIFICATE ISSUED TO:

Regional Administrator
USEPA - Region V
230 S. Dearborn
Chicago, IL 60604

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

tional Union Fire Insurance Company of Pittsburgh, PA, (the "Insurer") f 70 Pine St., New York, NY 10270 hereby certifies that it has issued liability insurance covering bodily injury and property damage to WMX Technologies, Inc. and its subsidiaries (the "Insured"), of 3003 Butterfield Road, Oak Brook, Illinois 60521 in connection with the insured's obligation to demonstrate financial responsibility under rule 3745-55-47 and 3745-66-47 of the Administrative Code. The coverage applies at:

Name, Address	Ohio Permit #	EPA Identification Number
Chemical Waste Management, Inc.- Vickery 3956 State Route 412 Vickery, OH 43464	03-72-0191	OHD020273819

for sudden accidental occurrences. The limits of liability are $1,000,000 each occurrence and $2,000,000 annual aggregate exclusive of legal defense costs. The coverage is provided under policy number PRM-9210461, issued on 4/25/97. The effective date of said policy is 4/25/97.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1.

   (a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.
   (b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in paragraph (F) of rule 3745-55-47 or paragraph (F) of rule 3745-66-47 of the Administrative Code.
   (c) Whenever requested by the Director of the Ohio Environmental Protection Agency, the Insurer agrees to furnish to the Director a signed duplicate original of the policy and all endorsements.
   (d) Cancellation of the insurance, whether by the Insurer or the Insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Director.
   (e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Director.

I hereby certify that the wording of this instrument is identical to the wording specified in paragraph (J) of 3745-55-51 of the Administrative Code as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to p ide insurance as an excess or surplus lines insurer, in one or more S es.

Joseph E. Sander
Assistant Secretary
Authorized Representative of
National Union Fire Insurance Co. of
Pittsburgh, PA

CERTIFICATE ISSUED TO:

Director
Ohio Environmental Protection Agency
Div. of Solid and Hazardous Waste Mgmt.
1800 Watermark Drive

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

1. National Union Fire Insurance Company of Pittsburgh, PA, (the "Insurer") of 70 Pine Street, New York, NY 10270 hereby certifies that it has issued liability insurance covering bodily injury and property damage to WMX Technologies, Inc. and its subsidiaries (the "Insured"), of 3003 Butterfield Road, Oak, Brook, IL 60521 in connection with the Insured's obligation to demonstrate financial responsibility under rule 3745-55-47 and 3745-66-47 of the Administrative Code. The coverage applies at:

Name, Address	Ohio Permit #	EPA Identification Number
Chemical Waste Management, Inc.- Vickery 3956 State Route 412 Vickery, OH 43464	03-72-0191	OHD020273819

for non-sudden accidental occurrences. The limits of liability are $3,000,000 each occurrence and $6,000,000 annual aggregate exclusive of legal defense costs. The coverage is provided under Policy No. PRM-9210461 issued on April 25, 1997. The effective date of said policy is April 25, 1997.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.
(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the Insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in paragraph (F) of rule 3745-55-47 or paragraph (F) of rule 3745-66-47 of the Administrative Code.
(c) Whenever requested by the Director of the Ohio Environmental Protection Agency, the Insurer agrees to furnish to the Director a signed duplicate original of the policy and all endorsements.
(d) Cancellation of the insurance, whether by the Insurer or the Insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Director.
(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Director.

I hereby certify that the wording of this instrument is identical to the wording specified in paragraph (J) of 3745-55-51 of the Administrative Code as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

John E. Sander
Assistant Secretary
Authorized Representative of
National Union Fire Insurance Co.
of Pittsburgh, PA

CERTIFICATE ISSUED TO:

Director
Ohio Environmental Protection Agency
Div. of Solid and Hazardous Waste Mgmt.
1800 Watermark Dr.

ATTACHMENT E

CHEMICAL WASTE MANAGEMENT, INC.

Action by Unanimous Written
Consent of The Board of Directors

The undersigned, being all the directors of CHEMICAL WASTE MANAGEMENT, INC., a Delaware corporation (the "Company"), hereby consent to the taking of the following action in lieu of a meeting of the Board of Directors of the Company and hereby waive any notice whatsoever required to be given in connection therewith.

> RESOLVED, that there is hereby declared a dividend payable in the stock of CWM Holdings, Inc. ("CWMH") held in the name of the Company to the stockholders of record of the Company as of the date hereof, and each officer of the Company is hereby authorized and directed to take any and all action deemed necessary by him or her to effectuate such dividend of such CWMH stock.

* * *

The Secretary or Assistant Secretary of the Company is directed to file a copy of this written consent with the minutes of the proceedings of the Board of Directors of the Company.

Dated: December 27, 1996

Brian J. Clarke

Michael J. Cole

Royal Johnson

MOUNTAIN INDEMNITY INSURANCE COMPANY

Action by Unanimous Written
Consent of The Board of Directors

The undersigned, being all the directors of MOUNTAIN INDEMNITY INSURANCE COMPANY, a Vermont corporation (the "Company"), hereby consent to the taking of the following action in lieu of a meeting of the Board of Directors of the Company and hereby waive any notice whatsoever required to be given in connection therewith.

> RESOLVED, that there is hereby declared a dividend payable in the stock of CWM Holdings, Inc. ("CWMH") held in the name of the Company to the stockholder of record of the Company as of the date hereof, and each officer of the Company is hereby authorized and directed to take any and all action deemed necessary by him or her to effectuate such dividend of such CWMH stock.

* * *

The Secretary or Assistant Secretary of the Company is directed to file a copy of this written consent with the minutes of the proceedings of the Board of Directors of the Company.

Dated: December 27, 1996

_____
Thomas R. Frank

_____
Donald S. Haufe

_____
Susan D. Precourt

NATIONAL GUARANTY INSURANCE COMPANY

Action by Unanimous Written
Consent of The Board of Directors

The undersigned, being all the directors of NATIONAL GUARANTY INSURANCE COMPANY, a Vermont corporation (the "Company"), hereby consent to the taking of the following action in lieu of a meeting of the Board of Directors of the Company and hereby waive any notice whatsoever required to be given in connection therewith.

> RESOLVED, that there is hereby declared a dividend payable in the stock of CWM Holdings, Inc. ("CWMH") held in the name of the Company to the stockholder of record of the Company as of the date hereof, and each officer of the Company is hereby authorized and directed to take any and all action deemed necessary by him or her to effectuate such dividend of such CWMH stock.

* * *

The Secretary or Assistant Secretary of the Company is directed to file a copy of this written consent with the minutes of the proceedings of the Board of Directors of the Company.

Dated: December 27, 1996

_____
Kathleen H. Davis

_____
Thomas R. Frank

_____
Donald S. Haufe

WMX TECHNOLOGIES, INC.

Action by Unanimous Written Consent
of the Executive Committee
of the Board of Directors

The undersigned, being all of the members of the Executive Committee of the Board of Directors of WMX Technologies, Inc. a Delaware corporation (the "Company"), hereby consent to the taking of the following action in lieu of a meeting of the Executive Committee of the Board of Directors of the Company and hereby waive any notice whatsoever required to be given in connection therewith.

RESOLVED by the Executive Committee of the Board of Directors, that the Company hereby contributes to the capital of Waste Management, Inc. all of the common stock of CWM Holdings, Inc. registered in the name of the Company and that each officer of the Company is hereby authorized to do any and all things necessary or appropriate to carry out this resolution.

* * *

The Secretary of the Company is directed to file a copy of this written consent with the minutes of the proceedings of the Executive Committee of the Board of Directors of the Company.

Dated: December 30, 1996

Dean L. Buntrock

Phillip B. Rooney

c:\docs\cwm.96\wmx-con.doc

DRAFT

CERTIFICATE OF MERGER

OF

CWM HOLDINGS, INC.

INTO

WASTE MANAGEMENT OF OHIO, INC.

* * * * * *

The undersigned corporations do hereby certify:

FIRST: That the names and states of incorporation of each of the constituent corporations of the merger are as follows:

Name	State of Incorporation
CWM Holdings, Inc.	Delaware
Waste Management of Ohio, Inc.	Delaware

SECOND: That a plan of merger between the parties to the merger has been approved, adopted, certified, executed and acknowledged by each of the constituent corporations in accordance with the requirements of section 251 of the General Corporation Law of the State of Delaware.

THIRD: The name of the surviving corporation of the merger is WASTE MANAGEMENT OF OHIO, INC., a Delaware corporation.

FOURTH: That the Articles of Incorporation of WASTE MANAGEMENT OF OHIO, INC., a Delaware corporation, which is the surviving corporation, as heretofore amended and as in effect on the date of the merger provided for in this plan, shall continue in full force and effect as the Articles of Incorporation of the corporation surviving this merger.

FIFTH: That the executed plan of merger is on file at the principal place of business of the surviving corporation. The address of said principal place of business is c/o Waste Management, Inc., 3003 Butterfield Road, Oak Brook, Illinois 60521.

SIXTH: That a copy of the plan of merger will be furnished on request and without cost to any stockholder of any constituent corporation.

SEVENTH: This Certificate of Merger shall be effective upon filing.

EXHIBIT A

PLAN OF MERGER

1. WASTE MANAGEMENT OF OHIO, INC., a Delaware corporation ("Surviving Corporation"), hereby merges into itself CWM HOLDINGS, INC., a Delaware corporation ("Merging Corporation"); the Merging Corporation shall be and hereby are merged into the Surviving Corporation.

2. The Articles of Incorporation of the Surviving Corporation in effect on the date of merger shall continue in full force and effect as the Articles of Incorporation of the corporation surviving this merger until amended or repealed.

3. The by-laws of the Surviving Corporation as they shall exist on the effective date of this agreement shall be and remain the by-laws of the Surviving Corporation until the same shall be altered, amended or repealed as therein provided.

4. The directors and officers of the Surviving Corporation shall continue in office until the next annual meeting of stockholders and until their successors shall have been elected and qualified.

5. Each share of stock of the Surviving Corporation which shall be issued on the effective date of this agreement shall remain issued. All of the issued shares of the Merging Corporation shall be cancelled and no shares of the Surviving Corporation are to be issued in exchange therefor.

6. All the property, rights, privileges, powers and franchises of the Merging Corporation shall upon the effectiveness of the merger be vested in and held and enjoyed by the Surviving Corporation as fully and entirely and without change or diminution as the same were theretofore held and enjoyed by the Merging Corporation and the Surviving Corporation shall thereupon assume all of the obligations of the Merging Corporation.

7. The merger sh oe effective upon filing.

DATED: _____, 7

WASTE MANAGEMENT OF OHIO, INC.

By _____
Michael K. Slattery, Vice President

ATTEST:

_____
Carrie L. Cozzi, Assistant Secretary

CWM HOLDINGS, INC.

By _____
Michael K. Slattery, Vice President

ATTEST:

_____
Carrie L. Cozzi, Assistant Secretary

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
1800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 844-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

AUG 28 1997

August 22, 1997

Mr. Robert E. Leininger, Esq.
Senior Environmental Counsel
Waste Management, Inc.
17250 Newburg Road, Suite 100
Livonia, Michigan 48152-2818

Re: CWM Holdings, Inc., Vickery, Ohio

Dear Mr. Leininger:

This letter follows our recent telephone conversations regarding the above-referenced matter and Ohio EPA's review of your letters to Bill Haak, Attorney General's Office, dated November 25, 1996 and April 11, 1997 and your letter to me, dated May 21, 1997. Our review of your May 21st response to my April 15th letter suggests that the corporate reorganization described in your response would not constitute a "transfer of the [Vickery] permit to another person," within the meaning of ORC section 3734.05(I) and OAC rule 3745-50-51(A)(4). As indicated in our August 20th telephone conversation, Ohio EPA staff would consider the proposed reorganization an administrative and informational change, i.e., a class 1 modification. See Appendix to OAC rule 3745-50-51[effective July 14, 1997] (copy enclosed).

Enclosed please find a proposed administrative consent order prepared by Ohio EPA staff. The proposed order is, of course, subject to the Director's review and approval. While the Division of Hazardous Waste Management and the Attorney General's Office are prepared to recommend issuance of the proposed order, the final decision rests solely with the Director of Ohio EPA.

By facsimile transmission, dated July 24, 1997, you were provided with a draft of the enclosed proposed administrative consent order. By letter dated August 4, 1997, you indicated Waste Management's acceptance of the draft order. Assuming the proposed order remains acceptable to your client, please arrange for appropriate signatures and return the document to me. If you have any questions regarding the proposed order, please call me at your convenience.

Sincerely,

Mark J. Navarre
Deputy Chief Counsel

enclosures (as noted)

cc: David Sholtis, DHWM, OEPA (with enc.)
William Haak, EBIU, AGO (with enc.)

Chuck Hull, NWDO, OEPA (with enc.)

George V. Voinovich, Governor
Nancy P. Hollister, Lt. Governor
Donald R. Schregardus, Director

Printed on Recycled Paper

Issuance Date:_____

Effective Date:_____

BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY

In the Matter of:

Waste Management of Ohio, Inc.	:	**Director's Final**
3003 Butterfield Road	:	**Final Findings and Orders**
Oak Brook, Illinois 60521	:	

and

Waste Management of North America, Inc.
3003 Butterfield Road
Oak Brook, Illinois 60521

Respondents

I. JURISDICTION

These Director's Final Findings and Orders ("Orders") are issued to Waste Management of Ohio, Inc. and Waste Management, Inc. ("Respondents") pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") pursuant to Ohio Revised Code ("ORC") sections 3734.02(G), 3734.13 and 3745.01.

II. PARTIES BOUND

These Orders shall apply to and be binding upon the Respondents, their assigns and successors in interest. No change in ownership or operation of the Facilities referenced herein will in any way alter the Respondents' responsibilities under these Orders.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Orders shall have the same meaning as used in Chapter 3734 of the ORC and the regulations promulgated thereunder.

IV. FINDINGS OF FACT

The Director has determined the following findings of fact:

1. CWM Holdings, Inc., a Deleware corporation, located in Oak Brook, Illinois, owns and operates a hazardous waste facility located at 3956 State Route 412, in Vickery, Ohio ("Facility"). CWM Holdings, Inc. is a wholly owned subsidiary of Chemical Waste Management, Inc., a wholly owned subsidiary of Waste Management, Inc. (fka WMX Technologies, Inc.), both of which are Delaware corporations located in Oak Brook, Illinois.

2. The Vickery Facility is a storage, treatment and disposal facility for hazardous wastes accepted from off-site sources. CWM Holdings, Inc. stores, treats and disposes of hazardous wastes at the Vickery Facility, OHD 020 273 819, pursuant to a hazardous waste facility installation and operation permit, no. 03-72-0191 (hereinafter "Vickery permit"), issued on October 24, 1994.

3. The Vickery Facility is an "off-site facility" as that term is defined in ORC section 3734.41(G) and Ohio Administrative Code ("OAC") rule 109:6-1-01(P). On December 23, 1991, January 2, 1992, March 31, 1992 and December 29, 1994, the Ohio Attorney General's Office transmitted to the Director investigative reports concerning the Vickery Facility, prepared by the Attorney General's Environmental Background Investigative Unit, based upon disclosure statements submitted by CWM Holdings, Inc, and other information obtained by the Attorney General's Office pursuant to ORC section 3734.42.

4. By letter dated November 25, 1996, the Attorney General's Office received notification that Waste Management, Inc. planned a corporate reorganization involving the transfer ownership and operational control of CWM Holdings, Inc. from Chemical Waste Management, Inc. to Waste Management of North America, Inc. (fka Waste Management, Inc.); thereafter, CWM Holdings, Inc. would be merged into Waste Management of Ohio, Inc.

5. ORC section 3734.42(F)(1) provides, in pertinent part, that "[w]henever there is a change in ownership of any . . . off-site hazardous waste treatment, storage, or disposal facility, the prospective owner shall file a disclosure statement with the attorney general and the director at least one hundred eighty days prior to the proposed change in ownership." See also OAC rule 109:6-1-02(A)(3).

6. ORC section 3734.42(F)(3) defines the term, "change in ownership" to include "any change in the names, other than those of officers, directors, partners, or key employees, contained in the disclosure statement."

7. The proposed transfer of ownership and operational control of the Facility from the current Chemical Waste Management, Inc. subsidiaries to Waste Management of Ohio, Inc. would constitute a "change in ownership" as defined by ORC section 3734.42(F)(3). Therefore, the

prospective owner, Waste Management of Ohio, Inc. and Waste Management of North America, Inc., are required to file an environmental background disclosure statement with the Attorney General and the Director at least 180 days prior to the proposed change in ownership, in accordance with ORC section 3734.42(F)(1).

8. ORC section 3734.42(F)(2) provides that "[i]f the parties to a change in ownership decide to proceed with the change prior to the action of the director on the disclosure statement and investigative report, the parties shall include in all contracts or other documents reflecting the change in ownership language expressly making the change in ownership subject to the approval of the director and expressly negating the change if it is disapproved by the director pursuant to division (F)(1) of this section."

9. Respondents have represented to the Attorney General and the Director that the disclosure statements required to be submitted to the Attorney General and the Ohio EPA have already been submitted to the Attorney General and the Director.

10. Respondents have further represented to the Attorney General and Ohio EPA that in light of the date of the scheduled change in ownership, the Respondents are not able to comply with the requirement to submit the required disclosure statements to the Attorney General and the Director 180 days prior to the change in ownership.

11. Pursuant to ORC section 3734.02(G) and rule 3745-50-31 of the Ohio Administrative Code ("OAC"), the Director may, by order, exempt any person generating, storing, treating or disposing hazardous waste in such quantities or under such circumstances that, in the determination of the Director, it is unlikely that the public health or safety or the environment will be adversely affected thereby, from any requirement to obtain a permit or other requirements of ORC Chapter 3734. Any such exemption shall be consistent with and equivalent to rules promulgated under the Resource Conservation and Recovery Act of 1976, 90 Stat. 2806, 42 U.S.C. section 6921, et seq., as amended.

12. By letters to the Attorney General's Office, dated November 25, 1996 and April 11, 1997, Respondents requested that the Director exempt Respondents from the requirement that disclosure statements be submitted to the Attorney General and the Director 180 days prior to a "change in ownership" pursuant to ORC section 3734.42(F)(1) and OAC rule 109:6-1-02(A)(3), as a result of Respondents' reorganization and proposed change in ownership of the Facility.

13. Pursuant to ORC section 3734.02(G) and OAC rule 3745-50-31, the Director has determined that the issuance to the Respondents of an exemption from the 180 day advance filing portion of the "change in ownership" environmental background investigation disclosure statement requirement, ORC section 3734.42(F)(1) and OAC rule 109:6-1-02(A)(3), would be unlikely to adversely affect public health or safety or the environment. These Orders are consistent with and equivalent to rules promulgated under the Resource Conservation and Recovery Act

of 1976, 90 Stat. 2806, 42 U.S.C. section 6921, et seq., as amended.

V. ORDERS

The Director hereby issues the following Orders:

1. Respondents are hereby exempted from the 180 day advance filing portion of the "change in ownership" environmental background investigation disclosure statement requirement, ORC section 3734.42(F)(1) and OAC rule 109:6-1-02(A)(3), as a result of Respondents' corporate reorganization and proposed change in ownership of the Facility.

2. Except as otherwise expressly provided herein, Respondents shall comply with all other applicable requirements of ORC chapter 3734 and the rules adopted thereunder, as well as OAC chapter 109:6-1.

VI. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable laws and regulations. Nothing in these Orders shall be construed as waiving or compromising in any way the applicability and enforcement of any other statutes or regulations applicable to Respondents' operations of the hazardous waste Facility. The Ohio EPA reserves all rights and privileges except as specified herein.

VII. NOTICE

All documents demonstrating compliance with these Orders, and other documents required under these Orders to be submitted to the Ohio EPA, shall be addressed to:

Director
Ohio Environmental Protection Agency
Attention: Division of Hazardous Waste Management
1800 WaterMark Drive, P.O. Box 1049
Columbus, Ohio 43216-1049

or to such persons and addresses as may hereafter be otherwise specified in writing by Ohio EPA.

All documents demonstrating compliance with these Orders, and any other documents required under these Orders to be submitted to the Ohio Attorney General, shall be addressed to:

Attorney General of Ohio

Environmental Background Investigation Unit
35 E. Chestnut Street, 4th Floor
Columbus, Ohio 43215

or to such persons and addresses as may hereafter be otherwise specified in writing by the Attorney General.

VIII. RESERVATION OF RIGHTS

Nothing contained herein shall be construed to prevent the Ohio EPA from seeking legal or equitable relief to enforce the terms of these Orders or from taking other administrative, legal, or equitable action as deemed appropriate and necessary, including seeking penalties against Respondents, for noncompliance with these Orders. Nothing herein shall restrict the right of Respondents to raise any administrative, legal or equitable claim or defense with respect to such further actions which the Ohio EPA may seek to require of Respondents.

Except as otherwise expressly provided herein, the issuance of these Orders does not exempt Respondents from any obligations they may have to comply with any other applicable local, state or federal laws, including the ORC section 3734.42(F) requirements to submit requisite disclosure statements and to include contract language expressly making a change in ownership subject to the Director's approval and expressly negating the transaction if it is disapproved by the Director.

These Orders shall not be construed or interpreted to mean that the Director has made any finding or determination regarding the competence, reliability or expertise of the Respondents, to own or operate the hazardous waste facility referenced herein, pursuant to ORC chapter 3734 and the rules adopted thereunder, including the review mandated by the environmental background investigation process, ORC section 3734.40 et seq. Moreover, except with respect to the 180 day advance filing portion of the environmental background investigation disclosure statement requirement in ORC section 3734.42(F)(1), these Orders shall not be construed to mean that the Respondents have complied with the requirements of ORC section 3734.42(F), including the disclosure statement and contract language requirements stated above.

IT IS SO ORDERED:

_____ _____
Donald R. Schregardus, Director Date

IX. SIGNATORIES

Each undersigned representative of a signatory to these Orders certifies that he or she is fully authorized to enter into these Orders and to legally bind such signatory to this document.

X. WAIVER

Respondents agree that these Orders are lawful and reasonable and that the requirements provided herein are reasonable. Respondents hereby waive the right to appeal the issuance, terms and service of these Orders and they hereby waive all rights they might have to seek judicial or administrative review of these Orders in law or equity.

Notwithstanding the preceding, the Ohio EPA and Respondents agree that in the event that these Orders are appealed by any other party to the Environmental Review Appeals Commission, or any court, Respondents retain the right to intervene and participate in such appeal. In such event, Respondents shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated, or modified.

IT IS SO AGREED:

WASTE MANAGEMENT OF OHIO, INC.

By: Robert E. Leininger Date: September 1, 1997

Robert E. Leininger, vice-president and secretary
Name, Title

WASTE MANAGEMENT OF NORTH AMERICA, INC.

By: Robert E. Leininger Date: September 1, 1997

Robert E. Leininger, Counsel
Name, Title

OHIO ENVIRONMENTAL PROTECTION AGENCY

_____ Date:_____

Donald R. Schregardus, Director

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

June 20, 1996

REPLY TO THE ATTENTION OF:

DRP-8J

CERTIFIED MAIL: P371 896 606
RETURN RECEIPT REQUESTED

Fred G. Nicar, General Manager
Chemical Waste Management, Inc.
Vickery Facility
3956 State Route 412
Vickery, Ohio 43464

RE: Chemical Waste Management, Inc. - Vickery, Ohio
Federal Resource Conservation and Recovery Act
(RCRA) Permit Modifications
OHD 045 243 706

Dear Mr. Nicar:

The United States Environmental Protection Agency (U.S. EPA) has reviewed Chemical Waste Management, Inc.'s (CWM-Vickery) Class 2 Federal RCRA permit modification request submitted on February 2, 1996, two Class 1 Modification requests dated August 8, 1995 and January 13, 1995. The public comment period for the Class 2 Federal RCRA permit modification concluded on April 4, 1996, with no comments received.

The Class 2 Federal RCRA permit modification requested CWM-Vickery be allowed to continue to receive the carbamate waste codes, which were published in the February 9, 1995 Federal Register. The Class 1 permit modification dated August 8, 1995, requested the addition of the same carbamate waste codes. The final Class 1 permit modification also requested the U.S. EPA's approval for handling newly regulated waste codes F032, F034, and F035.

The U.S. EPA has approved CWM-Vickery's Class 2 Federal RCRA permit modification request, pursuant to Title 40 Code of Federal Regulations (40 CFR) Section 270.42(b)(6)(iii). In addition, the U.S. EPA has approved CWM-Vickery's Class 1 Federal RCRA permit request to handle the carbamate waste codes approved under the above Class 2 permit modification. The U.S. EPA also approved CWM-Vickery's Class 1 permit modification, allowing for the handling of waste codes F032, F034, and F035.

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Recycled Paper (40% Postconsumer)

Enclosed is the revised portion of Federal RCRA permit, excluding the Attachments, which contains the modified language. Please replace the current page of Federal RCRA permit. excluding the Attachments, with the enclosed modified page of the Federal RCRA permit. The Attachments to the original permit have not been modified and remain a part of this Federal RCRA permit.

In addition, please send a notice of these permit modifications to all persons on the facility mailing list and the appropriate units of State and local government, if you have not already done so.

If you have questions please contact Thomas Matheson, a member of my staff at (312) 886-7569.

Sincerely,

Karl E. Bremer

Karl E. Bremer, Chief
Waste Management Branch

Enclosure

cc: Ed Lim, OEPA w/enclosure
Chuck Hull, OEPA/NEDO w/enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
HAZARDOUS WASTE MANAGEMENT PERMIT

Name of Permittee: Chemical Waste Management, Inc.

Facility Location: Street Address: 3956 State Route 412

City, State: Vickery, Ohio 43469

EPA Identification Number: OHD 020 273 819

Effective Date: October 24, 1994

Expiration Date: Ten (10) years from effective date

Authorized Activities:

Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984 (42 U.S.C. §6901, et seq.), and regulations promulgated thereunder by the United States Environmental Protection Agency (U.S. EPA) (codified in Title 40 of the Code of Federal Regulations (40 CFR)), Federal permit conditions (hereinafter called the permit) of the RCRA permit are issued to Chemical Waste Management, Inc. (hereinafter called the Permittee), for the Chemical Waste Management, Inc. facility, located in Vickery, Ohio.

The RCRA permit contains both the effective Federal permit conditions (contained herein) and the effective State permit conditions issued by the State of Ohio's RCRA program authorized under 40 CFR Part 271 (hereinafter called the State permit). When both this permit and the State permit are effective, the Permittee has an effective RCRA permit which authorizes the Permittee to conduct hazardous waste management activities as specified in the RCRA permit.

Permit Approval:

On June 30, 1989, the State of Ohio received final authorization pursuant to Section 3006 of RCRA, 42 U.S.C. §6926, and 40 CFR Part 271, to administer the pre-HSWA RCRA hazardous waste program. In addition, on June 7, 1991, the State of Ohio received final authorization for certain pre-HSWA RCRA regulations not included in the original authorization, as well as for certain HSWA authorities. As the State of Ohio has not yet received authorization to administer the entire hazardous waste program requirements of HSWA, additional permit conditions must be issued by the U.S. EPA to address these requirements. These additional conditions are contained in this permit.

The Permittee must comply with all terms and conditions of the Federal portion of the RCRA permit. This Federal portion of the RCRA permit contains both the effective Federal permit conditions that became effective on October 24, 1994, (including those in any attachments), the permit conditions contained in this modification, any previous modifications to the Federal portion of the RCRA permit, and the applicable regulations contained in 40 CFR Parts 260, 261, 262, 264, 266, 268, 270, and 124, and applicable provisions of HSWA.

This permit modification is based on the assumption that the information submitted in support of the permit modification is accurate. Any inaccuracies found in this information may be grounds for the termination, revocation and reissuance, or further modification of this permit (see 40 CFR 270.41, 270.42, and 270.43) and potential enforcement action. The Permittee must inform the U.S. EPA of any deviation from or changes in the information submitted in support of the modification as soon as the Permittee becomes aware of such deviation or changes.

Opportunity to Appeal:

Petitions for review must be submitted within 30 days after service of notice of the final permit modification decision. Any person who filed comments on the draft permit modification, or participated in the public hearing may petition the Environmental Appeals Board to review any condition of the permit modification decision. Any person who failed to file comments or failed to participate in the public hearing on the draft permit modification may petition for administrative review only to the extent of the changes from the draft permit modification to the final permit modification decision. The procedures for permit appeals are found in 40 CFR 124.19.

Effective Date:

This permit is effective immediately upon issuance, unless a review is requested under 40 CFR 124.19, and shall remain in effect until October 24, 2004, unless revoked and reissued, or terminated (40 CFR 270.41, 270.43), or continued in accordance with 40 CFR 270.51.

BY: Karl E. Bremer

Karl E. Bremer, Chief
Waste Management Branch
Waste, Pesticides and Toxics Division

DATE: 6/20/96

C. OTHER WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in containers, tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Unit(s)
Solid and Liquid Waste	See List Below	678,920 gallons	Container Storage (S01)
Liquid Waste	See List Below	1,102,600 gallons	Tank Storage (S02)
Liquid Waste	See List Below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See List Below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See List Below	2.4×10^9 gallons	Injection Well Disposal (D79)

EPA Hazardous Wste Numbers: **F032, F034, F035, K141, K142, K143, K144, K145, K146, K147, K148, K149, K150, K151, K156, K157, K158, K159, K160, K161, P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199, P201, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365, U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383, U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396, U400, U401, U402, U403, U404, U409, U410, U411.**

D. CONDITIONS REGARDING UNITS

1. All units described in Condition IV.A. above shall be operated in accordance with the State permit conditions and the State Underground Injection Control Permit conditions pertaining to those units.

2. The Permittee shall follow the waste analysis procedures required in 40 CFR Part 264, and as described in the Waste Analysis plan found in Attachment III.

V. AIR EMISSION STANDARDS

A. PROCESS VENTS

The Permittee shall comply with all applicable requirements of 40 CFR Part 264, Subpart AA, regarding air emission standards for process vents.

DRP-8J:MATHESON:twm:06/20/96:6-7569:CODE-MOD.LTR

CONCURENCE REQUESTED FROM WMB LS 6/20/96			
Other Staff	Author	MOW Section Chief	WMB Chief
	6/19/96	GT for H.C. 6/19/96	6/20/96

Chemical Waste Management, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

March 26, 1996

RECEIVED
MAR 2 9 1996
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

Mr. Thomas W. Matheson
Corrective Action Expert
U.S. EPA Region V, HRP-8J
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Dear Mr. Matheson:

Chemical Waste Management, Inc. (CWM) hosted a public meeting related to the Class 2 permit modification to add the carbamate waste codes. Attached is a copy of the notarized public notice of this meeting.

In addition, as we discussed at our meeting on Monday, March 25, 1996, CWM is awaiting your confirmation letter related to the Part B Class I modification requests that were submitted on January 31, 1995. Copies of these requests are attached.

Notifications of these changes were sent to all mailing list individuals in 1994. If you have any questions, please call me at (419) 547-7791.

Sincerely,

Stephen C. Lonneman
Operations/Environmental Manager

Attachment

cc: Agency Correspondence File

wpt

Chemical Waste Management, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 602 174 336

February 2, 1996

Regional Administrator
USEPA - Region V
230 S. Dearborn
Chicago, IL 60604

Dear Regional Administrator:

Chemical Waste Management, Inc., (CWM) Vickery, Ohio is submitting to your office the attached Class 2 modification for its Resource Conservation and Recovery Act permit (OHD 020 273 819 issued 10/24/94). This permit modification is requested due to promulgation of new waste numbers in the Federal Register on February 9, 1995. These newly identified waste numbers are commonly referred to as the Carbamate waste numbers. If you have any questions, please contact Steve Lonneman at 419-547-7791.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely yours,
Chemical Waste Management, Inc.

F.G. Nicar
General Manager

FGN/SCL/
Attachment

RECEIVED
FEB 07
U. S. EPA REGION 5
OFFICE OF REGIONAL ADMINISTRATOR

cc w/attachment: Tom Matheson, USEPA Region V
Mitch Mathews, Ohio EPA NWDO
Agency Correspondence File

Class 2 Modification requirements:

(1)(i) Describes the exact change to be made to the permit conditions and supporting documents referenced by the permit.

The facility adds the following waste numbers to its current hazardous waste management permit:

K156,K157,K158,K159,K160,K161,P127,P128,P185,P188,P189, P190,P191,P192,P194,P196,P197,P198,P199,P201,P202,P203, P204,P205,U271,U277,U278,U278,U279,U280,U364,U365,U366, U367,U372,U373,U375,U376,U377,U378,U379,U381,U382, U383,U384,U385,U386,U387,U389,U390,U391,U392, U393,U394,U395,U396,U400,U401,U402,U403,U404,U409, U410,U411

(1)(ii) Identifies that the modification is a Class 2 modification.

40CFR270.42(g)(iv) states "The permittee also submits a complete Class 2 or 3 modification request within 180 days of the effective date of the rule listing or identifying the waste, or subjecting the unit to RCRA Subtitle C management standards". Therefore, this Class 2 modification request is being submitted.

(1)(iii) Explains why the modification is needed.

As explained in (1)(ii) above, 40CFR270.42(g)(iv) requires this submission in order to continue managing these newly regulated wastes.

(1)(iv) Provides the applicable information required by 270.13 through 270.21, 270.62, and 270.63.

The only change is the addition of these waste numbers. The type of waste managed at the facility has not changed. The facility previously managed wastes which may have had these waste numbers. These waste will be managed in the currently permitted facility as it is designed. No new equipment or procedures will be required. The waste will be evaluated using the currently approved waste analysis plan.

Therefore, the only change is to the list of waste numbers in the Part

A section of the permit application. Attachment 1 is an updated waste number list that includes all waste numbers for the facility including these newly regulated numbers.

(2) The permittee must send a notice of the modification request to all persons on the facility mailing list maintained by the Director and to the appropriate units of State and local government... and must publish this notice in a major local newspaper of general circulation.

Attachment 2 is a copy of the notice that was sent to all required persons and that will be published in the Fremont News Messenger on Monday, February 5, 1996.

(3) The permittee must place a copy of the permit modification request and supporting documents in a location accessible to the public in the vicinity of the permitted facility.

The required information will be place at the Birchard Public Library of Sandusky County in Fremont, Ohio.

Attachment 1 - Federal Part A Application Waste Number List, Modified 2/1/96

	WASTE NUMBER	PROCESS CODE
1.	D004	S01,S02,T01,T04,D79
2.	D005	S01,S02,T01,T04,D79
3.	D006	S01,S02,T01,T04,D79
4.	D007	S01,S02,T01,T04,D79
5.	D008	S01,S02,T01,T04,D79
6.	D009	S01,S02,T01,T04,D79
7.	D010	S01,S02,T01,T04,D79
8.	D011	S01,S02,T01,T04,D79
9.	D012	S01,S02,T01,T04,D79
10.	D013	S01,S02,T01,T04,D79
11.	D014	S01,S02,T01,T04,D79
12.	D015	S01,S02,T01,T04,D79
13.	D016	S01,S02,T01,T04,D79
14.	D017	S01,S02,T01,T04,D79
15.	D018	S01,S02,T01,T04,D79
16.	D019	S01,S02,T01,T04,D79
17.	D020	S01,S02,T01,T04,D79
18.	D021	S01,S02,T01,T04,D79
19.	D022	S01,S02,T01,T04,D79
20.	D023	S01,S02,T01,T04,D79
21.	D024	S01,S02,T01,T04,D79
22.	D025	S01,S02,T01,T04,D79
23.	D026	S01,S02,T01,T04,D79
24.	D027	S01,S02,T01,T04,D79
25.	D028	S01,S02,T01,T04,D79

Federal Part A Application Waste Number List, Modified 2/1/96, Continued

	WASTE NUMBER	PROCESS CODE
26.	D029	S01,S02,T01,T04,D79
27.	D030	S01,S02,T01,T04,D79
28.	D031	S01,S02,T01,T04,D79
29.	D032	S01,S02,T01,T04,D79
30.	D033	S01,S02,T01,T04,D79
31.	D034	S01,S02,T01,T04,D79
32.	D035	S01,S02,T01,T04,D79
33.	D036	S01,S02,T01,T04,D79
34.	D037	S01,S02,T01,T04,D79
35.	D038	S01,S02,T01,T04,D79
36.	D039	S01,S02,T01,T04,D79
37	D040	S01,S02,T01,T04,D79
38.	D041	S01,S02,T01,T04,D79
39.	D042	S01,S02,T01,T04,D79
40.	D043	S01,S02,T01,T04,D79
41.	F032	S01,S02,T01,T04,D79
42.	F034	S01,S02,T01,T04,D79
43.	F035	S01,S02,T01,T04,D79
44.	K141	S01,S02,T01,T04,D79
45.	K142	S01,S02,T01,T04,D79
46.	K143	S01,S02,T01,T04,D79
47.	K144	S01,S02,T01,T04,D79
48.	K145	S01,S02,T01,T04,D79
49.	K146	S01,S02,T01,T04,D79
50.	K147	S01,S02,T01,T04,D79

Federal Part A Application Waste Number List, Modified 2/1/96, Continued

	WASTE NUMBER	PROCESS CODE
51.	K148	S01,S02,T01,T04,D79
52.	K149	S01,S02,T01,T04,D79
53.	K150	S01,S02,T01,T04,D79
54.	K151	S01,S02,T01,T04,D79
55.	**K156**	S01,S02,T01,T04,D79
56.	**K157**	S01,S02,T01,T04,D79
57.	**K158**	S01,S02,T01,T04,D79
58.	**K159**	S01,S02,T01,T04,D79
59.	**K160**	S01,S02,T01,T04,D79
60.	**K161**	S01,S02,T01,T04,D79
61.	**P127**	S01,S02,T01,T04,D79
62.	**P128**	S01,S02,T01,T04,D79
63.	**P185**	S01,S02,T01,T04,D79
64.	**P188**	S01,S02,T01,T04,D79
65.	**P189**	S01,S02,T01,T04,D79
66.	**P190**	S01,S02,T01,T04,D79
67.	**P191**	S01,S02,T01,T04,D79
68.	**P192**	S01,S02,T01,T04,D79
69.	P194	S01,S02,T01,T04,D79
70.	**P196**	S01,S02,T01,T04,D79
71.	**P197**	S01,S02,T01,T04,D79
72.	**P198**	S01,S02,T01,T04,D79
73.	**P199**	S01,S02,T01,T04,D79
74.	**P201**	S01,S02,T01,T04,D79
75.	**P202**	S01,S02,T01,T04,D79

Federal Part A Application Waste Number List, Modified 2/1/96, Continued

	WASTE NUMBER	PROCESS CODE
76.	P203	S01,S02,T01,T04,D79
77.	P204	S01,S02,T01,T04,D79
78.	P205	S01,S02,T01,T04,D79
79.	U271	S01,S02,T01,T04,D79
80.	U277	S01,S02,T01,T04,D79
81.	U278	S01,S02,T01,T04,D79
82.	U278	S01,S02,T01,T04,D79
83.	U279	S01,S02,T01,T04,D79
84.	U280	S01,S02,T01,T04,D79
85.	U364	S01,S02,T01,T04,D79
86.	U365	S01,S02,T01,T04,D79
87.	U366	S01,S02,T01,T04,D79
88.	U367	S01,S02,T01,T04,D79
89.	U372	S01,S02,T01,T04,D79
90.	U373	S01,S02,T01,T04,D79
91.	U375	S01,S02,T01,T04,D79
92.	U376	S01,S02,T01,T04,D79
93.	U377	S01,S02,T01,T04,D79
94.	U378	S01,S02,T01,T04,D79
95.	U379	S01,S02,T01,T04,D79
96.	U381	S01,S02,T01,T04,D79
97.	U382	S01,S02,T01,T04,D79
98.	U383	S01,S02,T01,T04,D79
99.	U384	S01,S02,T01,T04,D79
100.	U385	S01,S02,T01,T04,D79

Federal Part A Application Waste Number List, Modified 2/1/96, Continued

	WASTE NUMBER	PROCESS CODE
101.	**U386**	S01,S02,T01,T04,D79
102.	**U387**	S01,S02,T01,T04,D79
103.	**U389**	S01,S02,T01,T04,D79
104.	**U390**	S01,S02,T01,T04,D79
105.	**U391**	S01,S02,T01,T04,D79
106.	**U392**	S01,S02,T01,T04,D79
107.	**U393**	S01,S02,T01,T04,D79
108.	**U394**	S01,S02,T01,T04,D79
109.	**U395**	S01,S02,T01,T04,D79
110.	**U396**	S01,S02,T01,T04,D79
111.	**U400**	S01,S02,T01,T04,D79
112.	**U401**	S01,S02,T01,T04,D79
113.	**U402**	S01,S02,T01,T04,D79
114.	**U403**	S01,S02,T01,T04,D79
115.	**U404**	S01,S02,T01,T04,D79
116.	**U409**	S01,S02,T01,T04,D79
117.	**U410**	S01,S02,T01,T04,D79
118.	**U411**	S01,S02,T01,T04,D79

Revised Language of Section IV.C. (Page 17 of 19) of the Permit

C. OTHER WASTE IDENTIFICATION

The Permittee may store, treat and dispose of the following wastes in containers, tanks, filtration unit and injection wells at the facility subject to the terms of the RCRA permit.

Description of Hazardous Waste	EPA Hazardous Waste Number	Maximum Volume	Description of Unit(s)
Solid and Liquid Waste	See list below	678,920 gallons	Container Storage (S01)
Liquid Waste	See list below	1,102,600	Tank Storage (S02)
Liquid Waste	See list below	650,000 gallons/day	Treatment in Tanks (T01)
Liquid Waste	See list below	650,000 gallons/day	Filtration (T04)
Liquid Waste	See list below	2.4×10^9 gallons	Injection Well Disposal (D79)

F032*, F034*, F035*, K141, K142, K143, K144, K145, K146, K147, K148, K149 K150, K151, K156**, K157**, K158**, K159**, K160**, K161**, P127**, P128**, P185**, P188**, P189**, P190**, P191**, P192**, P194**, P196**, P197**, P198**, P199**, P201**, P202**, P203**, P204**, P205**, U271**, U277**, U278**, U278**, U279**, U280**, U364**, U365**, U366**, U367**, U372**, U373**, U375**, U376**, U377**, U378**, U379**, U381**, U382**, U383**, U384**, U385**, U386**, U387**, U389**, U390**, U391**, U392**, U393**, U394**, U395**, U396**, U400**, U401**, U402**, U403**, U404**, U409**, U410**, U411**

*Waste Numbers added as Class 1 Modification on January 31, 1995.
**Waste Numbers added per this Class 2 Modification.

Attachment 2

PUBLIC NOTICE

Chemical Waste Management , Inc, located at 3956 State Route 412, Vickery, Ohio has requested a Class 2 Modification of its Federal Hazardous Waste Operating Permit. This request would allow the facility to continue receive the Carbamate waste codes which were published in the February 9, 1995 Federal Register. The newly listed wastes codes are:

K156,K157,K158,K159,K160,K161,P127,P128,P185,P188,P189,P190,P191,P192, P194,P196,P197,P198,P199,P201,P202,P203,P204,P205,U271,U277,U278,U278, U279,U280,U364,U365,U366,U367,U372,U373,U375,U376,U377,U378,U379, U381,U382,U383,U384,U385,U386,U387,U389,U390,U391,U392,U393,U394, U395,U396,U400,U401,U402,U403,U404,U409,U410,U411

A 60 day comment period will be from February 5, 1996 through April 4, 1996. Comments may be sent to:

Mr. Thomas W. Matheson, HRP-8J
USEPA Region V
Office of RCRA, Waste Management Division
77 West Jackson Blvd.
Chicago, IL 60604-3590

Chemical Waste Management will host a Public Meeting to provide information related to this request. The meeting will be held at 10:00 am on Tuesday, March 5, 1996 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.

The following individuals may be contacted:

Chemical Waste Management	USEPA Region V
Fred G. Nicar, General Manager	Thomas W. Matheson, Corrective Action Expert
(419) 547-7791	(312) 886-7569

Copies of the modification request may be viewed and copied at the Birchard Public Library of Sandusky County. The permittee's compliance history during the life of the permit being modified is available from the Agency contact person.

Waste Management of Ohio, Inc.

3956 STATE ROUTE 412 • VICKERY, OHIO 43464 • 419-547-7791 • FAX: 419-547-6144

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 289 177 893

May 19, 1999

Mr. Francis Lyons
Regional Administrator
U.S. Environmental Protection Agency Region V
77 W. Jackson Blvd.
Chicago, IL 60609

Re: Waste Management of Ohio, Inc. - Vickery, Ohio
OHD 020 273 819
RCRA Class 2 Permit Modification
Waste Analysis Plan

Dear Mr. Lyons:

In accordance with 40 CFR 270.42(b), Waste Management of Ohio, Inc. Vickery facility (WMO) submits a Class 2 permit modification. The purpose of this modification is to update the facility's RCRA Waste Analysis Plan (WAP) located in it's Final Federal Permit to be equivalent with the facility's RCRA WAP contained in it's Ohio Part B Permit.

The facility is required to maintain both a federal and a state approved WAP because there are some waste codes that are recognized in the federal rules, but not in the Ohio rules. Currently, there are six waste codes that are regulated by the US EPA that have not yet been added to Ohio Rules. These codes are K140, K169, K170, K171, K172 and U408. The facility has not yet managed these waste codes; however, in the event that they are accepted, it would be less burdensome to have one approved WAP. The differences between the two documents are mostly administrative in nature and do not affect laboratory procedures. All of the proposed changes in this modification request have been submitted to and approved by the Ohio EPA under the permit modification

process required by OAC 3745-50-51, a rule which was made equivalent to it's federal counterpart in July, 1997.

Below is a summary of the attachments included in this submittal:

Attachment 1	Approved WAP from Facility's Ohio Part B Permit (Changes are shown utilizing the redline/strikeout format)
Attachment 2	Summary of the Modifications
Attachment 3	Clean Copy of the Facility's Approved Ohio Part B WAP (To Replace Attachment III of the Facility's Final Federal Permit)
Attachment 4	Summary of Information Required by 40 CFR 270.42(b)
Attachment 5	Letter of Notification and Public Notice
Attachment 6	Facility's Mailing List

Although the majority of the modifications may be considered Class 1 modifications, WMO submits this modification as a Class 2 modification based on the criteria presented in the B.1.d. of the Appendix to 40 CFR 270.42 and based on discussions with Mr. Thomas Matheson of the US EPA, Region V.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Sandy Clark at 419-547-3335.

Sincerely,

WASTE MANAGEMENT OF OHIO, INC.

Stephen C. Lonneman
General Manager

SCL/slc

Attachments

cc w/: [redacted]

cc w/out: Ken Kerik, SCBOH
David Schilt, OEPA Onsite Inspector

Waste Management of Ohio, Inc.

Vickery, Ohio

Permit Modification Class 2

FOR

USEPA FINAL FEDERAL PERMIT

May 19, 1999

Attachment 1

Approved RCRA Waste Analysis Plan
From Facility's Ohio Part B Permit

(Redline/Strikeout Format)

APPENDIX ~~2~~1

RCRA WASTE ANALYSIS PLAN

CHEMICAL WASTE MANAGEMENT - VICKERY

RCRA WASTE ANALYSIS PLAN

Chemical Waste Management, Inc.
3956 State Route 412
Vickery, Ohio 43464

WASTE ANALYSIS PLAN

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~~WASTE ANALYSIS PLAN~~

~~PREFACE~~

1.0 INTRODUCTION

In accordance with the regulatory requirements set forth in 40 CFR Part 264.13 and OAC 3745-54-13, ~~40 CFR Part 146 and 40 CFR Part 148,~~ Chemical Waste Management, Inc. (CWM) has developed this Waste Analysis Plan (WAP) for its Vickery facility located in Vickery, Sandusky County, Ohio. The Chemical Waste Management, Inc. Vickery Facility (CWM Vickery) is designed to receive waste from many industries. ~~The materials will be stored in tanks, drums and rolloff/bulk trailers.~~ Material which can be deepwell injected ~~will~~ are ~~be~~ treated (blended, pH adjusted, filtered, etc.) and deepwell injected. ~~Materials which cannot be treated to be suitable for deepwell injection will be stored until shipped off-site.~~ The procedures set forth in this plan dictate that this facility ~~will be~~ is in compliance with all requirements of 40 CFR Part 264.13 and OAC 3745-54-13~~, 40 CFR Part 146 and 40 CFR Part 148~~. A copy of this plan or the current approved Waste Analysis Plan ~~will be~~ is available at the facility at all times.

~~1.0 INTRODUCTION~~

The purpose of this ~~Waste Analysis Plan (~~WAP~~)~~ is to document the necessary sampling methodologies, analytical techniques and overall procedures which are undertaken for all hazardous waste (hereinafter "waste") which enters this facility for treatment, storage or disposal. Specifically, the plan delineates the following:

- Sampling Procedures ~~and Equipment which will be~~ that are used to obtain samples of incoming shipments and injection fluids in order to perform the appropriate analyses needed to identify a waste shipment or injection fluid (see Section 2 and Appendix WAP-D).

- Analytical ~~Techniques~~ Parameters and Rationale ~~CWM will utilize to identify incoming waste shipments and to analyze injection fluids to ensure proper waste management~~ and the test methods that CWM Vickery utilizes, when necessary, to determine or identify certain waste properties to ensure proper management of the waste (see Section 3 and Appendix WAP-A, *Analytical Procedures*).

- Pre-Acceptance Procedures ~~specifies the information the generator must supply and the procedures CWM will use to determine the acceptability of a particular waste stream pursuant to facility permit conditions and operating capabilities prior to any shipment of the waste to the facility.~~ utilized to determine the acceptability of a particular waste stream pursuant to facility permit conditions and operating capabilities prior to acceptance of that waste by the facility. (See Section 4 and Appendix WAP-~~B~~C, Facility Acceptance Conditions.)

- Incoming ~~Load~~ Waste Shipment Procedures ~~to identify that the delivered waste matches the accompanying manifest and pre-acceptance documentation.~~ utilized to identify that the delivered waste matches the accompanying manifest, pre-acceptance documentation, and facility permit conditions (see Section 5).

- Quality Assurance ~~/~~ and Control Policy that the facility laboratory follows to achieve quality analytical results and adequate laboratory controls (see Section 7).

- Process/Operation Procedures to maintain safe and environmentally sound methods of treatment, storage, disposal or movement of wastes within the facility (see Section 6).

It is the policy of CWM that all wastes received by this facility ~~will be~~ are subjected to these procedures. This is to help ensure that this facility is in compliance with applicable state and federal regulations and permits.

~~The forms shown within this WAP are typical of the forms currently used by the facility. These forms may change to equivalent or alternate forms as regulations, customer needs, operations, or company policy dictate.~~ For the purpose of sampling or testing, CWM means the CWM Vickery laboratory, all CWM laboratories, all CWM subsidiary laboratories and contract laboratory used by CWM. ~~The Laboratory, Technical or General Managers or their designees may hereinafter be referred to individually or collectively as the Laboratory, Technical or General Manager.~~ ~~The Laboratory, Technical, Environmental, Operations and/or General Manager or their designees, may hereinafter, be referred to individually or collectively as the Laboratory, Technical, Environmental, Operations and/or General Manager or Facility Management.~~

~~The company strives to maintain, at all times, complete compliance with the hazardous waste regulations. Because new testing requirements, such as those promulgated~~

~~under the land disposal restrictions, often become effective prior to the time Waste Analysis Plan revisions can be formally made and approved by all appropriate agencies, it is impossible to have in place an approved Waste Analysis Plan meeting all the conditions of the immediately effective land ban requirements.~~

~~In light of these facts, the facility will have in place a written protocol specifying the new testing and frequency requirements prior to receipt and/or processing of the regulated waste. The facility may also periodically revise the protocol to reflect scientific advances or additional requirements. If Waste Analysis Plan revisions are necessary, they will be submitted to the Ohio EPA for review after the effective date of the rule.~~

2.0 SAMPLING METHODOLOGY

~~The sampling methodology as outlined in the CWM Sampling Protocols and mentioned in this section ensures that representative samples are taken from incoming loads or process operations before all treatment and final deepwell injection.~~

~~Sampling is performed at the facility by CWM to identify waste shipments and by the waste generator at his location for the purpose of the initial waste determination. Specific sampling procedures are dependent on both the nature of the material and the type of containment. This section presents sampling methodologies to be utilized on-site or off-site by CWM personnel. Waste generators are referred to 40 CFR Part 261, Appendix I and/or OAC 3745-51, Appendix I for sampling procedures.~~

~~Prior to arrival of a waste shipment at the facility for treatment, storage or disposal, a determination has previously been made by the generator that the waste is either:~~

Sampling may be performed by the generator at the generator's location to make an initial waste determination. Specific sampling procedures are dependent on both the nature of the material and type of containment. Waste generators are referred to 40 CFR 261, Appendix I, for sampling procedures. Sampling is also performed by CWM Vickery personnel at the facility to identify waste shipments. This section presents sampling methodologies to be utilized by CWM Vickery personnel.

When a waste shipment arrives at the facility for management, a determination has already been made by the generator that the waste is as follows:

- A listed hazardous waste in Subpart D of 40 CFR Part 261 and/or OAC 3745-51-30; and/or
- A characteristic waste as defined in Subpart C of 40 CFR Part 261 and/or OAC 3745-51-20; and/or
- A recyclable hazardous waste, as defined by 40 CFR Part 261.6; and/or
- A solid waste ~~material~~ which is not a hazardous waste as defined in 40 CFR Part 261.4(b), and/or OAC 3745-51-04(B).

This characterization, a waste profile, provides CWM Vickery with information concerning the distribution, as well as the nature of the waste components. (See Section 4.1 for a discussion regarding the information and/or data to be supplied by the generator.) Therefore, as described in EPA document SW-846, CWM Vickery can appropriately use a less comprehensive sampling approach than that used by the generator to initially characterize the waste (for example, vertical compositing to yield a representative sample).

Upon arrival, the shipment of waste is sampled and analyzed to ensure that it matches the overall identity of the waste designated on the accompanying manifest or shipping paper and the pre-acceptance paperwork. The analysis will also help to ensure the appropriate management technique(s) can be utilized. Quality control procedures for sampling and analysis are described in Secton 7.0.

~~This information from the generator will be supplied on a Generator Waste Profile Sheet (GWPS), an example of which is provided in (Section 4.0) of this WAP. The information given on~~

~~the Generator Waste Profile Sheet will be certified as accurate by generator knowledge. The generator-supplied characterization provides CWM with information concerning the distribution and nature of the waste components. (See Section 4.1 for discussion regarding the information and/or data to be supplied by the generator.) Therefore when sampling the incoming waste shipment, as described in SW846 and the CWM Sampling Protocols, the sampling approach would be less comprehensive than that used by the generator to make the initial waste determination, as appropriate (e.g., vertical compositing will yield a representative sample). The incoming shipment of material is sampled and analyzed to ensure that it matches the overall identity of the waste designated on the accompanying manifest or shipping paper and the Generator Waste Profile Sheet.~~

2.1 ~~Materials~~ Sampling Techniques

The sampling methodologies described in the Waste Analysis Plan represent the recommended facility's sampling protocol. Certain waste materials will require deviations from 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. Therefore, deviations from the recommended protocol do not constitute an excursion from acceptable sampling practices or the conditions of this Waste Analysis Plan.

Procedures and equipment may be updated and revised as new equipment or procedures become available. In general, the equipment utilized corresponds to those referenced in 40 CFR 261, Appendix I, or OAC 3745-51, Appendix I. The sampling methods

and the equipment used for different materials are presented in Figure 2-1 of Appendix WAP-B along with drawings and descriptions of the listed sampling devices in Appendix WAP-D. Dimensions of equipment identified in Attachment WAP-D are typical and will be adjusted as necessary to ensure a full vertical section.

~~In general, the sampling methodologies utilized for specific materials correspond to those referenced in 40 CFR Part 261, Appendix I and/or OAC 3745-51, Appendix I. These sampling methods and equipment and those utilized for different materials are summarized in Table 2-1 and Appendix WAP-D. Dimensions of equipment identified are typical and will be adjusted as necessary to ensure a full vertical section. The sampling equipment and procedures described below and in Table 2-1 represent the facility's recommended sampling procedures for~~

~~NOTE: TABLE 2-1 MOVED TO APPENDIX WAP B~~

~~general types of waste materials and containments. Certain waste materials or containments may require different or modified sampling procedures or equipment. These modifications of recommended procedures or equipment do not constitute a deviation from acceptable sampling practices described in this Waste Analysis Plan.~~

2.2 Types of Containersment

In addition to American Society for Testing and Materials (ASTM) and SW-846 sampling procedures, CWM Vickery has instituted specific methodologies for ensuring that samples taken from various types of containments are representative. The type of containment may be transportable such as drums, portable transport units (for example, portable tanks, roll-off boxes, lugger boxes, supersacks) and tanker trucks, or stationary, such as tanks, impoundments, and in-process sources. The sampling devices are selected depending on the size and type of the containment and on the specific waste material involved.

~~In addition to the American Society of Testing and Materials (ASTM) sampling procedures, CWM 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., tanks, roll-off boxes, lugger boxes) and tanker or dump-type trucks, or stationary, such as tanks, surface impoundments, and in-process sources. The sampling devices are selected, depending on the size and type of the containers and on the specific material involved.~~

~~A single vertical axis sample will be taken where possible (i.e., tanks where depth allows the use of a coliwasa tube sampler). Where a single vertical axis sample is not necessary (i.e., large tanks) a weighted bottle or equivalent device such as a bomb sampler will be used to take samples at various depths. In addition, where tanks do not allow for sampling from the top of the tank, sampling may be restricted to sampling through ports or taps located along the side of the tank or through pumps or fittings at~~

~~the tank inlet, outlet or recirculation port. These samples will be composited in equal volume to yield a representative sample. If examination indicates stratification, then each layer may be analyzed separately.~~

2.2.1 Containers and Tanks

Sampling of containers (drums, pails, and other small units) varies with the nature of the waste material. For flowable materials, the sampling device of choice is either a Coliwasa or tubing to draw a full vertical section. For non-flowable wastes, a scoop, tubing, trier or other equipment, as listed in Figure 2-1, is used to obtain a representative sample.

Large containments and tanks for flowable materials and bulk containments for solid materials may be either stationary or mobile. Liquids are sampled with a Coliwasa or tubing to obtain a vertical section, by a weighted bottle or bomb sampler to allow for sampling at various depths, or along the outside or from influent or discharge lines through sampling taps or valves. Light, dry powders and granules are sampled with a tube or other equipment, as listed in Figure 2-1, through ports or from the top. Heavier solids are sampled by scoop, shovel, trier, auger, coring with heavy tubing or by other equipment as listed in Figure 2-1. Tank sediments are sampled from a bottom sampling valve when not readily sampled from above.

~~Sampling of small containers as; pails, drums, cartons, and other small units varies with the nature of the waste material. For flowable materials, the sampling device of choice is either a coliwasa or an open tube sampler to draw a full vertical section. For nonflowable wastes tubing or a trier is used to obtain a representative sample.~~

~~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 an open~~

~~tube sampler to obtain a vertical section, or by weighted bottle, bomb sampler, ports or taps to allow for sampling at various depths. Light, dry powders and granules are sampled with a tube to obtain a vertical core. Heavier solids are sampled by trier or shovel, or by coring with heavy tubing. Tank sediments are sampled from the bottom valve when not readily sampled from above.~~

2.3 Process In-Line Sampling

The variability of the waste stream at any point in a waste

treatment process is first determined from knowledge of the process producing the stream, or from the results of a preliminary investigation of the waste variability. The sampling procedures consists of obtaining individual samples from appropriate in-line sampling points in the process stream and compositing them as necessary for analysis. These sampling points include valves in circulation and transfer lines ~~and/~~or ports on tanks. For compatibility analysis purposes, samples are taken from the applicable tank recirculation lines.

The sampler~~ing device~~ can be varied in size depending on the flow rate of the stream. For solid or semi-solid streams samples are taken from a conveyor or pile using a scoop, shovel or similar device.

3.0 ANALYTICAL RATIONALE

~~Analytical methods are classified as "Mandatory Analyses" and "Supplemental Analyses."~~

The usage and applicability of analyses are described herein. The analytical techniques given in this text and listed in Appendix WAP-A, whether standard procedures or those developed by CWM Vickery through its operating experience, have been chosen for their ability to identify waste and to provide the information required to properly and safely manage wastes. Analyses are not necessarily repeated for sequential activities or movement of the same waste within the facility.

Analytical methods are classified as either "Mandatory Analyses" and "Supplemental Analyses." All waste samples are subjected to the mandatory analyses as a first step in the analytical scheme. Supplemental analyses may be performed to obtain information required for efficient process control or to further evaluate a positive result from a mandatory screening test (e.g., a flash point may be run to provide more specific waste data when a positive flammability potential is reported during the mandatory analysis testing). This arrangement allows a tiered approach to waste identification, enabling CWM Vickery to structure the analyses to adequately identify the waste or to define operational parameters for proper management.

Analyses, if required, may be performed prior to or after arrival of the waste at the facility. Most analyses utilize standard analytical techniques which are commonly used. Other analyses are unique tests that have been developed by CWM and meet CWM performance standards. These procedures and protocols have been formulated by CWM through its operating experience and are found to be preferable for waste identification or they may be used in the absence of standard techniques. The parameters which constitute the mandatory and supplemental analyses and their rationales are listed below. A description of the analytical methods which may be used to determine these parameters can be found in Appendix WAP-A.

- ~~Mandatory Analyses are performed on the pre-acceptance sample to ensure that the information submitted by the generator on the GWPS corresponds to the pre-acceptance sample submitted by the generator (except as noted in sections (4.1.1) and (4.1.8). Mandatory Analyses are performed on the incoming waste shipments in order to identify a waste shipment and to ensure the proper waste management techniques are utilized [except as noted in section (4.1.8)].~~
- ~~Supplemental Analyses are performed as directed by the Vickery Laboratory Manager to augment existing information on the waste in order to further identify a waste or to further ensure that the appropriate waste management techniques are utilized.~~

~~This arrangement allows a tiered approach to waste analysis, enabling the CWM to structure the analyses to identify the waste or to define the operational parameters for various treatment, storage or disposal processes.~~

~~A waste characterization is supplied to CWM by the generator on the certified~~

~~Generator's Waste Material Profile Sheet (WPS). The generator supplies CWM with all the information required by 40 CFR Part 264.13(a)(1) [Ref: 40 CFR Part 264.13(a)(2)] and OAC 3745-54-13. (See Section 4.1 for discussion regarding the information and/or data to be supplied by the generator.)~~

~~As a minimum, all wastes are subjected to the "Mandatory Analyses" as a first step in the analytical scheme [for exceptions,~~

~~see sections (4.1.1 and (4.1.8)]. "Supplemental Analyses" are performed as directed by the Laboratory or Technical Manager. The "Mandatory Analyses" and "Supplemental Analyses" are described below and in Appendix WAP A. Some of these analyses, identified as "Unique Supplemental Analyses", have been developed by CWM and are described below and in Appendix WAP A.~~

~~A summary of the analytical parameters within each category and their usage is provided herein. Analyses are not necessarily repeated for sequential activities or movement of the same waste within the facility unless required by changes in the waste characteristic as directed by the Technical Manager.~~

3.1 Mandatory Analyses

~~No waste stream will be approved for acceptance at the Vickery Facility if the waste profile sheet or Chemical Waste Management's analysis of a representative sample indicates the presence of PCB's in a concentration of over 25 ppm for treatment, storage or disposal. All rejected shipments will be returned to the generator and/or to a licensed PCB disposal facility. Total PCB's in the waste will be calculated to represent all the visible phases analyzed as aqueous, solid and oil PCB contents in ratio perspective for the entire sample.~~

~~[(% Phase of Sample)/(100) x (ppm PCB's in Phase)] = [(Total PCB's in Phase)]~~

~~[(Solid Phase) + (Aqueous Phase) + (Oil Phase)] = [(Total PCB's in sample)]~~

~~Variance from this procedure is possible after review and written approval from the Vickery Laboratory Manager and the Ohio Environmental Protection Agency~~.

"Mandatory ~~A~~analyses" include ~~nine basic~~ screening procedures that are used to indicate the type of treatment, storage and disposal that is most suitable for that particular waste and to identify incoming waste shipments. These are analytical procedures designed to identify or screen a specific waste and are a rapid but effective means for establishing key decision parameters pertinent to proper waste management and identification.

The parameters and associated rationale of the ~~nine "M~~mandatory ~~A~~analyses," as shown in Figure 3-1, are as follows:

- Physical Description is used to determine the general physical properties of the waste. This facilitates subjective comparison of the sampled waste with prior waste descriptions or samples. It is used to identify any obvious changes in the waste's physical properties (type).

- pH Screen is undertaken to indicate the pH and general corrosive nature of the waste. pH may not apply to certain special wastes, (e.g., organic solvents, oily waste, or insoluble solid waste).

- Specific Gravity is run to determine the density of the waste compared to that of water as an identifying characteristic. This is also used to determine the amount of waste received by inserting the result into the calculation conversion from gallons to pounds.

- Liquid Waste Compatibility ~~Test~~ is used to determine whether there is a potential to vigorously react with the tank contents that the waste will be unloaded or blended with, to form gases, other products, and/or generate significant heat. ~~This test does not apply to solid wastes.~~

- Flammability Potential Screening is used to indicate the fire producing potential of the waste. This test can be applied to all waste liquids, semi-solids or solids. This is used to identify any obvious changes in the waste type or properties such as a waste solvent substituted for a waste acid.

- Cyanide Screening is used to indicate whether the waste has the potential to release hydrogen cyanide gas upon acidification. The screen is not required if the pH is less than five (5) pH units, if the waste is not water soluble or if the waste is non-aqueous.

- Sulfide Screening is used to indicate whether the waste has the potential to release hydrogen sulfide gas upon acidification. The screen is not required if the pH is less than five (5) pH units, if the waste is not water soluble or if the waste is non-aqueous.

- (VOC) Solvent Screening Volatile Organic Constituent analysis is used to determine whether special handling is required. It is not required if:

  -- The Generator's Waste ~~Material~~ Profile Sheet indicates the volatile organic constituent concentration is less than or equal to five (5) percent; or

  -- The Total Organic Carbon content of the representative sample is less than or equal to five (5) percent; or

  -- The process generating the waste does not use or generate volatile organic constituents greater than five (5) percent, such as steel pickling, metal plating, or inorganic chemical production; or

  -- Analysis of ~~the~~ a pre-acceptance sample indicates the volatile organic constituent concentration is less than five (5) percent.

- Radioactivity Screen is used to ensure that no radioactive materials above background are present in the waste. ~~NOTE: MOVED FROM PAGE 527~~

- PCB Screening is applicable when representative phases, such as, oil bearing waste, aqueous solvents, settled solids, suspended solids, etc., are analyzed according to the rationale outlined below in Section 3.1.1.

7/20/97

~~NOTE FIGURE MOVED TO APPENDIX WAP B~~

3.1.1 PCB Analysis

No waste~~s will be~~ is accepted or off-loaded for treatment, storage and disposal at the Vickery facility~~, except for wastes to be stored for subsequent transshipment (see section 4.1.8),~~ unless the Pre-Acceptance Procedures (described in Section 4) and the following steps have been completed:

- ~~1~~ The generator submits to CWM either the concentration or the absence of detection of PCB's for the waste stream. If no PCB information is given, CWM will obtain PCB data ~~analyze the pre-acceptance sample for PCB's~~. If ~~the CWM analytical data or the generator~~ information indicates PCB concentration less than or equal to 10 ppm, the waste stream ~~will~~ qualifies for reduced PCB analysis frequency. No waste stream is approved for acceptance at the Vickery facility if the waste profile or CWM's analysis of a representative sample (or a phase of the sample) indicates the presence of PCB's in a concentration of over 25 ppm.

- ~~2~~ CWM performs incoming receipt analysis including PCB analysis of a representative sample from the particular shipment of the waste stream presented for acceptance at the facility. This fingerprint analysis ~~will be~~ is designed to assure the shipment is ~~of~~ the waste stream indicated. ~~The analysis will be consistent with the "Waste Analysis Plan" (WAP) for the Vickery Ohio Facility and will be documented.~~

  CWM maintains a list comprised of streams which are believed to have no potential for PCB contamination. This list is called the "Reduced PCB Analysis Frequency" list. Except for waste streams qualified for "Reduced PCB Analysis Frequency," 100% of loads are analyzed for PCBs.

  Reduced PCB Analysis Frequency is conducted as follows. The incoming receipt analysis of the first 10 shipments includes PCB analysis. At least 10% (1 in 10 loads) of the subsequent shipments of those waste streams includes PCB analysis. If any incoming receipt analysis indicates the presence of PCB's in excess of 10 ppm, the stream is deleted from the "Reduced PCB Analysis Frequency" list. All receipts found exceeding 25 ppm PCBs are rejected.

- ~~Except for waste streams qualified for "Reduced PCB Analysis Frequency," 100% of loads will be analyzed for PCBs.~~

- ~~CWM will prepare a list comprised of streams which are believed to have no potential for PCB contamination. This list will be called the "Reduced PCB Analysis Frequency" list. Reduced PCB Analysis Frequency will be conducted as follows. The incoming receipt analysis of the first 10 shipments will include PCB analysis. At least 10% (1 in 10 loads) of the subsequent shipments of those waste streams will include PCB analysis. If any incoming receipt analysis indicates the presence of PCB's in~~

~~excess of 10 ppm, the stream will be deleted from the "Reduced PCB Analysis Frequency" list. All receipts found exceeding 25 ppm PCBs will be rejected.~~

3. Any waste from the following sources ~~will~~ is not eligible for the "Reduced PCB Analysis Frequency" list:

1. Waste Brokers
2. Electrical Utility Companies
3. Solvent Recovery, Reuse or Recycling Units

4. Oil Recovery, Reuse or Recycling Units
5. Natural Gas Pipeline Transmission Companies
6. Oil Maintenance Centers
7. Pond Closures
8. Remedial Action Superfund Sites*
9. RCRA Corrective Action Projects*
10. Timber/Lumber Treating Facilities
11. Hydraulic Equipment
12. Remedial Action Projects*

* Unless demonstrated non-TSCA

~~Additions or deletions to this list may be made with the approval of the Ohio Environmental Protection Agency.~~

■4. Before each load is ~~allowed to be~~ considered for acceptance without PCB analysis, CWM ~~will~~ obtains information from the transporter regarding the contents of the last load contained in the tanker prior to the load being received at the Vickery Facility. If the last load was ~~from a Vickery Facility stream not on the Reduced list, or~~ from a generator who would not likely qualify for the Reduced list, and testing was not performed to confirm the absence of PCB's in the last load, a PCB analysis ~~will be~~ is run on the current load prior to acceptance. If no information can be obtained on the last load, PCB analysis ~~will be~~ is run on the current load prior to acceptance. NOTE: If the truck was washed/cleaned before picking up the current load, the current load may be considered for acceptance without PCB analysis.

■5. If a PCB analysis is required and the representative sample ~~or a fingerprint sample~~ contains a visible layer of solids over 5% of volume, visible oil (1% by volume), or an oily appearing phase of 1% by volume, CWM shall first analyze for PCB in the composite sample. If the presence of PCB,s is detected, Each phase will then be analyzed. ~~oil, oily appearing and solid phases.~~ Solids content and oil content will be determined by centrifuging a portion of the representative sample. Total PCB's in the waste is calculated to represent all the visible phases analyzed as aqueous, solid and oil PCB contents in ratio perspective for the entire sample.

[(% Phase of Sample)/(100) x (ppm PCB's in Phase)] = [(Total PCB's in Phase)]
[(Solid Phase) + (Aqueous Phase) + (Oil Phase)] = [(Total PCB's in sample)]

~~■ No waste stream will be approved for acceptance at the Vickery facility if the Generator Waste Profile Sheet (GWPS) or CWM's analysis of a representative sample (or a phase of the sample) indicates the presence of PCB's in a concentration of over 25 ppm. Furthermore, no waste shipments will be accepted for treatment, storage or disposal at the Vickery Facility if CWM's fingerprint analysis of the sample (or phase of the sample) from the shipment indicates the presence of PCB's in a concentration over 25 ppm. Rejected shipments will be returned to the generator and/or disposed of off-site at a licensed PCB disposal facility.~~

6. All PCB analyses may be done on a composite of samples. A maximum of 10 receipts ~~will be~~ are composited, extracted and analyzed. A 100 milliliter sample ~~will be~~ is taken from each receipt. If the analysis indicates that a single shipment in the composite could exceed 25 ppm PCBs, each shipment in the composite ~~will be~~ is individually analyzed to determine which shipment(s) contain PCBs. ~~All~~

If the analysis indicates the level of PCBs exceeds 1 ppm for landfill leachate or 10 ppm for all other single shipments a decision is made whether to further analyze these loads.

7. For railcar shipments, the railcar is sampled and analyzed as required by Section 5.1. PCB analysis on the railcar sample would be performed as required by Section 3.1.1. Each tanker load would not require PCB analysis as long as CWM obtains information from the transporter regarding the contents of the last load contained in the tanker prior to the load being received at the Vickery Facility. If the last load was from a generator who would not likely qualify for the Reduced list, and testing was not performed to confirm the absence of PCB's in the last load, a PCB analysis is run on the current load prior to acceptance. If no information can be obtained on the last load, PCB analysis is run on the current load prior to acceptance. NOTE: If the truck was washed/cleaned before picking up the current load, the current load may be considered for acceptance without PCB analysis.

3.2 Supplemental Analysis

"Supplemental Analysis" are performed during pre-acceptance testing or during testing of incoming shipments to further identify wastes or ensure the proper waste management technique can be utilized. The results of these analyses provide another level of confidence concerning the proper means of treatment, storage and disposal. Some of these additional supplemental analyzes utilize unique procedures and protocol formulated by CWM, which have been developed in the absence of standard procedures through CWM's operating experience. Other analyses utilize standard analytical techniques recognized by the USEPA, the ASTM, or equivalent organizations (i.e., AOAC, etc.).

The basis of requiring these additional supplemental analyses are:

- Facility management's knowledge, experience and judgment.
- WPS or other description of the chemical and physical properties of the waste.
- WPS or other description of the process generating the waste.
- Results of the "Mandatory Analyses" obtained.
- Potential waste management technique.

~~3.2.1 Unique Supplemental Analyses~~

~~The applicability of these analyses, as shown in Figure 3-2 and described below, are based on procedures and protocol~~

~~formulated by CWM~~. The parameters and associated rationale of the supplemental analyses are listed below. Analytical procedures can be found in Appendix WAP-A.

- Timed Filtration allows the CWM laboratory to quickly ascertain the filter loadings caused by suspended solids in the wastes and gain a rough approximation of potential filtering ~~in the formation~~.

- ~~Calcium Hydroxide – $Ca(OH)_2$ Testing is done as a quick check for potential formation compatibility problems since the primary reactive components of the injection formation at the CWM Vickery facility consists of dolomitic or limestone materials.~~

- Process Blend Testing (FWO Test) is done to discover other wastes or waste blends with which the waste (or blend) can be mixed to yield an injectable mixture. The testing is also done to discover any problems that could result in adding a waste or blend to existing tank contents. The testing can also be used to determine proper spacer fluids to be used during injection of otherwise nonblendable wastes. This test is also used to evaluate the potential of a newstream to cause post blending and filtration reactions.

- pH Spectrum is to determine the phase behavior of the waste over a wide pH change, and is particularly applicable to ~~deepwell disposal~~ blending and filtration.

- ~~Heat Phase Separation is to determine phase behavior with respect to temperature fluctuation, and is applicable to deepwell disposal.~~

- Solvent Screen is used to separate and identify organic compounds and also to determine whether waste contains Land Disposal Restricted organic constituents.

- ~~Distillation is used to determine the percent recovery and boiling range of a sample, and to generate a distillate of the material suitable for further testing.~~

- ~~Sulfate Screen is to determine presence of sulfates which can cause filter plugging and formation plugging.~~

- Process Testing ~~or Core Testing~~ is conducted to determine if new pretreatment will be required to inject a new waste. This testing will only be done under particular circumstances when preacceptance testing indicates that existing treatment would be inadequate.

- ~~Radiation Screen is used to ensure that no radioactive materials above background are present in the waste.~~ ~~Note: Moved to page 522.~~

~~3.2.2 Supplemental Analyses Using Standard Techniques~~

~~The applicability of the following supplemental analytical procedures, which are based on ASTM, "Standard Methods," or other procedures, are shown in Figure 3-3. The analytical methods are referenced in Appendix WAP-A.~~

- Total Organic Carbon measures the total organic content of a solution.
- Specific Conductance is a reading of the ionic activity and mineral concentration of a solution.
- ~~Specific Gravity indicates density of the waste compared to that of water~~
- Percent Acidity determines the acid content in the waste by species or as $CaCO_3$. It is only used if the waste is aqueous and below a pH of 7.
- Heavy Metals (e.g., Ag, As, Ba, Cd, Cr, Pb, Hg, Se, etc.) are run to quantify heavy metals concentration ~~to determine process operating parameters~~.
- Miscellaneous Metals (e.g., Cu, Fe, Ni, Zn, etc.) determines potential salt precipitation and is used for monitoring certain processes.
- pH provides a more precise measurement of pH and an indication of corrosivity when determining process parameters.
- Sulfates determines the concentration of sulfates in materials. It is used in determining processing and/or disposal.
- Toxicity Characteristics Leaching Procedure (TCLP) determines whether a treated waste residue (or a waste stream) contains levels of restricted constituents above appropriate treatment standards.
- Chlorides determines the concentration of chlorides in materials. It is used in determining processing and/or disposal.
- ~~Phosphates determines the concentration of phosphates in materials. It is used in determining processing and/or disposal.~~

- Nitrates determines the concentration of nitrates in materials. It is used in determining processing and/or disposal.

- ~~Nitrites determines the concentration of nitrites in materials. It is used in determining processing and/or disposal.~~

- ~~Specific Gravity indicates density of the waste compared to that of water.~~

- Percent Alkalinity determines the alkaline content in the waste by species or as $CaCO_3$. It is only used if the waste is aqueous and above a pH of 7.

- Total Sulfides determines complex sulfides the concentration of sulfides in materials. It is used in determining processing and/or disposal.

- Fluorides determines the concentration of fluorides in materials. It is used in determining processing and/or disposal.

- ~~Bromides determines the concentration of bromides in materials. It is used in determining processing and/or disposal.~~

- Total Solids quantifies the suspended and dissolved solids present and moisture content for selected processes and disposal.

- Dissolved Solids quantifies the dissolved solids present in a material. It is used in determining processing and/or disposal.

- Suspended Solids quantifies the suspended solids present in a material. It is used in determining processing and/or disposal.

- Viscosity determines the waste pumpability. Also used to determine waste mixing properties.

- ~~Total and Amenable Cyanides (Distillation with Magnesium Chloride) quantifies the concentration of all free and most complexed cyanides in a waste material. It is used in determining processing and/or disposal.~~

- Total Cyanides quantifies the concentration of all free and most complexed cyanides in a waste material. It is used in determining processing and/or disposal.

- Amenable Cyanides quantifies the concentration of all free cyanides in a waste material. It is used in determining processing and/or disposal.

- Total Phenolies quantifies the concentration of phenols in a waste material. It is used in determining processing and/or disposal.

- Flash Point further identifies ignitable wastes to establish proper storage mode and conformance with permit conditions.

- Oil and Grease quantifies the concentration of oil and grease in a waste material. It is used in determining processing and/or disposal.

- ~~Total Volatile Residue is used to estimate the amount of volatile material in a waste material or solid (e.g., organic matter).~~

- GC Scan indicates the concentrations of specific organics. It is used in determining processing and/or disposal.

4.0 PRE-ACCEPTANCE PROCEDURES

CWM has developed a series of control procedures to determine the acceptability of specific wastes for receipt at the facility. These control procedures are referred to as the pre-acceptance procedures. The pre-acceptance procedure dictates what information a potential customer must provide to enable CWM to determine the acceptability of the waste for treatment, storage, or disposal. At a minimum, the ~~Generator supplies all the~~ information required by 40 CFR Part 264.13(a)(1) Ref. 40 CFR Part 264.13(a)(2) and comment] and OAC 3745-54-13(A)(1) [Ref. OAC 3745-54-13(A)(2) and comment] will be obtained for evaluation ~~needed to characterize, treat, store, or dispose of the waste~~ . ~~(See Section 4.1 for discussion regarding the information and/or data to be supplied by the generator.)~~

Pre-acceptance control is the mechanism for deciding to reject or accept a particular type of waste prior to its ~~shipment to~~ acceptance at the facility based on the conditions or limitations of existing regulations and permits, and its compatibility with other wastes being treated, stored or disposed at the facility.

4.1 Procedural Requirements

For each new waste stream that is a candidate for ~~delivery to~~ acceptance at the facility, ~~except for those "special materials" noted below (see Section 4.1.1),~~ the following procedures are implemented:

~~4.1.1 The generator will provide CWM with:~~

CWM will obtain:

(1) Pertinent chemical and physical data ~~requested~~ on the Waste Profile Sheet (WPS)~~, typical form shown on Figure 4-1a and 4-1b (Manual and computerized forms respectively).~~ The waste profile sheet will include the following information: Generator name, address, phone number, EPA ID# (if applicable), contact person, waste name, process generating waste, EPA waste number(s) (if applicable), physical state, pH, flash point and chemical composition ranges;

(2) A representative sample, if required; (a representative sample may not be required by CWM if facility management determines that the pre-acceptance documentation obtained gives sufficient information to maintain compliance with permit and operational constraints and that submittal of a sample for analysis would not aid in the decision process.); ~~For identical plants from the same generator, only one sample of each waste stream is required. For example, one company which owns three facilities in separate states that generate chrome plating waste using identical processes would require only one sample. However, an individual from each plant must sign the profile.~~

~~For individual waste streams of a standard profile the database (See Section 4.1.6.) may replace the representative sample for each individual waste stream;~~

~~(3) The Certification of Representative sample, included on the Waste Profile Sheet, shown in Figure 4-1; and~~

(~~4~~3) Land Disposal Restriction (LDR) Notification/Certification Information and/or ~~D~~data (40 CFR Part 268.7 and OAC 3745-59-07).

~~A. If the waste is subject to a land disposal restriction (40 CFR Part 268) and the generator wants the waste to be treated or deepwell injected by CWM:~~

- ~~The generator will supply the appropriate LDR Notification information and, if necessary, any applicable data.~~
- ~~If necessary, CWM will perform treatment studies and develop the data necessary to demonstrate that the appropriate treatment standard(s) can be met. The analytical testing to be performed by CWM as part of treatment is described in Section 6.2 of this Waste Analysis Plan.~~

~~B. If the waste is subject to a land disposal restriction and the generator (or a treater) has treated the waste:~~

- ~~The generator (or the treater) will supply the appropriate LDR Certification information and the analytical data. This data demonstrates compliance with the Land Disposal Restrictions of 40 CFR Part 268.~~

~~C. If the waste is subject to a land disposal restriction and the generator has determined that the waste naturally meets the treatment standards:~~

- ~~The generator will supply the appropriate Land Disposal Restriction certification information and the analytical data necessary to demonstrate compliance with the Land Disposal Restrictions of 40 CFR Part 268. If the generator has developed this certification based upon knowledge of the waste and does not supply analytical data then CWM will develop the analytical data necessary to~~

~~demonstrate compliance with the appropriate Land Disposal Restrictions (40 CFR Part 268).~~

~~D. If the waste is subject to a Land Disposal restriction and the generator or treater is sending the waste for storage and/or transfer:~~

~~■ The generator (or the treater) will supply the appropriate LDR notification or certification information and any applicable analytical data. CWM will transmit this generator-supplied information and data to the appropriate treatment and/or disposal facility.~~

(~~5~~4) Other supporting documentation including any information such as additional analytical results, material safety data sheets, product ingredients, etc.

~~On occasion the shipment (e.g. boiler cleanout, etc.) may act as a representative sample if accompanied by a generator signed Generator Waste Profile Sheet, Figures 4-1a or b, as required. At a minimum, the Generator supplies all the information required by 40 CFR Part 264.13(a)(1) and OAC 3745-54-13 needed to characterize, treat, store, or dispose of the waste.~~

~~4.1.2~~ CWM ~~will~~ may perform the ~~"M~~mandatory ~~A~~analyses~~"~~ on the ~~generator-supplied representative~~ pre-acceptance waste sample(s) ~~of the waste~~ if obtained. ~~Analyses will be done in accordance with the methods~~ Parameters are determined as outlined in Section 3.0 using methods designated in Appendix WAP-A. ~~The representative sample will be retained by CWM for reference for at least 30 days.~~

~~4.1.3~~ Based upon the results of the ~~"M~~mandatory ~~A~~analyses~~"~~ and an initial review of the ~~WPS~~ waste profile, ~~the Laboratory or Technical Manager may require~~ certain ~~"S~~supplemental ~~A~~analyses may be performed ~~to ensure that the information provided on the WPS agrees with the representative sample or~~ to ensure that the proper management techniques are utilized.

~~4.1.4~~ After evaluating the data ~~supplied by the generator~~ obtained on the ~~WPS~~ waste profile and that obtained from ~~the~~ mandatory and ~~any required~~ supplemental analyses if performed, CWM will determine the acceptability of the waste based on the following criteria:

(1) Applicable regulations and the permit conditions for the facility,

(2) The availability of the proper waste management techniques, and

(3) The available capacity at the facility.

~~4.1.5 As a minimum, the pre-acceptance procedures will be repeated:~~

~~(1) Reviewed at least biannually;~~

~~(2) When the generator notifies CWM that the process which generates the waste has changed (e.g., when raw materials to the process have changed); or~~

~~(3) When the results of inspection or analysis indicate that the hazardous waste received at the facility does not match the waste designated on the accompanying manifest or shipping paper.~~

4.1.~~6~~1 <u>Standard Profiles</u>

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~~ is developed for a specific standard profile based on analytical data from waste streams that are representative of wastes from similar industries~~,~~ or processes or based on historical data. The ~~technical manager will review the~~ database will be reviewed and it will be determined whether the individual waste streams are sufficiently similar in physical and chemical characteristics to an established a standard profile. The analytical database developed as discussed ~~above will~~ replaces the ~~requirement for a~~ pre-acceptance sample ~~(See Section 4.1)~~ for each ~~individual~~ applicable waste stream.

Specific candidate waste streams which upon review, are identified as conforming to an existing approved standard profile will be managed under the existing ~~Waste Management D~~decision specific for that standard profile.

~~4.1.7 Exceptions~~

~~Exceptions to the foregoing requirements include the following "special materials:"~~

~~(1) Commercial products or chemicals off specification, outdated, contaminated or banned. (This also includes products voluntarily removed from the market place by a manufacturer or a distributor, in response to allegations of adverse health effects associated with product use.)~~

~~(2) Residue and debris from cleanup of spills or releases of a single chemical substance or commercial product or a single waste which would otherwise qualify as a special material.~~

~~(3) Waste from a medical practitioner, hospital, medical clinic, nursing home, medical testing laboratory, mortuary, taxidermist, veterinarian, veterinary hospital or animal testing laboratory. (This includes any waste produced at those facilities, except residue from incinerators, septic tank pumpings of wastewater aerobic sludges which are all wastes, not "special materials." Note: discarded chemicals from the above facilities should be treated as "chemical waste from a laboratory.")~~

~~(4) Animal waste and parts from slaughterhouses or rendering plants. (This excludes wastes from fur leather products manufacturers, which are waste.)~~

~~(5) Waste produced by the mechanical processing of fruit, vegetables or grain. (This includes such wastes as rinds, hulls, husks, pods, shells, and chaff. Food processing wastes which are aqueous or sludges, or which have been contaminated with dyes, additives or preservatives are waste, but not special material.)~~

~~(6) Pumping from septic tanks used exclusively by dwelling units. (Single family homes, duplexes, apartment buildings, hotels or motels.)~~

~~(7) Sludge from a publicly owned sewage treatment plant serving primarily domestic users. (i.e., with no substantial industrial or chemical influent.)~~

~~(8) Grease trap wastes from residences, restaurants or cafeterias not located at industrial facilities.~~

~~(9) Washwater wastes from commercial car washes. (NOTE: This does not include facilities used for washing the exterior of bulk chemical or waste tank trucks, or for washing out the interior of any truck.)~~

~~(10) Washwater wastes from commercial laundries or Laundromats. (NOTE: This does not include waste from a dry cleaning facility or waste from a commercial laundry used by an industry to wash chemical contaminated clothing from its workers.)~~

~~(11) CWM special waste - waste generated at a CWM Facility.~~

~~Requests for decisions with respect to materials defined as "special materials" are to be based only on the special material generator's written description of the waste. Therefore, the disposal decision is based on the information supplied by the generator, and a sample is not required. The generator still must supply all the information required by 40 CFR Part 264.13(a)(1) and 3745-54-13(a)(1) necessary to characterize, treat, store, or dispose of the waste. (See Section 4.1 for discussioregarding the information and/or data to be supplied by the generator.) However, when any of these special materials are received at the facility for treatment, storage, or disposal, they will be sampled and analyzed as identified in section 5.1 unless the waste is to be stored and transshipped.~~

~~Under ordinary circumstances, the generator's description will be provided on one of the following forms:~~

- ~~Initial requests should include a "Generator Waste Profile Sheet", [typical forms shown in Figures 4-1], completed, signed, and dated by the actual special waste generator, and accompanied by any necessary supporting documents (i.e., MSDS forms, product ingredients, etc.) (See Section 4.1 for discussion regarding the information and/or data to be supplied by the generator.)~~
- ~~Renewal requests should ordinarily include a "Generator Waste Profile Sheet", [typical forms shown in Figures 4-1] completed, signed, and dated by the actual special waste generator, attached to the original Waste Profile Sheet form which is being recertified.~~

~~The pre-acceptance sampling and analysis of "special materials" is not required unless specifically requested by the Laboratory or Technical Manager. In general, these special materials are not sampled because their~~

~~contents are known in sufficient and reliable chemical and physical detail that sampling and analysis is not warranted; for example, outdated commercial products.~~

~~4.1.8 Storage and Transshipment Wastes~~

~~The above pre-acceptance procedures will be modified for wastes which are to be approved for storage and subsequent transshipment to an ultimate disposal facility. CWM will determine the acceptability of the waste based on the generators information only. This information may include the WPS (or an equivalent form), analytical data, or other documentation such as MSDSs or product ingredient information. The generator will provide all the information necessary to store the waste. Therefore the decision to store the waste is based solely on the information provided by the generator.~~

4.2 Evaluation

~~The Technical and/or Laboratory Manager, in conjunction with the Vickery General Manager, are responsible for the p~~Pre-acceptance information is evaluat~~ioned~~ed and a decision is made ~~, whether~~ to ~~accept~~ approve or ~~reject~~ not approve the wastestream. Figure 4-~~2.1~~ presents a general logic diagram of the preacceptance process. ~~All samples under consideration for acceptance are subjected to the "Mandatory Analyses" (except as outlined in Section 4.1.7.).~~

~~The General, Technical and/or Laboratory Manager may require "Supplemental Analyses" to further ensure that the information supplied by the generator.~~

~~on the WPS corresponds to the sample supplied by the generator or to further ensure the proper waste management technique can be utilized.~~

~~The basis of requiring these additional supplemental analyses are:~~

- ~~General, Technical and Laboratory Manager's knowledge, experience and judgment.~~
- ~~WPS or other description of the chemical and physical properties of the waste.~~
- ~~WPS or other description of the process generating the waste.~~
- ~~Results of the "Mandatory Analyses" obtained.~~
- ~~Potential waste management technique.~~

~~The pre-acceptance evaluation is concluded with documentation of the decision regarding the acceptability of waste and the proposed method of management.~~

~~General, Technical and Laboratory Manager's technical disposal decisions~~ The pre-acceptance evaluation and decision logic are based on the following:

- Management methods available.
- Conditions or limitations of existing permits and regulations.
- Capability to manage the waste in a safe and environmentally sound manner.
- ~~WPS~~ Waste profile description of the ~~process generating 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, if applicable. (~~See Section 4.1 for further discussion~~ regarding the information and/or data to be supplied by the generator.)~~
- Results of mandatory and ~~any required~~ supplemental analyses.
- The facility's ~~The General, Technical and Laboratory Manager's~~ technical knowledge, experience and judgment.

~~This decision is embodied within the "Waste Management Decision," typical forms shown in Figures (4-3a) and (4-3b), (Manual and computerized versions respectively).~~ The pre-acceptance evaluation process is concluded with the documentation of the decision to manage the waste.

4.3 Waste Profile Re-evaluation

In accordance with 40 CFR Part 264.13 and OAC 3745-54-13, a waste profile re-evaluation will be conducted when one of the following occurs:

- A generator notifies CWM that the process generating the waste has changed; or
- 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 pre-acceptance documentation, in which case the procedure in Section 5.2 is followed.

When this occurs CWM will review the available information, if existing analytical is not sufficient. The generator may be asked to review the current waste profile, to supply a new profile or analysis, and/or to submit a sample for analysis, or CWM may obtain a sample from a load of the waste.

5.0 INCOMING WASTE SHIPMENT PROCEDURES

Each shipment of waste ~~(except as specified in section 4.1.8.) will be~~ is inspected, sampled and analyzed as defined herein before the initiation of any further activity. This serves two purposes. First, it compares the results of incoming waste shipment mandatory analyses with ~~those determined in~~ the pre-acceptance phase waste profile and the waste identity listed on the manifest or shipping papers. Secondly, it further ensures the proper disposition of the waste ~~with regard to treatment, storage or disposal~~. In addition, all wastes which are subject to the Land Disposal Restrictions of 40 CFR Part 268 and have been treated, exempted, or 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 (or that the untreated waste naturally meeting the treatment standard or prohibition) meets the appropriate treatment standard ~~(e.g.; Constituent Concentration in Waste Extract (CCWE) value)~~ or prohibition and includes the applicable analytical data or reference to that data or documentation (in accordance with 40 CFR Part 268.7). ~~(See Section 4.1 for discussion regarding the information and/or data to be supplied by the generator.)~~

Furthermore, all materials which are subject to the Land Disposal Restrictions of 40 CFR Part 268 and require treatment must be accompanied by a form from the generator notifying the treater of appropriate treatment standards and/or all applicable prohibitions which must be met and includes any applicable analytical data or reference to such data or documentation (in accordance with 40 CFR 268.7).

5.1 Receiving Procedures

Incoming load identification begins upon arrival of the waste at the facility. The inspection, sampling and analysis of the incoming waste shipment will be performed in accordance with the methods and parameters described in this WAP . Site personnel or other CWM personnel can provide the sampling and mandatory and/or supplemental analysis required prior to, or in conjunction with, arrival of a shipment onsite. Waste shipments that have arrived at the facility are considered to be in the receiving process until the laboratory or facility management makes a final decision regarding waste acceptability.

All bulk liquid waste deliveries are sampled and analyzed, with the exception of ~~certain~~ tank truck loads from the CWM Toledo Transfer Facility.

Each rail car is presampled at the CWM Toledo Transfer Facility, DOT packaged and transported to the Vickery facility to be analyzed. ~~The first tanker truck transfer shipment from each rail car is sampled and analyzed upon arrival at the facility. If two trucks are used, the first shipment from each truck is sampled~~. All ~~subsequent~~ tanker truck transfer shipments from the individual rail cars need not be resampled ~~except to provide the analysis necessary to safely manage the load in the facility's tank system~~~~provided the tanker truck is dedicated for the entire rail car unloading~~. All tanker truck transfer shipments are subject to chain-of-custody procedures. Samples from incoming waste shipments are subject to the "Mandatory Analyses" identified in Section 3.1.

5.2 Decision Evaluation Logic

The technical evaluation logic utilized in deciding whether to accept or reject a particular waste shipment is depicted in Figure 5-1. As outlined in Figure 5-1, there are specific major decision points. They are:

- The need for additional supplemental analyses
- The actual waste identification
- An evaluation of whether a waste conforms to the waste profile, and
- An evaluation of whether a waste found to be in "non-conformance" can still be accepted.

(1) The need for additional supplemental analyses

~~The Technical or Laboratory Managers' d~~Decisions~~de~~ about whether additional supplemental analyses are required for a particular waste ~~are~~ based on the following:

- Results of mandatory analyses;
- Knowledge of generator and/or waste-generating process;
- Results of pre-acceptance evaluation;
- Experience and judgment ~~of the Technical or Laboratory Managers~~ in determining that more information is needed in order to properly identify an incoming waste shipment or to ensure the appropriate management technique can be utilized.

Further testing ~~will be~~ is required if the results indicate unexpected information ~~with respect to preacceptance analytical results,~~ when compared to the waste profile or ~~if the Technical or Laboratory Managers have a~~ there is a reason to suspect that the waste composition has changed.

(2) The actual waste identification

The effectiveness of the waste identification step is dependent on the following components:

- Inspection;
- Sampling;
- Analytical results;
- Waste profile sheet;
- Waste manifest;
- Any additional documentation supplied by the generator such as MSDS forms, material ingredients, etc;
- Pre-acceptance analytical results~~, if required~~;
- ~~General, Technical or Laboratory Manager's~~ Facility judgment; and
- Appropriate land disposal restriction notification and/or certification forms (see section 5.0).

(3) Evaluation of whether a waste is in conformance or non-conformance

The facility management must classify the waste as being in "non-conformance" if it is significantly different in composition from the information shown in the WPS, the pre-acceptance information, or the identity and volume on the manifest in accordance with 40 CFR Part 264.72 and OAC 3745-54-72. Three major criteria are used to arrive at this decision. They are:

- If the amount of bulk waste varies more than 10 percent in volume;
- If, in batch wastes (e.g., drums, bags, roll-off boxes, etc.), there is any variation in piece count. That is, the number of pieces listed on the manifest does not agree with the number of pieces on the truck when received;
- If inspection or analysis of any waste reveals obvious differences in waste type, such as acid substituted for a solvent or a toxic constituent not reported on the manifest or shipping paper.

Manifest discrepancies or non-conformances that do not fall within these criteria are considered to be "minor". If CWM has reason to believe that a minor discrepancy is not a one-time variation and that a particular waste is different from its documented values, the shipment will be classified as non-conforming.

~~The General, Technical or Laboratory Manager must classify the waste shipment as being in "non-conformance" if it is significantly different in composition from the information shown on the WPS, the pre-acceptance results information, or on the shipping manifest.~~

~~CWM uses three major criteria to determine the existence of a significant manifest discrepancy or non-conformance between the WPS, mandatory analysis of the preacceptance sample, the manifest, and/or the incoming waste shipment mandatory analysis/inspection. They are:~~

- ~~For bulk wastes, variations greater than 10% in weight;~~
- ~~For batch wastes, (e.g., drums, bags, etc.) any variation in piece count (such as discrepancy of one drum in a waste load);~~
- ~~If inspection or analysis of any waste determines obvious differences such as waste solvent substituted for waste acid or toxic constituents not reported on the manifest or shipping paper.~~

~~Discrepancies that do not fall within these criteria are considered to be "minor" and in conformance. If CWM has reason to believe that a minor discrepancy is not a one time variation and that a particular waste shipment indeed is different from its document values, the generator will be required to amend the WPS and/or recharacterize (recertify) the waste before it will beaccepted. The detection of a waste constituent that was not recorded on the WPS or manifest would not necessarily trigger a recharacterization of the waste stream (unless it met the preceding criteria) if the non-conformance could bejustified by the generator and it was not a continuing variation.~~

(4) Evaluation if waste found to be in non-conformance can be accepted

Wastes found to be non-conformance may be rejected out-of-hand, or they may be re-evaluated for possible acceptance by the facility. This procedure is intended to prevent the unnecessary movement of a waste material back and forth between the facility and the generator, when the material can be readily handled by the facility. ~~By eliminating this unnecessary movement,~~ CWM is attempting to reduce the possible exposure of ~~this waste to~~ human health or the environment to this waste by eliminating the unnecessary movement of the waste in public commerce.

The re-evaluation will be based on the following criteria:

- Permit conditions and current regulations;
- Discussions with the generator;
- Need for any additional supplemental analyses;
- Facility ability to handle the material in a safe and environmentally sound manner; and
- ~~General, Technical or Laboratory Manager's~~ Facility judgment.

In addition to the CWM evaluation and pursuant to 40 CFR Part 264.72 and/or OAC 3745-54-72, ~~the General, Technical or Laboratory Manager~~ CWM ~~must~~ discusses and attempts to resolve with the generator, any ~~discrepancies~~ non-conformance between the actual waste shipment and that shown on the manifest. If the load is found to be acceptable at the facility, a ~~Waste Management D~~decision ~~will be~~ process is initiated.

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 analysis 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 load analysis and are found on the ~~W~~waste ~~P~~profile ~~Sheet (WPS)~~. These are not repeated unless it is known or believed that the waste characteristics may have changed during storage or processing.

~~The waste management method for each waste stream to be processed is determined by the Laboratory and Technical Manager in conjunction with the General Manager during the pre-acceptance evaluation process (Section 4.1). the waste management method is documented on the "Waste Management Decision", Figure 4-3a and 4-3b~~.

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

- Storage
- Treatment - Filtration
- Disposal - Deepwell Injection (See the UIC Waste Analysis Plan)

The analytical procedures for each of these processes is described separately below.

6.1 STORAGE

Once the facility has decided to accept a waste shipment, ~~stored containerized liquid~~ wastes are segregated with respect to hazardous compatibility. ~~Liquid w~~Wastes, which are transferred from portable tanks or tank trucks, are placed in bulk storage prior to further treatment. Before any wastes are placed in a storage unit, the ~~General Technical or Laboratory Manager will assess~~ facility assesses the hazardous compatibility of the waste with the storage unit materials of construction, as well as the treatment and disposal equipment materials of construction, and wastes already in storage. If there is any suspicion of incompatibility, additional compatibility testing ~~will be~~ is performed. The general analytical flow diagram is shown in Figure 6-1.

6.1.1 Nitric Acid Wastes

Following the acceptance of a nitric acid waste shipment, ~~and the compatibility assessment a millivolt potential assessment is preformed, determining the compatibility for~~ the nitric acid stream ~~will be transferred~~ to the storage tank ~~using dedicated equipment~~.

Prior to blending nitrating acids, the liquid waste compatibility test is conducted and approval to blend must be obtained from the Laboratory Manager or Technical Manager or their acting designee. If an approval signature can not be obtained prior to blending, then verbal approval must be obtained and the following information entered on the ~~W~~waste ~~C~~compatibility ~~S~~sheet ~~(Figure 6-2):~~ the statement, "approved as per..." and the date, time and initials of the contacted approving manager. The

approving manager must sign the original Waste Compatibility Sheet on the next working day.

6.2 Treatment Operations

The proper and complete treatment of a particular waste depends upon appropriate sampling and analysis during selected phases of the operation. The results of this analytical program serve to determine safety constraints, confirm treatment method selection, and identify processing. The treatment sampling~~/~~ and analysis program may be divided into three segments, each with a specific purpose:

- Pre-treatment analyses ensure that the waste is acceptable for processing and will allow the fine tuning of the process operational conditions for optimum treatment;
- In-process analyses are performed to monitor the treatment at various stages to determine acceptability for next stage of treatment.
- Post-treatment analyses confirm successful treatment and that the process effluent is ready for additional treatment and/or disposal, based upon permit or process constraints.

Residue(s) resulting from on-site treatment of Land Disposal Restricted wastes will be analyzed and/or evaluated, as needed against the appropriate treatment standard ~~(e.g., Constituent Concentration Waste Extract (CCWE) values)~~and/or prohibitions. Wastes or the residue from the treatment of land disposal restricted wastes that are sent off-site for further treatment (or disposal) will have appropriate notification and/or certification (in accordance with 40 CFR Part 268).

6.2.1 Filtration

In this process, ~~solid-laden~~ liquid wastes with ~~high~~ suspended solids ~~loading~~ are passed through a filter. This results in a filter cake and filtrate (effluent) with acceptably low suspended solids ~~and a filter cake~~. The general analytical approach is shown in the Figure 6-~~3~~2.

The feed to the filter must be evaluated with respect to the content of suspended solids. Excessive solids concentrations may result in shortened filter runs, wetter filter cakes, and excessive solids in the effluent. ~~Measurement of the waste's pH is also required for equipment protection.~~

The following ~~parameters are~~ is checked regularly in order to monitor the operation:

- ~~Polishing - Check suspended solids of filtrate (or~~ timed filtration~~). If any of these are not within acceptable ranges, then the filter operation requires adjustment.~~

This provides an indication of the potential flow rate through the filtering operations.

Post-treatment analyses consist of those tests necessary to ensure that the filter cake and filtrate meet the required criteria for further treatment or direct disposal.

6.3 Final Disposal:

A sampling ~~and~~ analysis program is an integral part of this phase of operation. The results of this program serve to evaluate compliance with site permits ~~constraints~~, confirm disposal method selections, and determine safety constraints.

6.3.1 Deepwell Injection:

In this disposal method, liquid wastes are pressure-injected down a deepwell into an isolated, porous stratum. Wastes are composited in tanks, pH adjusted and filtered, as necessary prior to injection. The major concern with deepwell injection is compatibility with and prevention of plugging of the well or receiving stratum. Pre-disposal analyses attempt to identify those wastes that would have the potential to cause solids precipitation or plugging problems, and to screen out those that cannot be injected until after additional treatment. Samples are taken of all wastes prior to their compositing in batch tanks for this purpose ~~(Pre-Acceptance Procedures/Pre-Disposal Testing)~~.

~~Certain parameters, such as Dissolved and Suspended Solids or timed filtration are checked as a measure of acceptability.~~ In-process analyses are performed on samples from the tank to check suitability for injection. When it is determined that the waste to be injected is fully compatible with the deepwell system, it is passed through a final filter and pressure injected down the well. For additional information related to testing for deepwell injection, see the UIC Waste Analysis Plan.

7.0 QUALITY ASSURANCE/QUALITY CONTROL

~~7.1 Introduction~~

~~The following Quality Assurance/Quality Control (QA/QC) information for the CWM Vickery facility is being provided, as required by 40 CFR Part 270.30(e) and in accordance with the following EPA guidance documents.~~

- ~~Test Methods for Evaluating Solid Waste Physical/Chemical Methods, Section #10 SW-846, 2nd Edition, July 1982~~

- ~~Waste Analysis Plans A Guidance Manual - EPA/530-SW-84-012, October 1984~~

~~QA/QC procedures are applicable to both sampling procedures and analytical techniques. QA/QC information for these two elements of the waste analysis program has been referenced in the WAP, as recommended in the above-mentioned waste analysis plan guidance manual.~~

~~This section does not provide specific performance standards or quality control procedures for individual sampling and analysis techniques. Such specifics are defined on a corporate-wide basis for all CWM facilities. The specific performance standards are dynamic and are revised as warranted to reflect technological advances in sampling and analytical techniques. The CWM QA/QC policies are found in the corporate Quality Assurance Policies and Procedures manual. Portions of which have been summarized and included in the following sections.~~

~~7.2 Sampling Program~~

~~Sampling procedures for specific facility operations are described in Section 2.0 of the WAP. The selection of the sample collection device depends on the type of sample, the sample containers, and the sampling location. In general, the methodologies used for specific materials correspond to those referenced in Table 2-1 of Section 2.0. The selection and use of the sampling device is supervised or performed by a person thoroughly familiar with the sampling requirements.~~

~~Sampling equipment is constructed of non reactive materials such as glass, PVC plastic, aluminum, or stainless steel. Care is taken in the selection of the sampler to prevent contamination of the sample and to ensure compatibility of materials. For example, non-fluorocarbon plastic bottles are not used to sample organic wastes and glass bottles are not used to collect hydrofluoric acid wastes. Sampling is performed for each waste stream in a manner that ensures the samples are as representative as possible under the conditions of the sampling event. Full vertical sections are drawn from tanks and containers, where appropriate and where access allows. With a few exceptions, all bulk and containerized waste loads will be sampled (see Sections 4.1.8 and 5.1 of this WAP). Container samples that are related to one generator and one process may be composited (no more than 10 samples per composite) prior to analysis, provided that individual samples are similar in physical appearance.~~

~~7.3 Analytical Program~~

~~CWM uses standard analytical procedures recognized by the EPA (SW-846, EPA-600, etc.), ASTM, or equivalent organizations (i.e., AOAC, etc.), where possible. Additionally, some unique procedures and protocols formulated by CWM have been developed in the absence of standard procedures. A complete listing of these procedures are found in Section 3.0 and Appendix WAP-A.~~

~~All test equipment maintained at the site is calibrated to within acceptable limits according to EPA or manufacturer specifications. Laboratory instruments are periodically inspected, maintained, and serviced, also according to manufacturer specifications. Reference standards and QC samples (e.g., checks, spikes, laboratory blanks, duplicates, splits) are used to determine the accuracy and precision of procedures, instruments, and operators. All such QA/QC data is recorded and maintained as a part of Quality Assurance. Records of all pertinent laboratory calibrations, analytical, and quality control activities and data are maintained at the site or other storage location, as appropriate. The following specific practices are implemented at this facility laboratory.~~

~~7.3.1 Instrument Performance Parameters~~

~~All instrumentation must be evaluated through the use of an instrument check standard and calibration blank before standardization can be initiated. Divergence from acceptable benchmark criteria requires~~

~~correction before analyses can be performed. Blank and instrument check standards results are recorded. The record may also contain evaluation parameters, benchmark criteria, and maintenance records.~~

~~7.3.2 Contamination Evaluation~~

~~Reagent blanks are typically prepared with each batch of samples and analyzed to ensure sample contamination has not occurred. Whenever possible, a field blank is taken and analyzed accordingly. If blank analyses do not fall within acceptable limits, modification of reagents or modification of the analytical method is implemented.~~

~~7.3.3 Duplicate Analyses~~

~~Duplicates are employed to monitor precision in the laboratory. Typically a ratio of one duplicate for each ten samples analyzed is maintained. In the case of mass spec, the ratio of one duplicate for each 20 (twenty) samples analyzed is typically maintained.~~

~~7.3.4 "Blind" Duplicate Analysis~~

~~This program is a system that monitors intralaboratory precision. A sample is resubmitted monthly by the Vickery Laboratory Manager to be reanalyzed by the same method with variability in analysts and/or instruments. The identity of this sample is unknown to the analysts, allowing the Vickery Laboratory Manager to evaluate the laboratory method proficiency.~~

~~7.3.5 Quality Control Check Sample~~

~~A quality control solution or sample material supplied by CWM is analyzed at least every day that the parameter is performed. This procedure is performed to show that calibration and standardization of instrumentation is within accepted limits. This procedure informs the laboratory that prescribed precision and accuracy are being maintained. Results of these analyses are reported monthly to the Director of Quality Assurance Programs.*~~

~~7.3.6 Fortification of Samples~~

~~Fortification is 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 analysis in question. Typically a ratio of one fortification for each ten samples analyzed is maintained. Typically the same sample used for the duplicate analysis should be fortified. In the case of mass spectrometry, the ratio of one duplicate for each 20 samples analyzed is typically maintained.~~

~~7.3.7 Reference Materials~~

~~When available, Standard Reference Materials (SRM) from the National Institute of Standards and Technology (formerly National Bureau of Standards), the Environmental Protection Agency, or any other recognized~~

~~*The Director of Quality Assurance Programs is a corporate position.~~

~~source should be obtained and analyzed according to normal laboratory methodology to verify accuracy of the methods. In general, these materials are analyzed at least quarterly, but preferably more frequently.~~

~~7.3.8 Round Robin Analyses~~

~~All CWM and non-WMX laboratories participate in round robin sample analyses. These samples are submitted to each laboratory by CWM Corporate QA Programs for the analysis of specified parameters. Results are reported to the CWM Corporate QA Group before the due date. Digressions from the norms established by the majority of laboratories participating are investigated and corrected by the CWM QA Round Robin Coordinator.~~

~~7.3.9 Reference Laboratory Evaluation~~

~~A least one sample per month is sent to a designated CWM laboratory or to a designated contract laboratory for parallel analysis. The site laboratory data reported and the reference laboratory results will be sent to the CWM QA Parallel Coordinator for comparative investigation. These Results will be evaluated, tabulated, and a copy of the investigation will be sent to both participating laboratories for corrective action.~~

~~7.3.10 Reports~~

~~The facility typically reports the following information (or a summary of this information) on a quality control chart on a monthly basis:~~

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

~~7.3.11 Contract Laboratory~~

~~A written copy of the laboratory's quality control procedures is submitted to CWM prior to approval. A quality assurance inspection is conducted by CWM 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. Contract laboratories are required to adopt and implement all of the quality control practices listed above as they are applicable to sample type and volume. A review of the contract laboratory is conducted to ensure that the quality control of CWM data is being maintained.~~

~~7.4 Conclusion~~

~~The aforementioned sampling and analytical procedures help ensure that the data obtained are precise, accurate, and representative of the waste stream being sampled. The results of these analyses are used by the Vickery Laboratory Manager to decide whether or not to accept a particular waste and, upon acceptance, to determine the appropriate method of treatment.~~

~~Proper analytical procedures are particularly important for waste treatment units. They are also important to ensure that wastes are managed properly by the facility and that incompatible wastes are not inadvertently combined. For these reasons, the quality of the data and the thoroughness and care with which the sampling and analyses are performed and reported provide an important basis for day-to-day operational decisions.~~

The following sampling and analytical quality assurance/quality control (QA/QC or "quality") information for this facility is being provided as required by 40 CFR Part 270.30(e). At minimum CWM will follow guidelines established in the following documents:

- *Handbook for Analytical Quality Control in Water and Wastewater Laboratories*, EPA 600/4-79-019, March 1979, U.S. Environmental Protection Agency (U.S. EPA) Environmental Monitoring and Support Laboratory (EMSL) Cincinnati, OH March 1979 (available from EMSL, Cincinnati, OH 45268)
- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, Third Edition, Final Update I, U.S. EPA Office of Solid Waste, Washington, DC July 1992, Chapter One (available from Superintendent of Documents, Government Printing Office, Washington, DC 20402)

Quality procedures are applicable to both sampling procedures and analytical techniques. Quality information for these two elements has been included in this WAP.

This section does not provide specific performance standards of quality procedures for individual sampling and analysis techniques. Such specifics are defined on a corporate-wide basis for all company facilities. The specific performance standards are dynamic and are revised as warranted to reflect technological advances in sampling and analytical techniques. These performance standards are described in corporate policies which are maintained and used at this facility and which are available for regulatory review. Portions of these policies have been summarized in the following sections.

7.1 Sampling Program

Sampling procedures for facility operations are described in Section 2 of the WAP. The selection of the sample collection device depends on the type of sample, the sample container, the sampling location and the nature and distribution of the waste components. In general, the methodologies used for specific materials correspond to those referenced in 40 CFR Part 261 Appendix I. The selection and use of the sampling device is supervised or performed by a person thoroughly familiar with the sampling requirements.

Sampling equipment is constructed of nonreactive materials such as glass, PVC plastic, aluminum, or stainless steel. Care is taken in the selection of the sampling device to prevent contamination of the sample and to ensure compatibility of materials. For example, glass bottles are not used to collect hydrofluoric acid wastes.

Individual container samples may be composited prior to analysis, provided that individual samples are compatible. (Samples are determined to be compatible if they can be mixed together without causing a change of phase or excessive heat or reaction.)

7.2 Analytical Program

The company has developed a program of analytical quality practices and procedures to ensure that precision and accuracy are maintained throughout its laboratories. Company facility laboratories are required to participate in this program. Noncompany laboratories employed by the company demonstrate quality practices that are comparable to the company's program.

Good laboratory practices which encompass sampling, sample handling, housekeeping and safety are maintained at all laboratories.

7.3 Conclusion

The aforementioned sampling and analytical quality practices help ensure that the data obtained are precise and accurate for the waste stream being sampled. The analytical results are used by facility management to decide whether or not to accept a particular waste and, upon acceptance, to determine the appropriate method of treatment, storage, and disposal. Results are also important to ensure that wastes are managed properly by the facility and that incompatible wastes are not inadvertently combined. Just as these results are important so is the quality of these results. Thus, the quality of the analytical data, the thoroughness and care with which the sampling and analyses are performed and reported, provides an important basis for day-to-day operational decisions.

APPENDIX WAP-A

ANALYTICAL PROCEDURES

APPENDIX WAP-A

ANALYTICAL PROCEDURES

~~Analytical methods described herein are grouped into two categories: Analyses using "Standard Techniques" and analyses using "Unique Analyses". It should be noted that the information presented in this Appendix is general in character. Certain standard test methods are listed which may pertain to treatment or disposal processes that are conducted at facilities other than CWM, for which the foregoing Waste Analysis Plan is presented.~~

~~1. ANALYSES USING "STANDARD TECHNIQUES"~~

~~The procedures and protocol for these standard analyses are referenced as follows:~~

~~PARAMETER~~	~~METHOD~~	~~REFERENCE~~
~~Flash point~~		
	~~Pensky-Martens closed cup method~~	~~1-1010, 3-D93~~
	~~Setaflash closed cup method~~	~~1-1020, 3-D3278~~
	~~Cleveland open cup~~	~~3-D92~~
	~~Fisher Tag~~	~~3-D56~~
~~Sample Work Up Techniques:~~		
~~Inorganic Techniques~~		
	~~Acid digestion procedure for flame atomic Absorption spectroscopy (acid digestion) as for furnace method~~	~~1-3010~~
		~~1-3020~~
	~~Acid (Parr) Bomb digestion~~	~~3-E886, E-926~~
~~Organic Techniques~~		
	~~Separatory funnel liquid-liquid extractib~~	~~3510, 8080(8.84)~~
	~~Continuous liquid-liquid extraction~~	~~1-3520~~
	~~Acid-base clean-up extraction~~	~~1-3530~~
	~~Soxhlet extraction~~	~~1-3540~~
	~~Sonication extraction~~	~~1-3550~~

PARAMETER	METHOD	REFERENCE
Inorganic Analytical Methods:		
ICAP		1-6010A
Antimony		
	Atomic absorption, direct aspiration method	4-204.1, 204.2
Arsenic		
	Atomic absorption, furnace method	1-7060A
	Atomic absorption, gaseous hydride method	1-7061
Barium		
	Atomic absorption, direct aspiration method	1-7080
	Atomic absorption, furnace method	1-7081
Beryllium		
	Atomic absorption, direct aspiration method	4-210.1
	Atomic absorption, furnace method	4-210.2
Cadmium		
	Atomic absorption, direct aspiration method	1-7130
	Atomic absorption, furnace method	1-7131
Calcium		
	Atomic absorption, direct aspiration method	4-215.1
	Atomic absorption, furnace method	4-215.2
Chromium		
	Atomic absorption, direct aspiration method	1-7190
	Atomic absorption, furnace method	1-7191
	as Hexavalent chromium: Co-precipitation	1-7195
	as Hevavalent chromium; Colorimetric	1-7196; 2-312B
	as Hexavalent chromium: Chelation extraction	1-7197; 4-218.4
Copper		
	Atomic absorption, direct aspiration method	4-220.1
	Atomic absorption, furnace method	4-220.2
Iron		
	Atomic absorption, direct aspiration method	4-236.1
	Atomic absorption, furnace method	4-236.2
	Phenanthroline method (ferrous)	2-315B
Lead		
	Atomic absorption, direct aspiration method	1-7420
	Atomic absorption, furnace method	1-7421
Magnesium		
	Atomic absorption, direct aspiration method	4-242.1
Manganese		
	Atomic absorption, direct aspiration method	4-243.1
	Atomic absorption, furnace method	4-243.2
Mercury		
	In liquid waste (manual cold vapor technique)	1-7470A
	In solid or semi-solid waste (manual cold vapor technique)	7471
Nickel		
	Atomic absorption, direct aspiration method	1-7520
	Atomic absorption, furnace method	1-7521
Selenium		
	Atomic absorption, furnace method	1-7521
	Atomic absorbtion, gaseous hydride method	1-7741

PARAMETER	METHOD	REFERENCE
Silver		
	Atomic absorption, direct aspiration method	1-7760
	Atomic absorption, furnace method	1-7761
Thallium		
	Atomic absorption, direct aspiration method	4-279.1
	Atomic absorption, furnace method	4-279.2
Zinc		
	Atomic absorption, direct aspiration method	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
Arcolein, Acrylonitrile, Acetonitrile		1-8030
Phenols		1-8040
Phthalate Esters		1-8060
Organochloride Pesticides and PCBs		1-8080
Nitroaromatics and Cyclic Ketones		1-8090
Chlorinated Hydrocarbons		1-8120
Polynuclear Aromatic Hydrocarbon		1-8100
Organophosphate Pesticides		1-8140
Chlorinated Herbicides		1-8150
GC Scans		1-8010, 3-E260
Gas Chromatographic/Mass Spectroscopy Methods:		
GC/MS Method for Volatile Organics		1-8240
GC/MS Method for Semi-Volatile Organics: Packed Column Technique		1-8250
GC/MS Method for Semi-Volatile Organics: Capillary Column Technique		1-8270
Purgeables (VOA)		8-614, 8-624
Base/Neutrals, Acids and Pesticides		8-625
Infrared Spectroscopy Methods		3-D2621, D4053,5
Miscellaneous Analytical Methods:		
Acidity		3-D1067; 2-402; 4-305.1
Alkalinity		3-D1067; 2-403; 4-310.1
pH Measurement		3-D4980; 1-9040, 9041, 9045; 2-423
Conductivity		2-205; 4-120.1
Viscosity		3-D4979; 3-D2983,D446,D88,D2196
Specific Gravity		2-210B; 3-D891,D1429,D-1217 3-1298,D70,2-213
Total and Amenable Cyanides		1-9010, 2-412, 4-335.1
Free Cyanides		2-412G, H
Total Sulfides		1-9030;2-427
Redox Potential		3-D1498

PARAMETER	METHOD	REFERENCE
	Anions by Chromatography	4-300.0;3-D4327
	Chlorides	2-407;4-300.0,325.3
	Sulfates	2-426;4-300.0,375.3
	Nitrates	2-418,2-428;4-300.0,352.1,353.2
	Fluoride	4-340.2,340.3,300.0
	Bromides	2-405;4-300.0,320.1
	Phosphates	2-424;4-300.0,365.1-4
	Ammonia	4-350.3
	Heat Value	3-D240 or D2015
	Total Chlorine Content	3-D808, D4327
	Sulfur	3-D3177, D808, D2361, D-2747, D129, D4327
	Halogen Content	3-D808, D129, D2361 D3177, D4327,E4420
	Water Content	3-D3173, D-95, E201, E203
	Total Solids	D2974, 4-160.3; 2-209A
	Suspended Solids	D2974, D1290, 4-160.1; 2-209C
	Dissolved Solids	D2974, 4-160.2; 2-209B
	Ash Content	4-160.4; 3- D482, D3174; 2-209D
	Total Fixed and Volatile Solids in Solid and Semi Solid Sample	3-D2974, 2-209F
	Phenols	4-420.1; 2-510A,B,C,D
	Petroleum Hydrocarbons, Total, Recoverable	4-418.1; 2-503E
	Oil and Grease	2-503A,B,C,D
	Total Organic Carbon	2-505, 3-D2579
	Total Organic Halogen	1-9020
	Extraction Procedure	1-1310
	Toxicity Characteristic Leaching Procedure (TCLP)	1-1311
	Paint Filter Test	01-9095
	Temperature	2-212A
	Oxidizer Screen	3-D4981
	Sulfide Screen	3-D4978
	Cyanide Screen	3-D5049
	ASTM Water Test	3-D1193
	Physical Description	3-D4979
	Flammability Potential	3-D4982
	PCBs by Immunoassay	1-Proposed

These 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", SW-846, 2nd edition, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, DC 20406, 1982, or most recent approved edition.

2 "Standard Methods for the Examination of Water and Waste Water", 16th edition, American Public Health Association, 1985, or most recent edition.

3 "Annual Book of ASTM Standards", American Society for Testing Materials, 1916 Race Street, Philadelphia, PA 19013 or most recent edition.

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, March 1979, or most recent edition.

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

6 "Acid Digestion Bombs", Bulletin 4745, Par Instrument Company, Moline, IL 61265, or most recent bulletin.

7 "Quantitative Analysis", Pierce, Haerisch, and Sawyer. 4th Edition, pp. 108-109, or most recent edition.

8 "Methods for Organic Chemical Analysis of Municipal and Industrial Waste Water", EPA 600-14-81-057, USEPA, Environmental Monitoring and support Laboratory, Cincinnati, Ohio, July 1982, or most recent edition.

Standard methods or techniques not listed here, which may be needed, will be taken from the above referenced sources or other recognized sources (e.g., AOAC, etc.).

2. Unique Analyses

These are CWM developed analytical procedures found to provide important quantitative information pertinent to certain processes.

Volatile Organic Constituents - This is a modification of Method 8010 -Halogenated Volatile Organics (SW-846, July 1982), and is meant to be used for determining the compounds identified by OEPA and CWM as Volatile Organic Constituents. Waste samples are analyzed by direct injection, or by carbon disulfide extraction and injection of the extract. Detection is achieved by use of a Flame Ionization Detector (FID). (See Section 3.1.)

pH Spectrum - To at least 50 ml of sample, strong mineral acid is added to change the pH to nearly 1. Then strong caustic is added to another aliquot to change the pH to near 14. During the pH change, waste behavior is noted with respect to production of solids, temperature change, and gas evolution.

~~Sulfate Screen - To 50 ml of sample, hydrochloric acid is added to adjust the pH to below pH 2. Then approximately 1 ml of 10% $BaCl_2$ solution is added. Formation of any precipitate may indicate the presence of sulfates and is noted.~~

~~Heat Phase Separation - Approximately 150 ml of aqueous waste is heated in a bath at 70°C for 24 hours. Layering or phase separation is noted.~~

~~Solvent Screen (Gas Chromatography Scan) - Uses standard techniques tailored to cover a wide range of compound types for quick screening of common industrial organics.~~

~~Distillation - In an appropriate size standard flask/condenser distillation setup, add known quantity of sample and boiling chips. Apply heat with an electrically heated oil bath, electric mantle or steam. During distillation, maintain heat so that a drop of liquid remains on the thermometer bulb. Monitor temperature and collected volume of each fraction.~~

~~Time Filtration - Filtration test is conducted at Ambient temperature to approximate surface equipment filtering as 0.45 micron polish filters and at 5 micron to simulate the filterpress. Filter Aid additions as needed.~~

~~The procedure for the testing is as follows:~~

- ~~Place 50 ml of the sample in a 40°F water bath for 30 minutes, then filter the sample through a 5 micron glass or inert filter and record the time in seconds to filter the entire sample. Record the solids collected. the 5 micron filtration provides a rough approximation of minimum surface treatment.~~

~~Repeat the previous step using a 75°F water bath.~~

- ~~Using 20 ml of the filtered sample from the 75°F test, filter the sample through a 0.5 micron glass filter and record the time in seconds to filter, and the solids collected. This provides a rough approximation of filtering in the formation. Compare this filtration time with that of similar waste known to be injectable.~~

~~In all of the above steps, record any emulsions, polymers, or precipitates formed during or following filtration.~~

~~Calcium Hydroxide~~ ~~This is a quick test for formation incompatibility. The test is run as follows:~~

- ~~As a rough test for formation difficulties, mix 10 ml of 1.0 Normal $Ca(OH)_2$ solution to 90 ml of 0.5 micron filtered waste in a beaker at 112°F and visually check for cloudiness, precipitates, or polymers after 5 minutes, 2 hours, and (if time allows) after 24 hours.~~

~~Process Blend Testing~~ ~~This testing is done to determine compatibility between wastes or waste blends, and to determine the need for and compatibility with spacer fluids.~~

- ~~For testing two wastes (or blends) A and B, mix the waters in clean glassware, then cap the glassware and agitate the mixture. Place the jars (or tubes) in a 75°F water bath for 24 hours, agitating the mixture either continuously or every 4 hours.~~

- ~~At the end of each 4 hour period, visually inspect the mixtures for precipitate, color changes, emulsions, or phase separations. Mix by ratio as follows:~~

~~Tube Number~~	~~(1)~~	~~(2)~~	~~(3)~~	~~(4)~~	~~(5)~~	~~(6)~~	~~(7)~~
~~Water A, mls~~	~~50~~	~~45~~	~~35~~	~~25~~	~~15~~	~~5~~	~~0~~
~~Water B, mls~~	~~0~~	~~5~~	~~15~~	~~25~~	~~35~~	~~45~~	~~50~~

~~Record the results for each waste tested. Promising blends may be further tested, using the Timed Filtration and Waste Compatibility Test to ensure that the wastes are injectable with existing treatment.~~

~~If additional treatment~~

~~or study is indicated, the blends will be subjected to process testing and/or core testing (described later).~~

~~Process Testing or Core Testing - Using a Laboratory process simulation, a pre-treatment process will be used to determine waste injectability. As a final test, a waste sample may be subjected to the proposed pretreatment process and the process effluent may be flow tested through actual formation core material to ensure that the treated waste or process effluent is not damaging to the formation.~~

~~Viscosity Analyses are designed to screen out wastes containing viscous polymers, and provide viscosity information useful in predicting filtration and reservoir hydraulics. Three viscosity measurements (centipoise) will be taken:~~

~~40°F - simulates winter surface temperatures~~

~~75°F - simulates ambient temperatures~~

~~120°F - simulates downhole temperatures~~

~~Laboratory Corrosion Tests - Testing of metals is per NACE standard TM-01-69-1976. Resin samples are tested similarly, but analysis is according to criteria established by the plastics industry. Fiberglass coupons should be sealed with resin on all edges and evaluated based on discoloration, softening, and gain (or loss of weight), plus visual deterioration such as cracks, blistering, or embrittlement. As additional materials of construction are added (such as tank linings, pump seals, etc.), these materials will also have to be evaluated.~~

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

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. Analytical procedures, not listed below, may be added as necessary and will be taken from the references listed at the end of this appendix or other recognized sources, for example, Association of Official Analytical Chemists (AOAC), or will be developed by CWM and meet CWM performance standards.

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 CWM-developed analytical procedures have been found by CWM to provide important information pertinent to certain processes. In some cases, these tests provide information not available from standard analytical procedures found in Section II, which follows. The methods described below are based on ASTM standards or standard procedures recognized by EPA or are based on procedures and protocol formulated by CWM and meet CWM performance standards. These tests provide important operational information.

Process Testing - Samples of process candidate wastes are combined with samples of other wastes, spacer fluids, filter aids or other reagents at predetermined ratios. Further testing may be required in order to confirm that no undesirable reaction has occurred.

Process Blend Test (TWO Test) - This bench-scale process test determines compatibility between candidate wastes or waste blends, and determines the need for, and compatibility with, spacer fluids. Samples of wastes, waste blends, and/or spacer fluids are mixed in pre-determined ratios and subjected to specified shaking and heating regimes. The mixtures are observed for compatibility and unacceptable color changes, precipitate or emulsion formations, or phase separations. Promising mixtures may be further tested, as requested.

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Timed Filtration - This bench-scale process test is conducted at ambient temperatures (1) to approximate the filtration that occurs naturally in the formation into which wastes may be injected or (2) to simulate alternative filtering processes and conditions to which a waste may be subjected prior to deepwell injection. The key parameter measured is the time required for filtering a specified quantity of sample under specified conditions. Other observations are made. These may include the formation of any emulsions, polymers, or precipitates during or following filtration and the color, odor, or other notable changes in the collected solids. The collected solids from this test may utilized for additional tests, if requested.

Organics Screen by Immunoassay - A portion of the waste sample is prepared for immunoassay 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).

pH Spectrum - For this bench-scale process test, strong mineral acid is added to an aliquot of waste sample to adjust the pH to nearly 1. Then strong caustic is added to another aliquot to change the pH to near 14. During the pH change, waste behavior is noted with respect to production of solids, temperature change, and gas evolution.

Phenol Screen - After extraction and pH adjustment, the sample is mixed with reagents. Phenolic materials react with 4-aminoantipyrine in the presence of potassium ferricyanide at a pH of 10, to form a stable reddish-brown colored antipyrine dye. The generation of color indicates phenolics.

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

Solvent Screen - Uses standard analytical procedures tailored to cover a range of organic compound types for quick screening of common industrial organics.

Volatile Organic Constituents - This is a modification of ~~SW-846 Method 8010B - Halogenated Volatile Organics~~ASTM D5830-Solvents Analysis in Hazardous Waste using Gas Chromatograph, and is meant to be used for determining the compounds identified by OEPA and CWM as volatile organic constituents. Waste samples are analyzed by direct injection, or by carbon disulfide extraction and injection of the extract. Detection is achieved by use of a Flame Ionization Detector (FID).

Included at the end of Section II is a listing of and copies of site specific procedures, site specific methods and company method modifications for methods which are utilized to analyze the samples in accordance with OAC 3745-54-13.

STANDARD ANALYTICAL PROCEDURES

PARAMETER	METHOD	REFERENCE
Sample Work-Up Techniques		
	General Extractions	
	Extraction Procedure (EP) Toxicity Test Method and Structural Integrity Test	1/1310A
	Toxicity Characteristic Leaching Procedure (TCLP)	1/1311
	Metals Acid Digestions	
	For flame atomic absorption spectroscopy (AAS) or inductively coupled plasma spectroscopy (ICP)	1/3005A, 3010A
	Microwave assisted	1/3015; 2/3030K; 3/D4309, D5258
	For graphite furnace atomic absorption spectroscopy (GFAA)	1/3020A
	Of sediments, sludges, soils, and oils	1/3050B
	-- Microwave assisted	1/3051
	Parr acid bomb digestion	3/E886, E926; 6/
	Organic Extractions and Cleanups	
	Separatory funnel liquid-liquid extraction	1/3510C
	Continuous liquid-liquid extraction	1/3520C
	Solid phase extraction (SPE)	1/3535
	Soxhlet extraction	1/3540C, 3541
	Sonication extraction	1/3550B
	Waste dilution	1/3580A, 3585
	Alumina cleanup	1/3610B, 3611B
	Florisil cleanup	1/3620B
	Silica gel cleanup	1/3630C
	Gel-permeation cleanup	1/3640A
	Acid-base partition cleanup	1/3650B
	Sulfur cleanup	1/3660B
	Sulfuric acid/permanganate cleanup	1/3665A
Elemental Analytical Methods		
	Inductively coupled plasma atomic emission spectroscopy (ICP)	1/6010B
	Antimony	
	Atomic absorption, direct aspiration method	1/7040; 4/204.1
	Atomic absorption, furnace technique	1/7041; 4/204.2

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ARAMETER	METHOD	REFERENCE
Arsenic		
	Atomic absorption, furnace technique	1/7060A; 4/206.2
	Atomic absorption, gaseous hydride method	1/7061A; 4/206.3
Barium		
	Atomic absorption, direct aspiration method	1/7080A; 4/208.1
	Atomic absorption, furnace technique	1/7081; 4/208.2
Beryllium		
	Atomic absorption, direct aspiration method	1/7090; 4/210.1
	Atomic absorption, furnace technique	1/7091; 4/210.2
Cadmium		
	Atomic absorption, direct aspiration method	1/7130; 4/213.1
	Atomic absorption, furnace technique	1/7131A; 4/213.2
Calcium		
	Atomic absorption, direct aspiration method	1/7140; 4/215.1
	Atomic absorption, furnace technique	4/215.2
Chromium		
	Atomic absorption, direct aspiration method	1/7190; 4/218.1
	Atomic absorption, furnace technique	1/7191; 4/218.2
	Hexavalent chromium: Co/precipitation	1/7195
	Hexavalent chromium: Colorimetric	1/7196A; 2/3500CrD
	Hexavalent chromium: Chelation/extraction	1/7197; 4/218.4
	Hexavalent chromium: Ion Chromatography	2/3500CrE
Copper		
	Atomic absorption, direct aspiration method	1/7210; 4/220.1
	Atomic absorption, furnace technique	1/7211; 4/220.2
Iron		
	Atomic absorption, direct aspiration method	1/7380; 4/236.1
	Atomic absorption, furnace technique	1/7381; 4/236.2
	Phenanthroline method (ferrous)	2/3500FeD
Lead		
	Atomic absorption, direct aspiration method	1/7420; 4/239.1
	Atomic absorption, furnace technique	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 technique	1/7461; 4/243.2
Mercury (manual cold/vapor technique)		
	In liquid waste	1/7470A
	In solid or semisolid waste	1/7471A

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PARAMETER	METHOD	REFERENCE
Nickel		
	Atomic absorption, direct aspiration method	1/7520; 4/249.1
	Atomic absorption, furnace technique	1/7521; 4/249.2
Selenium		
	Atomic absorption, furnace technique	1/7740; 4/270.2
	Atomic absorption, gaseous hydride method	1/7741A; 4/270.3
Silver		
	Atomic absorption, direct aspiration method	1/7760A; 4/272.1
	Atomic absorption, furnace technique	1/7761; 4/272.2
Thallium		
	Atomic absorption, direct aspiration method	1/7840; 4/279.1
	Atomic absorption, furnace technique	1/7841; 4/279.2
Zinc		
	Atomic absorption, direct aspiration method	1/7950; 4/289.1
	Atomic absorption, furnace technique	1/7951; 4/289.2
Organic Analytical Methods		
Gas Chromatography Methods		
	Halogenated volatile organics	1/8010B; 8021B
	Nonhalogenated volatile organics	1/8015B
	Aromatic volatile organics	1/8021B
	Phenols	1/8041
	Phthalate esters	1/8061A
	Nitrosamines	8070A
	Organochlorine pesticides and halowaxes	1/8081A
	Polychlorinated biphenyls (PCBs)	1/8082
	Nitroaromatics and cyclic ketones	1/8091
	Polynuclear aromatic hydrocarbons	1/8100
	Haloethers	1/8111
	Chlorinated hydrocarbons	1/8121
	Organophosphorous pesticides	1/8141A
	Chlorinated herbicides	1/8151A
Gas Chromatography/Mass Spectroscopy Methods		
	Volatile organics	1/8260B; 7/624
	Semi-volatile organics	1/8270C; 7/625

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PARAMETER	METHOD	REFERENCE
Other Organic Methods		
	Qualitative infrared spectroscopy	1/8410, 8430, 8440; 3/D2621, D4053; 5/
	GC/FTIR method	1/8410
	Heat of combustion, bomb calorimeter method	1/5050; 3/D240, D2015
	Halogen and sulfur content	
	Chlorine content	3/D808, D2361, D4327
	Halogen content	3/D808, D2361, D4327
	Sulfur content	3/D129, D3177, D4327
	Oil and grease	1/4030, 9070, 9071A; 2/5520; 4/413.1, 413.2
	Petroleum hydrocarbons, total recoverable	2/5520F; 4/418.1
	Phenolics	1/9065, 9066, 9067; 2/5530, 6420; 4/420.1
	Solvent Distillation	3/D86, D1078
	Total organic carbon	1/9060; 2/5310; 3/D2579
Screening Methods		
	Physical description	3/D4979
	Flammability potential screen	3/D4982
	Water compatibility	3/D5058C
	Oxidizer screen	3/D4981
	pH screen	3/D4980
	Sulfide screen	3/D4978
	Cyanide screen	3/D5049
	Commingled waste compatibility	3/D5058A
	Polymerization potential	3/D5058B
	Paint filter test	1/9095A
	Bulk density and apparent specific gravity screen	3/D5057
	Polychlorinated bephenyls (PCBs) screen	1/4020, 9078

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ARAMETER	METHOD	REFERENCE
Miscellaneous Analytical Methods		
Acidity		2/2310
Alkalinity		2/2320
Ammonia		2/4500NH; 4/350.3
Anions		
	By ion chromatography	1/9056; 3/D4327; 4/300.0
	Chlorides	1/9250, 9251, 9252A, 9253; 2/4500Cl; 4/300.0, 325.3
	Sulfates	1/9035, 9036, 9038; 2/4500SO_4^{2-}; 4/300.0, 375.3
	Nitrates	1/9200A, 9210; 2/4500NO_3^-; 4/300.0, 352.1, 353.2
	Fluoride	1/9214; 2/4500F; 4/300.0, 340.2, 340.3
	Bromides	1/9211; 2/4500Br^-; 4/300.0, 320.1
	Phosphates	2/4500P; 4/300.0, 365.1/4
Ash content		2/2840G; 3/D482, D3174
Conductivity/conductance		1/9050A; 2/2510; 3/D1125; 4/120.1
Cyanides		
	Total and amenable cyanides	1/9010A, 9012A, 9013; 2/4500CN C,G; 4/335.1
	Dissociable cyanides	1/9213; 2/4500CN I
Flash point		
	Pensky-Martens closed-cup method	1/1010; 3/D93
	Setaflash closed-cup method	1/1020A; 3/D3278
	Cleveland open-cup method	3/D92
Oxidation/reduction (redox) potential (ORP)		3/D1498
pH measurement		1/9040B, 9041A, 9045C; 2/4500H^+; 3/E70; 4/150.1
Solids		
	Total (TS) at 103/105°C	2/2540B; 4/160.3
	Dissolved (TDS) at 180°C	2/2540C; 4/160.1
	Total suspended (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
Sulfides		
	Extractable sulfides	1/9031
	Soluble sulfides	1/9215; 2/4500S^{2-}
	Total sulfides	1/9030A; 2/4500S^{2-}
Viscosity		3/D88, D446, D2983
Water content		3/D95, D3173, D4006, E203

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The leading digit of the reference numbers above are keyed to the numbered publications below.

1/ *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846, Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC, September 1986, as amended by Final Update I (July 1992), and Final Update II (September 1994), Final Update IIA (August 1993), and Final Update IIB (January 1995), or more recent edition, update or revision including Proposed Update III (available from Superintendent of Documents, Government Printing Office, Washington, DC 20402).

2/ *Standard Methods for the Examination of Water and Wastewater*, 18th Edition, American Public Health Association (APHA), American Water Works Association, Water Environment Federation, 1992, and 18th Edition Supplement, 1994, or more recent edition or update (available from APHA, 1015 Fifteenth Street, NW, Washington, DC 20005).

3/ *Annual Book of ASTM Standards*, American Society for Testing and Materials (ASTM), 1993, or more recent edition or revision (available from 1916 Race Street, Philadelphia, PA 19013).

4/ *Methods for Chemical Analysis of Water and Wastes*, EPA-600/4-79-020, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory (EMSL), Cincinnati, 1979, as revised March 1983, or more recent revision or technical addition (available from EMSL, Cincinnati, OH 45268).

5/ "Infrared Analysis Method" in *IERL-RTP Procedures Manual: Level 1 Environmental Assessment*, Second 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", Title 40, Part 136, Appendix A, Code of Federal Regulations, U. S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory/Cincinnati, as amended June 1986, or more recent revision (available from Superintendent of Documents, Government Printing Office, Washington, DC 20402).

8/ Bellar, T. A., and Lichtenberg, J. J., "The Determination of Polychlorinated Biphenyls in Transformer Fluid and Waste Oils", EPA-600/4-81-045, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory (EMSL), Cincinnati, 1982.

Standard analytical procedures not listed here, which may be needed, will be taken from the above-referenced sources or other recognized sources, e.g., Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), 15th Edition, AOAC, Arlington, Virginia, 1990, or more recent supplements or editions (available from AOAC, 2200 Wilson Blvd., Suite 400, Arlington, VA 22201).

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Below is a summary table which lists the site specific methods and procedures and company modifications included in the following pages. The summary table provides a description of the method, the site specific number assigned to the document and, if applicable, the ASTM, EPA, Standard Method or SW846 Method that it is a modification of.

METHOD DESCRIPTION	SITE SPECIFIC #	METHOD MODIFICATION OF:
Acidity/Alkalinity	WM 97-68	ASTM D 1067-92
Anions by Ion Chromatography	WM 97-40	EPA 300.0-1
Cyanides Screen by Gas Detector Tube	VIC0789-2	N/A
Cyanide Screen by Cyantesmo Paper	SSP-D5049	ASTM D 5049-90
PCBs by Gas Chromatography	SW846-8080A	N/A
PCBs by Gas Chromatography	SSP-8080A	SW846-8080A
Determinative Chromatographic Separations	SSP-8000B	SW846-8000B
pH by Meter	WM 97-71	ASTM D 4980-89B
Radioactivity Test	WM 97-36	ASTM D 5928-96
Redox Potential	WM 97-66	ASTM D 1498-93
Separatory Funnel Liquid-Liquid Extraction	SSP-3510C	SW846, Method 3510C
Sulfur Cleanup	SSP-3660B	SW846, Method 3660B
Sulfuric Acid/Permangante Cleanup	SSP-3665A	SW846, Method 3665A
Solvents by Gas Chromatography	WM 97-02	ASTM D 5830-95
Sulfide Screen by Gas Detector Tube	VIC0789-3	N/A

METHOD MODIFICATION
ASTM D 1067

DETERMINATION OF PERCENT ACIDITY AND ALKALINITY

IN BUFFERED OR UNBUFFERED

HAZARDOUS WASTE

BY

ELECTROMETRIC TITRATION

"This method is confidential and is intended for the sole use and benefit of Waste Management℠, Inc. and its affiliated companies (collectively, WM), and may not be modified, reproduced, circulated or quoted in whole or in part, except with the approval of the Director of Laboratory Quality for Waste Management℠, Inc. WM assumes no responsibility whatsoever for the precision and bias of results or the safety of any analysis utilizing this method unless performed by WM. It is the responsibility of the user of this method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. This method may be changed by WM at any time without notice to the user."

1.0 SCOPE AND APPLICATION

1.1 This method is for determining the percent acidity or alkalinity of hazardous waste, by electrometric titration.

1.2 This method is applicable to determine the acidity or alkalinity of aqueous liquid, solid, and semisolid hazardous waste samples. It may be used for samples containing a significant amount of organic material.

1.3 The method is also applicable to determination of the alkalinity of buffered hazardous wastes.

1.3.1 Buffered hazardous waste includes those stabilized with reagents such as lime, kiln dust, calcium oxide, magnesium oxide and other cementaceous materials.

1.3.2 Many stabilization reagents also fall into this category.

1.3.3 Alkalinity of buffered waste is measured by back-titration procedure.

1.4 A hazardous waste should be approached as an unbuffered material unless site operations or operator knowledge directs otherwise.

1.5 The data is reported as percent acidity or alkalinity.

1.5.1 Unless otherwise specified, acidity data is reported as % H_2SO_4. The data can be reported in terms of other acids present in Section 8.3.

1.5.2 Unless otherwise specified, alkalinity data is reported as % NaOH. The data can be reported in terms of other alkalies presented in Section 8.3.

1.6 The data is applicable to the broad range of disposal decisions, regulatory issues, and process control situations encountered in the hazardous waste disposal area.

2.0 SUMMARY OF METHOD

2.1 For unbuffered samples, a weighed portion is titrated with standardized aqueous acid or alkali, to a defined electrometrically monitored endpoint.

2.2 For buffered alkali samples, a known volume of standardized acid is mixed with a weighed portion of sample for ten minutes. the excess is acid back titrated with standardized alkali to a defined, electrometrically monitored endpoint.

3.0 INTERFERENCES

3.1 The presence of oils or precipitated solids may interfere with the operation of the pH electrode, requiring that the electrode be cleaned periodically before and during use.

3.2 Metals in their elemental states will react with hydrochloric acid titrant, and thereby contribute to the measured alkalinity. This effect is more pronounced with "back-titration" procedure in Paragraph 7.7, than with the procedure in Paragraph 7.5. The presence of elemental metals may also cause erratic results unless all analysts use uniform sample size, volume of hydrochloric acid titrant and stirring times.

3.3 In samples containing oxidizable or hydrolyzable species such as ferrous or ferric ion, iron, aluminum, and manganese, the reaction rates at room temperatures may be slow enough to cause drifting end points.

4.0 APPARATUS

4.1 pH Meter, guideline documentation presented in ASTM D1293.

4.2 Balance, readable to 0.001 g.

4.3 Magnetic stirplate and stirbar

4.4 Buret, 50 mL capacity

4.5 Beaker, 250 mL capacity

4.6 Titroprocessor, or other self calibrating, automated instrument, may be used in place of manual equipment.

5.0 REAGENTS

5.1 Reagent Water, reagent water is defined as water in which an interference is not observed at or above the method detection limit (MDLs) of the analyte(s) of interest. Typically double deionized water, with electrical resistivity of > 1.0 mohms/cm at 25°C or electrical conductivity of < 1.0 microseimens/cm at 25°C, is used.

5.2 Hydrochloric acid, 1.0 N, prepare as directed in ASTM E200, or purchase certified reagent.

5.3 Sodium hydroxide, 1.0 N, prepare as directed in ASTM E200, or purchase certified reagent.

6.0 SAMPLE COLLECTION, PRESERVATION AND HANDLING

6.1 All samples must be collected using a sampling plan that addresses the considerations discussed in the sites's Waste Analysis Plan.

6.2 the samples should be analyzed as soon as possible.

7.0 PROCEDURE

All Materials

7.1 Mount the electrodes and calibrate the system as recommended by the manufacturer.

7.2 Weigh an appropriate sample into a tared 250 mL beaker, using one of the following guidelines.

7.2.1 The sample weight can fall between one and ten grams.

7.2.2 A sample weight can be selected, which is 100 times the milliequivalent weight of the acidic or alkali species presented in Section 8.3.

7.2.3 For samples which react slowly with hydrochloric acid titrant, individual laboratory may specify a uniform sample size in order to increase precision.

7.3 Bring to a total volume of approximately 100 mL with reagent water. Add the stirbar and place onto the stirplate. Turn on the stirplate and establish an even stirring rate, while minimizing aeration or splattering of the sample mixture.

7.4 If the sample is alkali buffered as described in Section 1.3, go to Section 7.7.

Unbuffered Materials

7.5 Titrate with either acid or base to the appropriate endpoint. The endpoint pH should be stable to ± 0.2 pH units for ten seconds.

7.5.1 The recommended endpoint for the percent acidity measurement is 8.3.

7.5.2 The recommended endpoint for the percent alkalinity measurement is 4.5.

7.5.3 Titration to an endpoint (for example 7.0) between the recommended values is acceptable, if required by site or process requirements. The need for this change and the actual endpoint must be documented in a site specific practice.

7.6 Go to Section 8.1 to perform the calculations.

Buffered Materials

7.7 Add 50 mL of 1.0 N HCl to the beaker and stir for 10 minutes.

7.7.1 If the pH is greater than 3.7, restart the analysis at Section 7.2, using a smaller sample mass.

7.8 Refer to Section 7.5.2 and titrate the excess HCl with standard alkali to a pH 4.5 endpoint.

7.9 Go to Section 8.2 to perform the calculations.

8.0 CALCULATIONS

8.1 Calculate the acidity or alkalinity of unbuffered samples using the following equation. Refer to Section 8.3 for the milliequivalent weight of the acid or alkali species.

$$\% \text{ (Acidity or Alkalinity)} = \frac{V \times N \times M \times 100}{G}$$

where:

V = volume of titrant, mL
N = normality of titrant, meq/mL
M = meq. wt. of species, g/meq, Sec. 8.3
G = sample mass, grams

8.2 Calculate the alkalinity of buffered samples using the following equation. Refer to Section 8.3 for the milliequivalent weight of the alkali species.

$$\% \text{ Alk} = \frac{[(V_{HCl} \times N_{HCl}) - (V_{NaOH} \times N_{NaOH})] \times M \times 100}{G}$$

where:

V_{HCl} = volume of HCl titrant used, mL
N_{HCl} = normality of HCl titrant, meq/mL
V_{NaOH} = volume of NaOH titrant used, mL
N_{NaOH} = normality of NaOH titrant, meq/mL
M = milliequivalent weight of species, g/meq (See Sec. 8.3)
G = sample mass, grams

8.3 The following lists the milliequivalent weights of some acids and bases.

Acid Species	Formula	Meq Wt. (g/meq)
Acetic acid	CH_3CO_2H	0.0601
Chromic acid	H_2CrO_4	0.0590
Fluoroboric acid	HBF_4	0.0880
Formic acid	HCO_2H	0.0460
Hydrochloric acid	HCl	0.0365
Nitric acid	HNO_3	0.0630
Phosphoric acid	H_3PO_4	0.0490
Sulfuric acid	H_2SO_4	0.0490

ALkali Species	Formula	Meq. Wt (g/meq)
Ammonia	NH_3	0.0170
Ammonium hydroxide	NH_4OH	0.0350
Calcium carbonate	$CaCO_3$	0.0500
Calcium hydroxide	$Ca(OH)_2$	0.0370
Potassium hydroxide	KOH	0.0560
Sodium bicarbonte	$NaHCO_3$	0.0420
Sodium carbonate	$NaCO_3$	0.0530
Sodium hydroxide	NaOH	0.0400

9.0 QUALITY CONTROL

9.1 Follow current quality control policy and procedures.

10.0 REFERENCES

10.1 ASTM D1293, Standard Test Methods for pH of Water

10.2 ASTM E200, Standard Practice for Preparation, Standardization and Storage of Standard Solutions for Chemical Analysis.

METHOD MODIFICATION

EPA Test Method 300.0

Test Method for the Determination of Inorganic Anions by Ion Chromatography

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1.0 SCOPE AND APPLICATION

1.2. The matrices applicable to each method are show below:

C. The method can also be used to determine the total anions in the collection solutions of bomb combustate samples.

4.0 INTERFERENCES

4.2 The water dip should not be observed in the combustate samples; the collecting solution is a concentrated eluent solution that will match the eluent strength when diluted to 100 mL with reagent water according to the bomb combustion procedure.

4.9 Interferences from compounds such as ClO_4^-, $Fe(CN)_6^{3-}$, other metal-cyanide complexes, aromatics, surfactants, and humic acids reduces the column capacity by occupying the available sites in the column resin. Some of these contaminants bind irreversibly. Also, high concentrations of Fe, Ni, CU, Zn, hydroxide ion, peroxides, and dissolved gases, have the potential to interfere with the analysis. Because these sources of contamination cause irreversible damage, prevention may be the best mode of avoiding the interference. Routine column clean-ups with 1N HCl can reduce the concentration of some metals and inorganic species retained by the columns.

4.10 Storage of diluted eluent can allow microbial growth and cause the column blockage. It is important to prepare fresh eluent frequently (at least every two weeks) to be used immediately. Frequent flushing and proper storage of the columns are also very important.

6.0 APPARATUS AND MATERIALS

6.2.1 Precolumn, a guard column placed before the separator column to protect the separator column from being fouled by particulates or certain organic constituents. Usually packed with a substrate the same as that in the separator column. Use Dionex AG4A guard column P/N 37042 or equivalent.

6.2.3 Suppressor column, a column that is capable of converting the eluent and separated anions to their respective acid forms. Use Dionex AMMC column P/N 38019 or equivalent.

7.0 REAGENTS

7.2 Reagent water, reagent water is defined as water in which an interference is not observed at, or above, the method detection limits (MDLs) of the analyte(s) of interest. Typically, double deionized water with electrical resistivity of > 1.0 Mohms-cm at 25°C or electrical conductivity of ≤ 1.0 microsiemens/cm at 25°C is used. Column life may be extended by passing reagent water through a 0.22-um filter prior to use.

7.3 The optimal eluent concentration for separations is dependent on the column set to be used. Thus, recommendations from the manufacturer of the columns should be used as a guideline for eluent preparation. Commercially available concentrated eluent solution can also be used. For example, if Dionex AS4A separator column is used, then Dionex AS4A 1.7 mM sodium bicarbonate and 1.8 mM sodium carbonate eluant concentrate P/N 39513 is recommended.

7.5 Stability of Standards: Stock Standards are stable for at least one month when stored at 4°C. For stock solutions purchased commercially with an expiration date, the stock solutions can be used until the expiration date provided Section 10.7 and 10.12 are satisfied. Dilute working standards should be prepared weekly, except those that contain nitrite and phosphate should be prepared daily.

9.0 QUALITY CONTROL

Laboratories will follow all aspects of the method quality control process as described in Section 9, except as noted below.

9.3.2 Laboratory Fortified Blank (LFB)/Quality Control Sample (QCS) - The laboratory will analyzed one LFB each 20 samples. Accuracy as percent recovery (Sec. 9.4.2) is calculated. However, the analytical run will not be adjudged out of control based on LFB results if the analysis is for "total" anions.

9.3.2.1 If the analysis is being performed as a "free" anion (i.e. aqueous matrix), then the LFB method criteria are required, since the samples would not be digested via bomb calorimetry and the recovery of a spiked water blank would be an indication of the laboratory's ability to make accurate and precise measurements on an aqueous matrix.

9.3.2.2 If the analysis is being performed as a "total" anion (i.e., from a non-aqueous matrix, e.g. total chlorides from a fuels blend of chlorinated solvents), then the LFB method criteria are not critical, since the "total" anion samples are not, by definition, aqueous. The "total" anions are first digested via bomb calorimetry prior to IC analysis. The QCS is more indicative of the entire analytical process and is used to monitor the precision and accuracy of the method.

9.3.3 The laboratory must use QCS analyses data to assess laboratory performance against the required control limits of the mean $\pm$ 3s from the statistical evaluation of at least thirty points. Until 30 points are available, the range of (true value $\pm$ 10%) shall be used as the acceptance limits.

11.0 PROCEDURE

11.5 If the response for the peak exceeds the working range of the system, dilute the sample with an appropriate amount of eluent solution instead of reagent water and reanalyze.

12.0 CALCULATION

12.3.1 Enter the calibration standard concentrations or peak heights from the integrator or recorder into a calculator with linear least squares capabilities.

12.3.2 Calculate the following parameters: slope (s), intercept (I), and correlation coefficient (r). the slope and intercept define a relationship between the concentration and instrument response of the form:

$$Y = sx + I$$

where:

Y = predicted instrument response
s = response slope
x = concentration of standard
I = intercept

Rearranging the above equation yields the concentration of a sample corresponding to an instrumental measurement.

$$x = (Y-I)/s$$

where:

x = calculated concentration for the sample
Y = actual instrument response for the sample

14.0 REFERENCES

14.5 EPA SW846-9056; "Anion Chromatography Method, Sept. 1994

Vickery Site Specific

Method for Screening of Cyanides

using

Gas Detector Tubes

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GAS DETECTOR TUBE METHOD FOR CYANIDE

1.0 SCOPE AND APPLICATION

1.1 This method is designed as a screening device to detect low level amounts of cyanide in a acidified atmosphere by the utilization of a gas detector tube as evolved hydrogen cyanide gas.

2.0 SUMMARY OF METHOD

2.1 A portion of the sample is acidified in an Erlenmeyer flask to release hydrogen cyanide gas. The gas is funneled through a gas detector tube creating a stain inside the tube in proportions to the concentration of cyanide gas in the vapor. A definite color change in the tube indicates the positive presence of cyanide.

3.0 TERMINOLOGY

3.1 Screening Method means a preliminary qualitative or semi-quantitative test developed from classical qualitative and quantitative techniques. The method is designed to efficiently give the user specific information about the waste which will aid in determining waste identification, process compatibility and safety in handling.

4.0 SAMPLE STORAGE AND PRESERVATION

4.1 Samples should be analyzed as soon as possible. All liquid samples should be preserved with 2.5N sodium hydroxide to adjust the pH range between 10 to 13, if pH is less than 10 and samples are to be stored.

5.0 APPARATUS

5.1 A 500 milliliter ground glass stoppered Erlenmeyer flask.

5.2 A gas detector pump.

5.3 An automatic dispensing pipetor.

5.4 A 100 milliliter graduated cylinder.

5.5 pH meter.

6.0 REAGENTS

6.1 Gas detector tube with hydrogen cyanide indicator.

6.2 Concentrated hydrochloric or sulfuric acid, or acidic waste.

6.3 pH paper

7.0 PROCEDURE

7.1 Use between 1 and 100 ml of sample. Volume can be measured by using a graduated cylinder and/or an automatic dispensing pipetor.

7.2 Acidify this sample test portion to a pH of 2 or less with concentrated hydrochloric, sulfuric or waste acid. If waste is to be used, place the waste acid in the flask and add the sample test portion to a total volume of 100 ml. Gas vapor should now form.

7.3 Break both of the glass tip ends of the gas detector tube. Insert the tube into the gas detector pump. (Arrow towards pump)

7.4 Place the gas detector tube inside the mouth of the 500 milliliter Erlenmeyer flask. The end of the tube should reach halfway inside the flask. Actuate the pump the number of times directed in the manufacturers instructions and read the measurement of concentration by total length of discoloration.

7.5 If the detector tube reading is above the scale of the tube, alter the amount of sample used and/or the detector tube with an appropriate scale.. This will reduce the amount of cyanide released and will allow the vapor concentration to be on the scale of the detector tube.

8.0 CONCENTRATION CALCULATION

8.1 In order to screen the concentration of releasable cyanide in the liquid sample, the

concentration of the gas must be converted to a concentration in liquid. This can be done by using the following calculation.

$$1 \text{ ppm HCN in gas} = 1.13 \text{ mg HCN/m}^3 \text{ in gas}$$

X = ml of liquid sample
Y = ml vapor space in Erlenmeyer flask
Z = ppm HCN reading on tube

To determine the mass (mg) of HCN released from the liquid into the gas:

$$Z \text{ ppm HCN} \times \frac{1.13 \text{ mg HCN/m}^3}{\text{ppm HCN}} \times Y \text{ ml} \times \frac{1 \text{ cm}^3}{\text{ml}} \times \frac{1 \text{ m}^3}{(100 \text{ cm})^3} = 1.13 \times 10^{-6} YZ \text{ mg HCN}$$

To determine the concentration of HCN in the liquid sample:

$$1.13 \times 10^{-6} YZ \text{ mg HCN} \times \frac{1}{X \text{ ml}} \times \frac{1000 \text{ ml}}{1 \text{ L}} = \frac{1.13 \times 10^{-3} YZ \text{ mg}}{X \text{ L}}$$

Example: if you use 5 ml of liquid sample and acidify it into 95 ml of waste from T-1 or T-2, the Erlenmeyer flask has a vapor volume of 500 ml and you obtain a reading on the tube of 100 ppm, the total releasable cyanide is calculated as:

$$\frac{1.13 \times 10^{-3} YZ \text{ mg}}{X \text{ L}} = \frac{1.13 \times 10^{-3} \times 500 \times 100}{5} = 11.3 \text{ mg/l}$$

9.0 REMARKS

9.1 The gas detector tube can only be used once and must be disposedof after a negative or positive result. After a positive result, the discoloration may persist for a short period of time, so that evaluation should be carried out immediately after the measurement.

9.2 Test the gas detector pump by inserting a gas detector tube with glass tip ends still intact. Squeeze the pump once and the pump should maintain vacuum tightness.

9.3 All testing should be done in the fume hood.

10.0 QUALITY CONTROL

10.1 A quality control check sample is performed on each lot of sample tubes.

10.2 Duplicates and spikes will be performed on every 20th sample analyzed.

10.3 Since this is a semi-quantitative screening method, if the calculated concentration is 125 mg/l or larger, the sample should be analyzed by another, quantitative method. This is 1/2 the concentration of our site limit of 250 mg/l reactive (releasable) cyanide.

Vickery Site Specific Procedure

to

ASTM D5049 - 90

Standard Test Method

for

Screening of Cyanide in Waste

(Test Method C - Cyantesmo Paper)

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19.0 INTERFERENCES

19.2 CYANTESMO paper is very sensitive to cyanide solutions weakly acidified with sulfuric acid and does not react with alkaline solutions. Strongly acidic solutions destroy the Cyantesmo reagent. To circumvent interferences by volatile oxidizing or reducing agents hydrocyanic acid can be set free by sodium hydrogen carbonate.

20.0 REAGENTS AND MATERIALS

20.1 Sulfuric Acid (H_2SO_4). Dilute 1:1,(v/v) Sulfuric Acid (Reagent Grade or equivalent) with water.

21.0 PROCEDURE

21.2 Acidify the sample with Sulfuric Acid Solution(H_2SO_4). Gently shake the acidified solution.

21.3 After shaking, tear off the Cyantesmo test strip and position the strip so that the bottom of the paper is above the waste and the remainder of the strip extends up into the test tube. Then stopper the the test tube.

METHOD 8080A

ORGANOCHLORINE PESTICIDES AND POLYCHLORINATED BIPHENYLS BY GAS CHROMATOGRAPHY

1.0 SCOPE AND APPLICATION

1.1 Method 8080 is used to determine the concentration of various organochlorine pesticides and polychlorinated biphenyls (PCBs). The following compounds can be determined by this method:

Compound Name	CAS No.[a]
Aldrin	309-00-2
α-BHC	319-84-6
β-BHC	319-85-7
δ-BHC	319-86-8
γ-BHC (Lindane)	58-89-9
Chlordane (technical)	12789-03-6
4,4′-DDD	72-54-8
4,4′-DDE	72-55-9
4,4′-DDT	50-29-3
Dieldrin	60-57-1
Endosulfan I	959-98-8
Endosulfan II	33212-65-9
Endosulfan sulfate	1031-07-8
Endrin	72-20-8
Endrin aldehyde	7421-93-4
Heptachlor	76-44-8
Heptachlor epoxide	1024-57-3
4,4′-Methoxychlor	72-43-5
Toxaphene	8001-35-2
Aroclor-1016	12674-11-2
Aroclor-1221	1104-28-2
Aroclor-1232	11141-16-5
Aroclor-1242	53469-21-9
Aroclor-1248	12672-29-6
Aroclor-1254	11097-69-1
Aroclor-1260	11096-82-5

a Chemical Abstract Services Registry Number.

1.2 Table 1 lists the method detection limit for each compound in organic-free reagent water. Table 2 lists the estimated quantitation limit (EQL) for other matrices.

2.0 SUMMARY OF METHOD

2.1 Method 8080 provides gas chromatographic conditions for the detection of ppb concentrations of certain organochlorine pesticides and PCBs. Prior to the use of this method, appropriate sample extraction techniques must be used. Both neat and diluted organic liquids (Method 3580, Waste Dilution) may be analyzed by direct injection. A 2 to 5 µL sample is injected into a gas chromatograph (GC) using the solvent flush technique, and compounds in the GC effluent are detected by an electron capture detector (ECD) or an electrolytic conductivity detector (HECD).

2.2 The sensitivity of Method 8080 usually depends on the concentration of interferences rather than on instrumental limitations. If interferences prevent detection of the analytes, Method 8080 may also be performed on samples that have undergone cleanup. Method 3620, Florisil Column Cleanup, by itself or followed by Method 3660, Sulfur Cleanup, may be used to eliminate interferences in the analysis.

3.0 INTERFERENCES

3.1 Refer to Methods 3500, 3600, and 8000.

3.2 Interferences by phthalate esters can pose a major problem in pesticide determinations when using the electron capture detector. These compounds generally appear in the chromatogram as large late-eluting peaks, especially in the 15% and 50% fractions from the Florisil cleanup. Common flexible plastics contain varying amounts of phthalates. These phthalates are easily extracted or leached from such materials during laboratory operations. Cross contamination of clean glassware routinely occurs when plastics are handled during extraction steps, especially when solvent-wetted surfaces are handled. Interferences from phthalates can best be minimized by avoiding contact with any plastic materials. Exhaustive cleanup of reagents and glassware may be required to eliminate background phthalate contamination. The contamination from phthalate esters can be completely eliminated with a microcoulometric or electrolytic conductivity detector.

4.0 APPARATUS AND MATERIALS

4.1 Gas chromatograph

4.1.1 Gas Chromatograph: Analytical system complete with gas chromatograph suitable for on-column injections and all required accessories, including detectors, column supplies, recorder, gases, and syringes. A data system for measuring peak heights and/or peak areas is recommended.

4.1.2 Columns

4.1.2.1 Column 1: Supelcoport (100/120 mesh) coated with 1.5% SP-2250/1.95% SP-2401 packed in a 1.8 m x 4 mm ID glass column or equivalent.

4.1.2.2 Column 2: Supelcoport (100/120 mesh) coated with 3% OV-1 in a 1.8 m x 4 mm ID glass column or equivalent.

4.1.3 Detectors: Electron capture (ECD) or electrolytic conductivity detector (HECD).

4.2 Kuderna-Danish (K-D) apparatus:

4.2.1 Concentrator tube: 10 mL, graduated (Kontes K-570050-1025 or equivalent). A ground-glass stopper is used to prevent evaporation of extracts.

4.2.2 Evaporation flask: 500 mL (Kontes K-570001-500 or equivalent). Attach to concentrator tube with springs, clamps, or equivalent.

4.2.3 Snyder column: Three ball macro (Kontes K-503000-0121 or equivalent).

4.2.4 Snyder column: Two ball micro (Kontes K-569001-0219 or equivalent).

4.2.5 Springs - 1/2 inch (Kontes K-662750 or equivalent).

4.3 Boiling chips: Solvent extracted, approximately 10/40 mesh (silicon carbide or equivalent).

4.4 Water bath: Heated, with concentric ring cover, capable of temperature control (±5°C). The bath should be used in a hood.

4.5 Volumetric flasks, Class A: sizes as appropriate with ground-glass stoppers.

4.6 Microsyringe: 10 µL.

4.7 Syringe: 5 mL.

4.8 Vials: Glass, 2, 10, and 20 mL capacity with Teflon-lined screw caps or crimp tops.

4.9 Balances: Analytical, 0.0001 g and Top loading, 0.01 g.

5.0 REAGENTS

5.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 Organic-free reagent water - All references to water in this method refer to organic-free reagent water, as defined in Chapter One.

5.3 Solvents

5.3.1 Hexane, C_6H_{14} - Pesticide quality or equivalent.

5.3.2 Acetone, CH_3COCH_3 - Pesticide quality or equivalent.

5.3.3 Toluene, $C_6H_5CH_3$ - Pesticide quality or equivalent.

5.3.4 Isooctane, $(CH_3)_3CCH_2CH(CH_3)_2$ - Pesticide quality or equivalent.

5.4 Stock standard solutions:

5.4.1 Prepare stock standard solutions at a concentration of 1000 mg/L by dissolving 0.0100 g of assayed reference material in isooctane and diluting to volume in a 10 mL volumetric flask. A small volume of toluene may be necessary to put some pesticides in solution. Larger volumes can be used at the convenience of the analyst. When compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. Commercially prepared stock standards can be used at any concentration if they are certified by the manufacturer or by an independent source.

5.4.2 Transfer the stock standard solutions into vials with Teflon-lined screw caps or crimp tops. Store at 4°C and protect from light. Stock standards should be checked frequently for signs of degradation or evaporation, especially just prior to preparing calibration standards from them.

5.4.3 Stock standard solutions must be replaced after one year, or sooner if comparison with check standards indicates a problem.

5.5 Calibration standards: Calibration standards at a minimum of five concentrations for each parameter of interest are prepared through dilution of the stock standards with isooctane. One of the concentrations should be at a concentration near, but above, the method detection limit. The remaining concentrations should correspond to the expected range of concentrations found in real samples or should define the working range of the GC. Calibration solutions must be replaced after six months, or sooner, if comparison with check standards indicates a problem.

5.6 Internal standards (if internal standard calibration is used): To use this approach, the analyst must select one or more internal standards that are similar in analytical behavior to the compounds of interest. The analyst must further demonstrate that the measurement of the internal standard is not affected by method or matrix interferences. Because of these limitations, no internal standard can be suggested that is applicable to all samples.

5.6.1 Prepare calibration standards at a minimum of five concentrations for each analyte of interest as described in Section 5.5.

5.6.2 To each calibration standard, add a known constant amount of one or more internal standards, and dilute to volume with isooctane.

5.6.3 Analyze each calibration standard according to Section 7.0.

5.7 Surrogate standards: The analyst should monitor the performance of e extraction, cleanup (when used), and analytical system and the effectiveness of the method in dealing with each sample matrix by spiking each sample, standard, and organic-free reagent water blank with pesticide surrogates. Because GC/ECD data are much more subject to interference than GC/MS, a secondary surrogate is to be used when sample interference is apparent. Two surrogate standards (tetrachloro-m-xylene (TCMX) and decachlorobiphenyl) are added to each sample; however, only one need be calculated for recovery. Proceed with corrective action when both surrogates are out of limits for a sample (Section 8.3). Method 3500 indicates the proper procedure for preparing these surrogates.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

6.1 See the introductory material to this chapter, Organic Analytes, Section 4.1. Extracts must be stored under refrigeration and analyzed within 40 days of extraction.

7.0 PROCEDURE

7.1 Extraction:

7.1.1 Refer to Chapter Two for guidance on choosing the appropriate extraction procedure. In general, water samples are extracted at a neutral, or as is, pH with methylene chloride, using either Method 3510 or 3520. Solid samples are extracted using Method 3540, 3541, or 3550.

7.1.2 Prior to gas chromatographic analysis, the extraction solvent must be exchanged to hexane. The exchange is performed during the K-D procedures listed in all of the extraction methods. The exchange is performed as follows:

7.1.2.1 Following K-D of the methylene chloride extract to 1 mL using the macro-Snyder column, allow the apparatus to cool and drain for at least 10 min.

7.1.2.2 Increase the temperature of the hot water bath to about 90°C. Momentarily remove the Snyder column, add 50 mL of hexane, a new boiling chip, and reattach the macro-Snyder column. Concentrate the extract using 1 mL of hexane to prewet the Snyder column. Place the K-D apparatus on the water bath so that the concentrator tube is partially immersed in the hot water. Adjust the vertical position of the apparatus and the water temperature, as required, to complete concentration in 5-10 min. At the proper rate of distillation the balls of the column will actively chatter, but the chambers will not flood. When the apparent volume of liquid reaches 1 mL, remove the K-D apparatus and allow it to drain and cool for at least 10 min.

7.1.2.3 Remove the Snyder column and rinse the flask and its lower joint into the concentrator tube with 1-2 mL of hexane. A 5 mL syringe is recommended for this operation. Adjust the extract volume to 10.0 mL. Stopper the concentrator tube and store

refrigerated at 4°C, if further processing will not be performed immediately. If the extract will be stored longer than two days, it should be transferred to a vial with a Teflon-lined screw cap or crimp top. Proceed with gas chromatographic analysis if further cleanup is not required.

7.2 Gas chromatography conditions (Recommended):

7.2.1 Column 1:

Carrier gas (5% methane/95% argon) flow rate:	60 mL/min
Column temperature:	200°C isothermal

When analyzing for the low molecular weight PCBs (PCB 1221-PCB 1248), it is advisable to set the oven temperature to 160°C.

7.2.2 Column 2:

Carrier gas (5% methane/95% argon) flow rate:	60 mL/min
Column temperature:	200°C isothermal

When analyzing for the low molecular weight PCBs (PCB 1221-PCB 1248), it is advisable to set the oven temperature to 140°C.

7.2.3 When analyzing for most or all of the analytes in this method, adjust the oven temperature and column gas flow to provide sufficient resolution for accurate quantitation of the analytes. This will normally result in a retention time of 10 to 12 minutes for 4,4'-DDT, depending on the packed column used.

7.3 Calibration: Refer to Method 8000 for proper calibration techniques. Use Table 1 and especially Table 2 for guidance on selecting the lowest point on the calibration curve.

7.3.1 The procedure for internal or external calibration may be used. Refer to Method 8000 for a description of each of these procedures.

7.3.2 Because of the low concentration of pesticide standards injected on a GC/ECD, column adsorption may be a problem when the GC has not been used for a day. Therefore, the GC column should be primed or deactivated by injecting a PCB or pesticide standard mixture approximately 20 times more concentrated than the mid-concentration standard. Inject this prior to beginning initial or daily calibration.

7.4 Gas chromatographic analysis:

7.4.1 Refer to Method 8000. If the internal standard calibration technique is used, add 10 µL of internal standard to the sample prior to injection.

7.4.2 Method 8000 provides instructions on the analysis sequence, appropriate dilutions, establishing daily retention time windows, and identification criteria. Include a mid-concentration standard after each group of 10 samples in the analysis sequence.

NOTE: A 72 hour sequence is not required with this method.

7.4.3 Examples of GC/ECD chromatograms for various pesticides and PCBs are shown in Figures 1 through 5.

7.4.4 Prime the column as per Section 7.3.2.

7.4.5 DDT and endrin are easily degraded in the injection port if the injection port or front of the column is dirty. This is the result of buildup of high boiling residue from sample injection. Check for degradation problems by injecting a mid-concentration standard containing only 4,4'-DDT and endrin. Look for the degradation products of 4,4'-DDT (4,4'-DDE and 4,4'-DDD) and endrin (endrin ketone and endrin aldehyde). If degradation of either DDT or endrin exceeds 20%, take corrective action before proceeding with calibration, by following the GC system maintenance outlined in of Method 8000. Calculate percent breakdown as follows:

$$\text{\% breakdown for 4,4'-DDT} = \frac{\text{Total DDT degradation peak area (DDE + DDD)}}{\text{Total DDT peak area (DDT + DDE + DDD)}} \times 100$$

$$\text{\% breakdown for Endrin} = \frac{\text{Total endrin degradation peak area (endrin aldehyde + endrin ketone)}}{\text{Total endrin peak area (endrin + endrin aldehyde + endrin ketone)}} \times 100$$

7.4.6 Record the sample volume injected and the resulting peak sizes (in area units or peak heights).

7.4.7 Using either the internal or external calibration procedure (Method 8000), determine the identity and quantity of each component peak in the sample chromatogram which corresponds to the compounds used for calibration purposes.

7.4.8 If peak detection and identification are prevented due to interferences, the hexane extract may need to undergo cleanup using Method 3620. The resultant extract(s) may be analyzed by GC directly or may undergo further cleanup to remove sulfur using Method 3660.

7.5 Cleanup:

7.5.1 Proceed with Method 3620, followed by, if necessary, Method 3660, using the 10 mL hexane extracts obtained from Section 7.1.2.3.

7.5.2 Following cleanup, the extracts should be analyzed by GC, as described in the previous sections and in Method 8000.

7.5.3 If only PCBs are to be measured in a sample, the sulfuric acid/permanganate cleanup (Method 3665), followed by Silica Cleanup (Method 3630) or Florisil Cleanup (Method 3620), is recommended.

7.6 Calculations (excerpted from U.S. FDA, PAM):

7.6.1 Calculation of Certain Residues: Residues which are mixtures of two or more components present problems in measurement. When they are found together, e.g., toxaphene and DDT, the problem of quantitation becomes even more difficult. In the following sections suggestions are offered for handling toxaphene, chlordane, PCB, DDT, and BHC. A 10% DC-200 stationary phase column was used to obtain the chromatograms in Figures 6-9.

7.6.2 Toxaphene: Quantitative calculation of toxaphene or Strobane is difficult, but reasonable accuracy can be obtained. To calculate toxaphene on GC/ECD: (a) adjust sample size so that toxaphene major peaks are 10-30% full-scale deflection (FSD); (b) inject a toxaphene standard that is estimated to be within ±10 ng of the sample; (c) construct the baseline of standard toxaphene between its extremities; and (d) construct the baseline under the sample, using the distances of the peak troughs to baseline on the standard as a guide (Figures 7, 8, and 9). This procedure is made difficult by the fact that the relative heights and widths of the peaks in the sample will probably not be identical to the standard. A toxaphene standard that has been passed through a Florisil column will show a shorter retention time for peak X and an enlargement of peak Y.

7.6.3 Toxaphene and DDT: If DDT is present, it will superimpose itself on toxaphene peak V. To determine the approximate baseline of the DDT, draw a line connecting the trough of peaks U and V with the trough of peaks W and X and construct another line parallel to this line which will just cut the top of peak W (Figure 6l). This procedure was tested with ratios of standard toxaphene-DDT mixtures from 1:10 to 2:1 and the results of added and calculated DDT and toxaphene by the "parallel lines" method of baseline construction were within 10% of the actual values in all cases.

7.6.3.1 A series of toxaphene residues have been calculated using total peak area for comparison to the standard and also using area of the last four peaks only in both sample and standard. The agreement between the results obtained by the two methods justifies the use of the latter method for calculating toxaphene in a sample where the early eluting portion of the toxaphene chromatogram is interfered with by other substances.

7.6.3.2 The baseline for methoxychlor superimposed on toxaphene (Figure 8b) was constructed by overlaying the samples on a toxaphene standard of approximately the same concentration (Figure 8a) and viewing the charts against a lighted background.

7.6.4 Chlordane is a technical mixture of at least 11 major components and 30 or more minor ones. Gas chromatography-mass spectrometry and nuclear magnetic resonance analytical techniques have been applied to the elucidation of the chemical structures of the many chlordane constituents. Figure 9a is a chromatogram of standard chlordane. Peaks E and F are responses to trans- and cis-chlordane, respectively. These are the two major components of technical chlordane, but the exact percentage of each in the technical material is not completely

defined and is not consistent from batch to batch. Other labelled peaks in Figure 9a are thought to represent: A, monochlorinated adduct of entachlorocyclopentadiene with cyclopentadiene; B, coelution of eptachlor and α-chlordene; C, coelution of β-chlordene and γ-chlordene; D, a chlordane analog; G, coelution of cis-nonachlor and "Compound K," a chlordane isomer. The right "shoulder" of peak F is caused by trans-nonachlor.

7.6.4.1 The GC pattern of a chlordane residue may differ considerably from that of the technical standard. Depending on the sample substrate and its history, residues of chlordane can consist of almost any combination of constituents from the technical chlordane, plant and/or animal metabolites, and products of degradation caused by exposure to environmental factors such as water and sunlight. Only limited information is available on which residue GC patterns are likely to occur in which samples types, and even this information may not be applicable to a situation where the route of exposure is unusual. For example, fish exposed to a recent spill of technical chlordane will contain a residue drastically different from a fish whose chlordane residue was accumulated by ingestion of smaller fish or of vegetation, which in turn had accumulated residues because chlordane was in the water from agricultural runoff.

7.6.4.2 Because of this inability to predict a chlordane residue GC pattern, it is not possible to prescribe a single method for the quantitation of chlordane residues. The analyst must judge whether or not the residue's GC pattern is sufficiently similar to that of a technical chlordane reference material to use the latter as a reference standard for quantitation.

7.6.4.3 When the chlordane residue does not resemble technical chlordane, but instead consists primarily of individual, identifiable peaks, quantitate each peak separately against the appropriate reference materials and report the individual residues. (Reference materials are available for at least 11 chlordane constituents, metabolites or degradation products which may occur in the residue.)

7.6.4.4 When the GC pattern of the residue resembles that of technical chlordane, quantitate chlordane residues by comparing the total area of the chlordane chromatogram from peaks A through F (Figure 9a) in the sample versus the same part of the standard chromatogram. Peak G may be obscured in a sample by the presence of other pesticides. If G is not obscured, include it in the measurement for both standard and sample. If the heptachlor epoxide peak is relatively small, include it as part of the total chlordane area for calculation of the residue. If heptachlor and/or heptachlor epoxide are much out of proportion as in Figure 6j, calculate these separately and subtract their areas from total area to give a corrected chlordane area. (Note that octachlor epoxide, a metabolite of chlordane, can easily be mistaken for heptachlor epoxide on a nonpolar GC column.)

7.6.4.5 To measure the total area of the chlordane chromatogram, proceed as in Section 7.6.2 on toxaphene. Inject an amount of technical chlordane standard which will produce a chromatogram in which peaks E and F are approximately the same size as those in the sample chromatograms. Construct the baseline beneath the standard from the beginning of peak A to the end of peak F as shown in Figure 9a. Use the distance from the trough between peaks E and F to the baseline in the chromatogram of the standard to construct the baseline in the chromatogram of the sample. Figure 9b shows how the presence of toxaphene causes the baseline under chlordane to take an upward angle. When the size of peaks E and F in standard and sample chromatograms are the same, the distance from the trough of the peaks to the baselines should be the same. Measurement of chlordane area should be done by total peak area if possible.

NOTE: A comparison has been made of the total peak area integration method and the addition of peak heights method for several samples containing chlordane. The peak heights A, B, C, D, E, and F were measured in millimeters from peak maximum of each to the baseline constructed under the total chlordane area and were then added together. These results obtained by the two techniques are too close to ignore this method of "peak height addition" as a means of calculating chlordane. The technique has inherent difficulties because not all the peaks are symmetrical and not all are present in the same ratio in standard and in sample. This method does offer a means of calculating results if no means of measuring total area is practical.

7.6.5 Polychlorinated biphenyls (PCBs): Quantitation of residues of PCB involves problems similar to those encountered in the quantitation of toxaphene, Strobane, and chlordane. In each case, the chemical is made up of numerous compounds. So the chromatograms are multi-peak. Also in each case, the chromatogram of the residue may not match that of the standard.

7.6.5.1 Mixtures of PCBs of various chlorine contents were sold for many years in the U.S. by the Monsanto Co. under the tradename Aroclor (1200 series and 1016). Though these Aroclors are no longer marketed, the PCBs remain in the environment and are sometimes found as residues in foods, especially fish.

7.6.5.2 PCB residues are quantitated by comparison to one or more of the Aroclor materials, depending on the chromatographic pattern of the residue. A choice must be made as to which Aroclor or mixture of Aroclors will produce a chromatogram most similar to that of the residue. This may also involve a judgment about what proportion of the different Aroclors to combine to produce the appropriate reference material.

7.6.5.3 Quantitate PCB residues by comparing total area or height of residue peaks to total area of height of peaks from appropriate Aroclor(s) reference materials. Measure total area or

height response from common baseline under all peaks. Use only those peaks from the sample that can be attributed to chlorobiphenyls. These peaks must also be present in the chromatogram of the reference materials. Mixtures of Aroclors may be required to provide the best match of GC patterns of sample and reference.

7.6.6 DDT: DDT found in samples often consists of both o,p'- and p,p'-DDT. Residues of DDE and DDD are also frequently present. Each isomer of DDT and its metabolites should be quantitated using the pure standard of that compound and reported as such.

7.6.7 Hexachlorocyclohexane (BHC, from the former name, benzene hexachloride): Technical grade BHC is a cream-colored amorphous solid with a very characteristic musty odor; it consists of a mixture of six chemically distinct isomers and one or more heptachloro-cyclohexanes and octachloro-cyclohexanes.

7.6.7.1 Commercial BHC preparations may show a wide variance in the percentage of individual isomers present. The elimination rate of the isomers fed to rats was 3 weeks for the α-, γ-, and δ-isomers and 14 weeks for the β-isomer. Thus it may be possible to have any combination of the various isomers in different food commodities. BHC found in dairy products usually has a large percentage of β-isomer.

7.6.7.2 Individual isomers (α, β, γ, and δ) were injected into gas chromatographs equipped with flame ionization, microcoulometric, and electron capture detectors. Response for the four isomers is very nearly the same whether flame ionization or microcoulometric GLC is used. The α-, γ-, and δ-isomers show equal electron affinity. β-BHC shows a much weaker electron affinity compared to the other isomers.

7.6.7.3 Quantitate each isomer (α, β, γ, and δ) separately against a standard of the respective pure isomer, using a GC column which separates all the isomers from one another.

8.0 QUALITY CONTROL

8.1 Refer to Chapter One for specific quality control procedures. Quality control to validate sample extraction is covered in Method 3500 and in the extraction method utilized. If extract cleanup was performed, follow the QC in Method 3600 and in the specific cleanup method.

8.2 Quality control required to evaluate the GC system operation is found in Method 8000.

8.2.1 The quality control check sample concentrate (Method 8000) should contain each single-component parameter of interest at the following concentrations in acetone or other water miscible solvent: 4,4'-DDD, 10 mg/L; 4,4'-DDT, 10 mg/L; endosulfan II, 10 mg/L; endosulfan sulfate, 10 mg/L; endrin, 10 mg/L; and any other single-component

pesticide, 2 mg/L. If this method is only to be used to analyze for PCBs, chlordane, or toxaphene, the QC check sample concentrate should contain the most representative multi-component parameter at a concentration of 50 mg/L in acetone.

8.2.2 Table 3 indicates the calibration and QC acceptance criteria for this method. Table 4 gives method accuracy and precision as functions of concentration for the analytes of interest. The contents of both Tables should be used to evaluate a laboratory's ability to perform and generate acceptable data by this method.

8.3 Calculate surrogate standard recovery on all samples, blanks, and spikes. Determine if the recovery is within limits (limits established by performing QC procedures outlined in Method 8000).

8.3.1 If recovery is not within limits, the following is required.

- Check to be sure there are no errors in calculations, surrogate solutions and internal standards. Also, check instrument performance.
- Recalculate the data and/or reanalyze the extract if any of the above checks reveal a problem.
- Reextract and reanalyze the sample if none of the above are a problem or flag the data as "estimated concentration".

8.4 <u>GC/MS confirmation</u>: Any compounds confirmed by two columns may also be confirmed by GC/MS if the concentration is sufficient for detection by GC/MS as determined by the laboratory generated detection limits.

8.4.1 The GC/MS would normally require a minimum concentration of 10 ng/µL in the final extract, for each single-component compound.

8.4.2 The pesticide extract and associated blank should be analyzed by GC/MS as per Section 7.0 of Method 8270.

8.4.3 The confirmation may be from the GC/MS analysis of the base/neutral-acid extractables extracts (sample and blank). However, if the compounds are not detected in the base/neutral-acid extract even though the concentration is high enough, a GC/MS analysis of the pesticide extract should be performed.

8.4.4 A reference standard of the compound must also be analyzed by GC/MS. The concentration of the reference standard must be at a level that would demonstrate the ability to confirm the pesticides/PCBs identified by GC/ECD.

9.0 METHOD PERFORMANCE

9.1 The method was tested by 20 laboratories using organic-free reagent water, drinking water, surface water, and three industrial wastewaters spiked at

six concentrations. Concentrations used in the study ranged from 0.5 to 30 µg/L for single-component pesticides and from 8.5 to 400 µg/L for multi-component parameters. Single operator precision, overall precision, and method accuracy were found to be directly related to the concentration of the parameter and essentially independent of the sample matrix. Linear equations to describe these relationships for an electron capture detector are presented in Table 4.

9.2 The accuracy and precision obtained will be determined by the sample matrix, sample-preparation technique, optional cleanup techniques, and calibration procedures used.

10.0 REFERENCES

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TABLE 1.
GAS CHROMATOGRAPHY OF PESTICIDES AND PCBs[a]

Analyte	Retention time (min) Col. 1	Col. 2	Method Detection limit (µg/L)
Aldrin	2.40	4.10	0.004
α-BHC	1.35	1.82	0.003
β-BHC	1.90	1.97	0.006
δ-BHC	2.15	2.20	0.009
γ-BHC (Lindane)	1.70	2.13	0.004
Chlordane (technical)	e	e	0.014
4,4'-DDD	7.83	9.08	0.011
4,4'-DDE	5.13	7.15	0.004
4,4'-DDT	9.40	11.75	0.012
Dieldrin	5.45	7.23	0.002
Endosulfan I	4.50	6.20	0.014
Endosulfan II	8.00	8.28	0.004
Endosulfan sulfate	14.22	10.70	0.066
Endrin	6.55	8.10	0.006
Endrin aldehyde	11.82	9.30	0.023
Heptachlor	2.00	3.35	0.003
Heptachlor epoxide	3.50	5.00	0.083
Methoxychlor	18.20	26.60	0.176
Toxaphene	e	e	0.24
PCB-1016	e	e	nd
PCB-1221	e	e	nd
PCB-1232	e	e	nd
PCB-1242	e	e	0.065
PCB-1248	e	e	nd
PCB-1254	e	e	nd
PCB-1260	e	e	nd

[a]U.S. EPA. Method 617. Organochlorine Pesticides and PCBs. Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

e = Multiple peak response.

nd = not determined.

TABLE 2.
DETERMINATION OF ESTIMATED QUANTITATION LIMITS (EQLs) FOR VARIOUS MATRICES[a]

Matrix	Factor[b]
Ground water	10
Low-concentration soil by sonication with GPC cleanup	670
High-concentration soil and sludges by sonication	10,000
Non-water miscible waste	100,000

a Sample EQLs are highly matrix-dependent. The EQLs listed herein are provided for guidance and may not always be achievable.

b EQL = [Method detection limit (Table 1)] X [Factor (Table 2)]. For non-aqueous samples, the factor is on a wet-weight basis.

TABLE 3.
QC ACCEPTANCE CRITERIA[a].

Analyte	Test conc. (µg/L)	Limit for s (µg/L)	Range for $\bar{x}$ (µg/L)	Range P, P_s (%)
Aldrin	2.0	0.42	1.08-2.24	42-122
α-BHC	2.0	0.48	0.98-2.44	37-134
β-BHC	2.0	0.64	0.78-2.60	17-147
δ-BHC	2.0	0.72	1.01-2.37	19-140
γ-BHC	2.0	0.46	0.86-2.32	32-127
Chlordane	50	10.0	27.6-54.3	45-119
4,4'-DDD	10	2.8	4.8-12.6	31-141
4,4'-DDE	2.0	0.55	1.08-2.60	30-145
4,4'-DDT	10	3.6	4.6-13.7	25-160
Dieldrin	2.0	0.76	1.15-2.49	36-146
Endosulfan I	2.0	0.49	1.14-2.82	45-153
Endosulfan II	10	6.1	2.2-17.1	D-202
Endosulfan Sulfate	10	2.7	3.8-13.2	26-144
Endrin	10	3.7	5.1-12.6	30-147
Heptachlor	2.0	0.40	0.86-2.00	34-111
Heptachlor epoxide	2.0	0.41	1.13-2.63	37-142
Toxaphene	50	12.7	27.8-55.6	41-126
PCB-1016	50	10.0	30.5-51.5	50-114
PCB-1221	50	24.4	22.1-75.2	15-178
PCB-1232	50	17.9	14.0-98.5	10-215
PCB-1242	50	12.2	24.8-69.6	39-150
PCB-1248	50	15.9	29.0-70.2	38-158
PCB-1254	50	13.8	22.2-57.9	29-131
PCB-1260	50	10.4	18.7-54.9	8-127

s = Standard deviation of four recovery measurements, in µg/L.

$\bar{x}$ = Average recovery for four recovery measurements, in µg/L.

P, P_s = Percent recovery measured.

D = Detected; result must be greater than zero.

[a]Criteria from 40 CFR Part 136 for Method 608. These criteria are based directly upon the method performance data in Table 4. Where necessary, the limits for recovery have been broadened to assure applicability of the limits to concentrations below those used to develop Table 4.

TABLE 4.
METHOD ACCURACY AND PRECISION AS FUNCTIONS OF CONCENTRATION[a]

Analyte	Accuracy, as recovery, x′ (µg/L)	Single analyst precision, s_r' (µg/L)	Overall precision, S′ (µg/L)
Aldrin	0.81C+0.04	0.16$\bar{x}$-0.04	0.20$\bar{x}$-0.01
α-BHC	0.84C+0.03	0.13$\bar{x}$+0.04	0.23$\bar{x}$-0.00
β-BHC	0.81C+0.07	0.22$\bar{x}$+0.02	0.33$\bar{x}$-0.95
δ-BHC	0.81C+0.07	0.18$\bar{x}$+0.09	0.25$\bar{x}$+0.03
γ-BHC	0.82C-0.05	0.12$\bar{x}$+0.06	0.22$\bar{x}$+0.04
Chlordane	0.82C-0.04	0.13$\bar{x}$+0.13	0.18$\bar{x}$+0.18
4,4′-DDD	0.84C+0.30	0.20$\bar{x}$-0.18	0.27$\bar{x}$-0.14
4,4′-DDE	0.85C+0.14	0.13$\bar{x}$+0.06	0.28$\bar{x}$-0.09
4,4′-DDT	0.93C-0.13	0.17$\bar{x}$+0.39	0.31$\bar{x}$-0.21
Dieldrin	0.90C+0.02	0.12$\bar{x}$+0.19	0.16$\bar{x}$+0.16
Endosulfan I	0.97C+0.04	0.10$\bar{x}$+0.07	0.18$\bar{x}$+0.08
Endosulfan II	0.93C+0.34	0.41$\bar{x}$-0.65	0.47$\bar{x}$-0.20
Endosulfan Sulfate	0.89C-0.37	0.13$\bar{x}$+0.33	0.24$\bar{x}$+0.35
Endrin	0.89C-0.04	0.20$\bar{x}$+0.25	0.24$\bar{x}$+0.25
Heptachlor	0.69C+0.04	0.06$\bar{x}$+0.13	0.16$\bar{x}$+0.08
Heptachlor epoxide	0.89C+0.10	0.18$\bar{x}$-0.11	0.25$\bar{x}$-0.08
Toxaphene	0.80C+1.74	0.09$\bar{x}$+3.20	0.20$\bar{x}$+0.22
PCB-1016	0.81C+0.50	0.13$\bar{x}$+0.15	0.15$\bar{x}$+0.45
PCB-1221	0.96C+0.65	0.29$\bar{x}$-0.76	0.35$\bar{x}$-0.62
PCB-1232	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50
PCB-1242	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50
PCB-1248	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50
PCB-1254	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50
PCB-1260	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50

x′ = Expected recovery for one or more measurements of a sample containing concentration C, in µg/L.

s_r' = Expected single analyst standard deviation of measurements at an average concentration of $\bar{x}$, in µg/L.

S′ = Expected interlaboratory standard deviation of measurements at an average concentration found of $\bar{x}$, in µg/L.

C = True value for the concentration, in µg/L.

$\bar{x}$ = Average recovery found for measurements of samples containing a concentration of C, in µg/L.

Figure 1
Gas Chromatogram of Pesticides

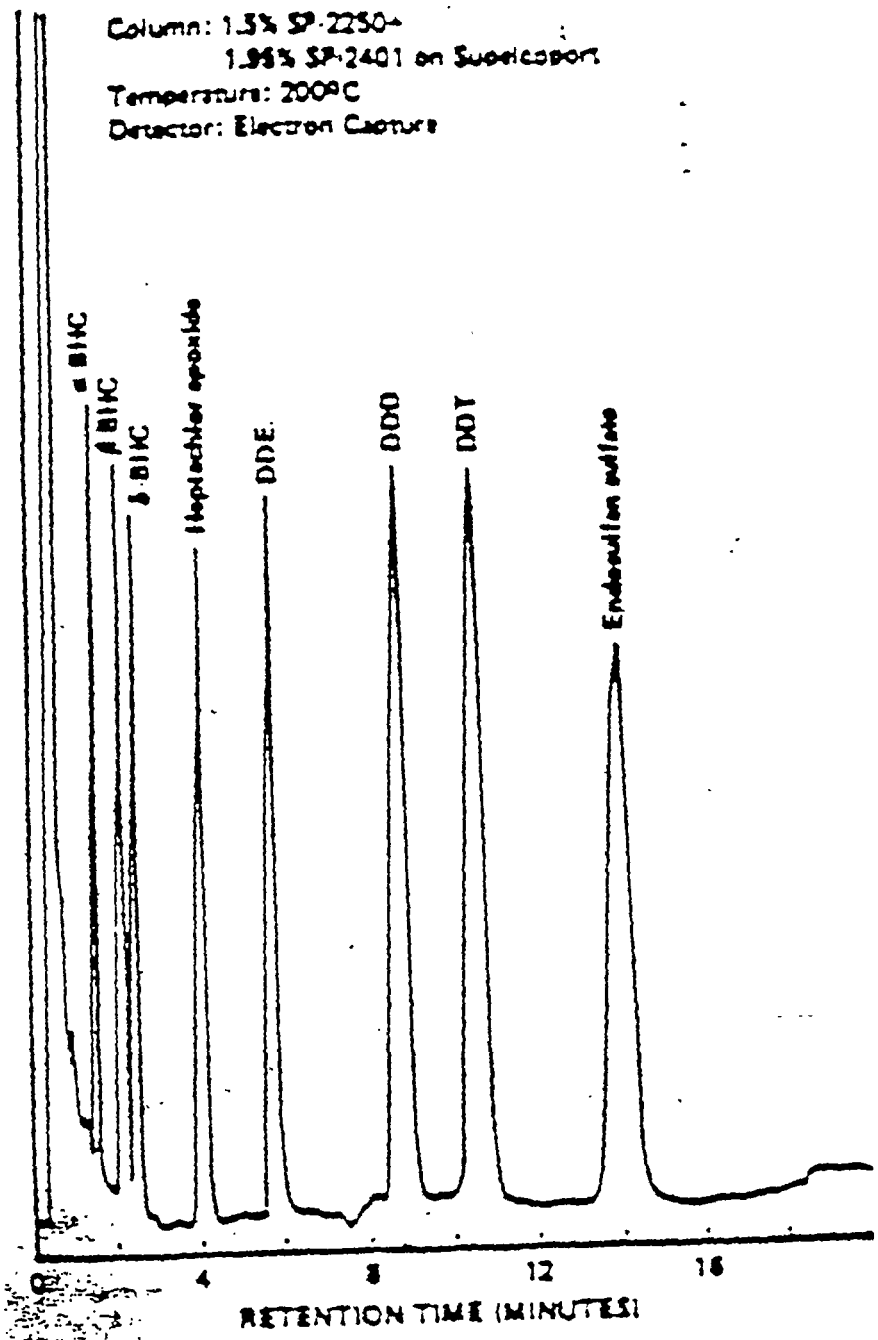


Figure 2
Gas Chromatogram of Chlordane

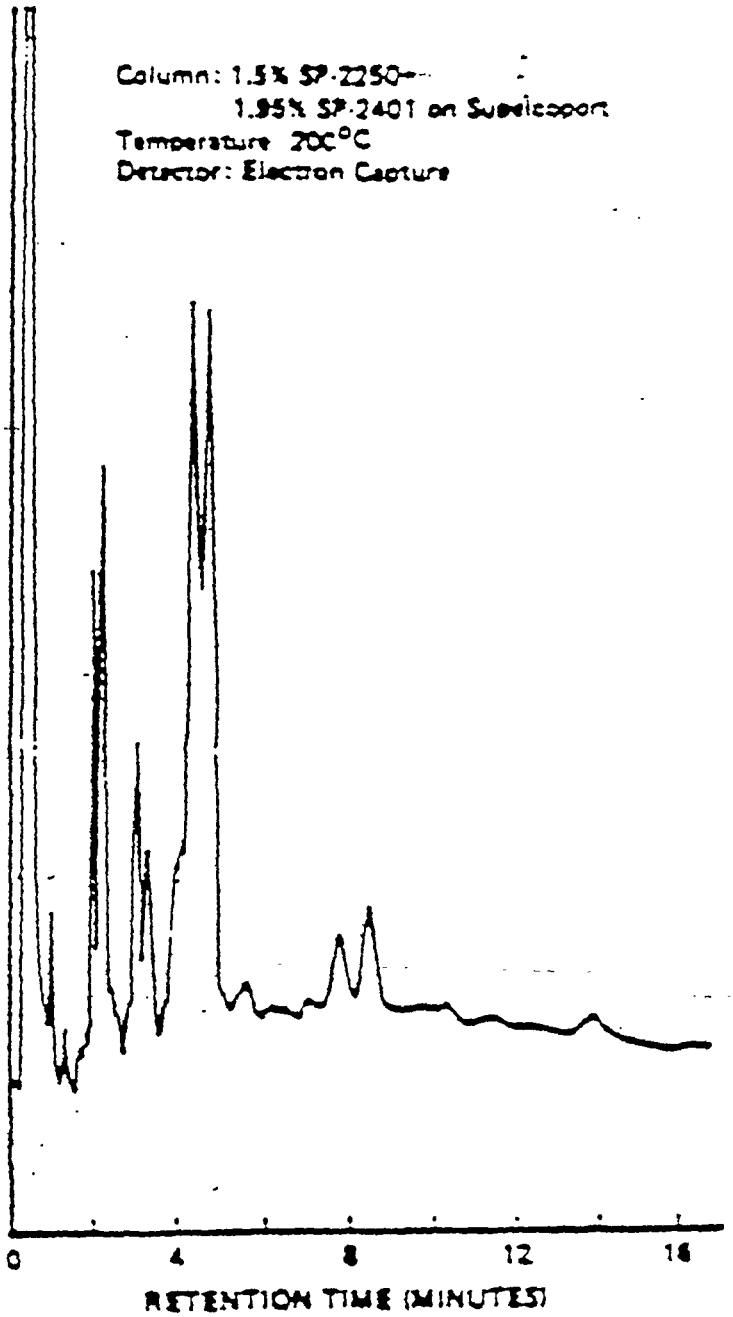


Figure 3
Gas Chromatogram of Toxaphene

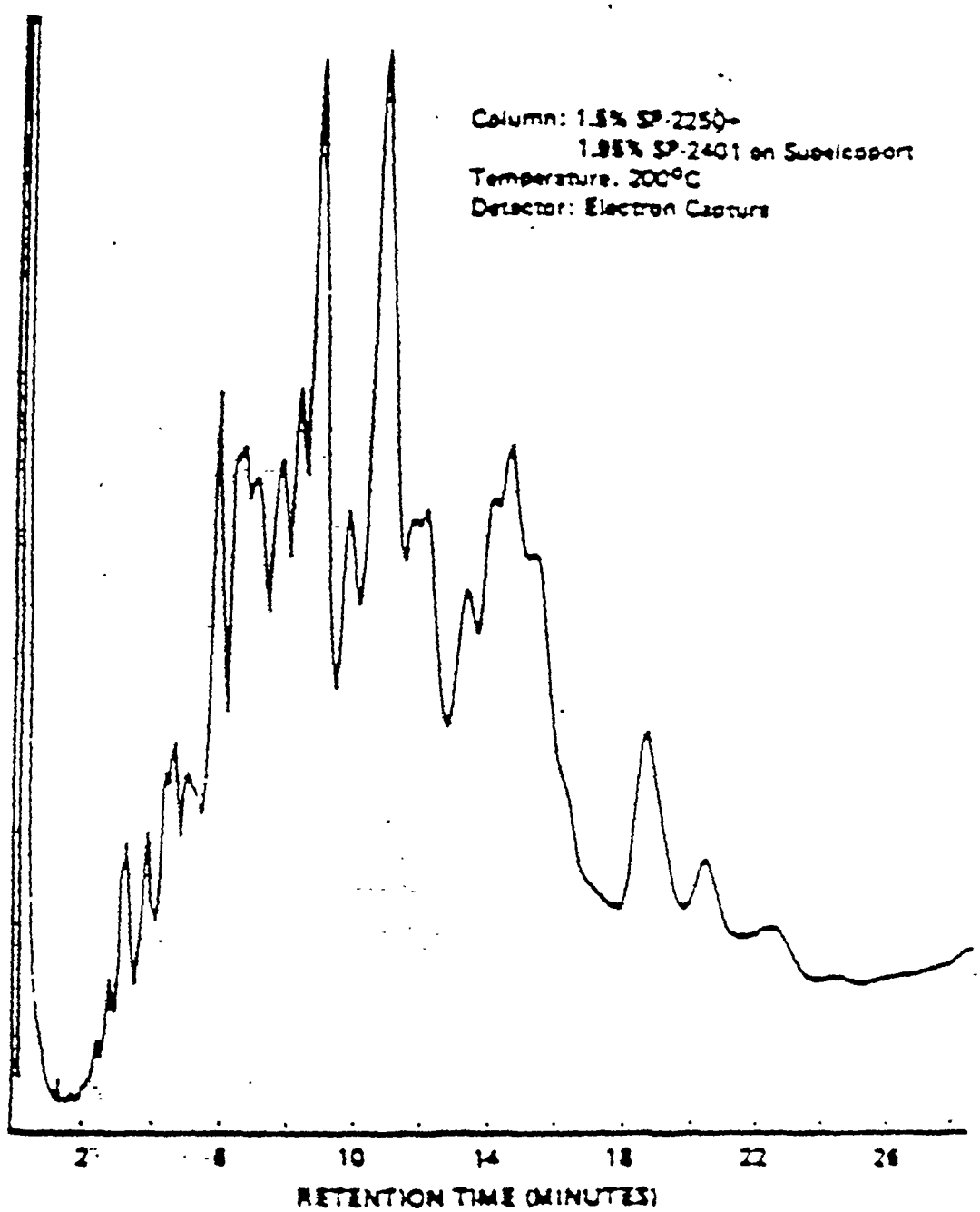


Figure 4
Gas Chromatogram of Aroclor 1254

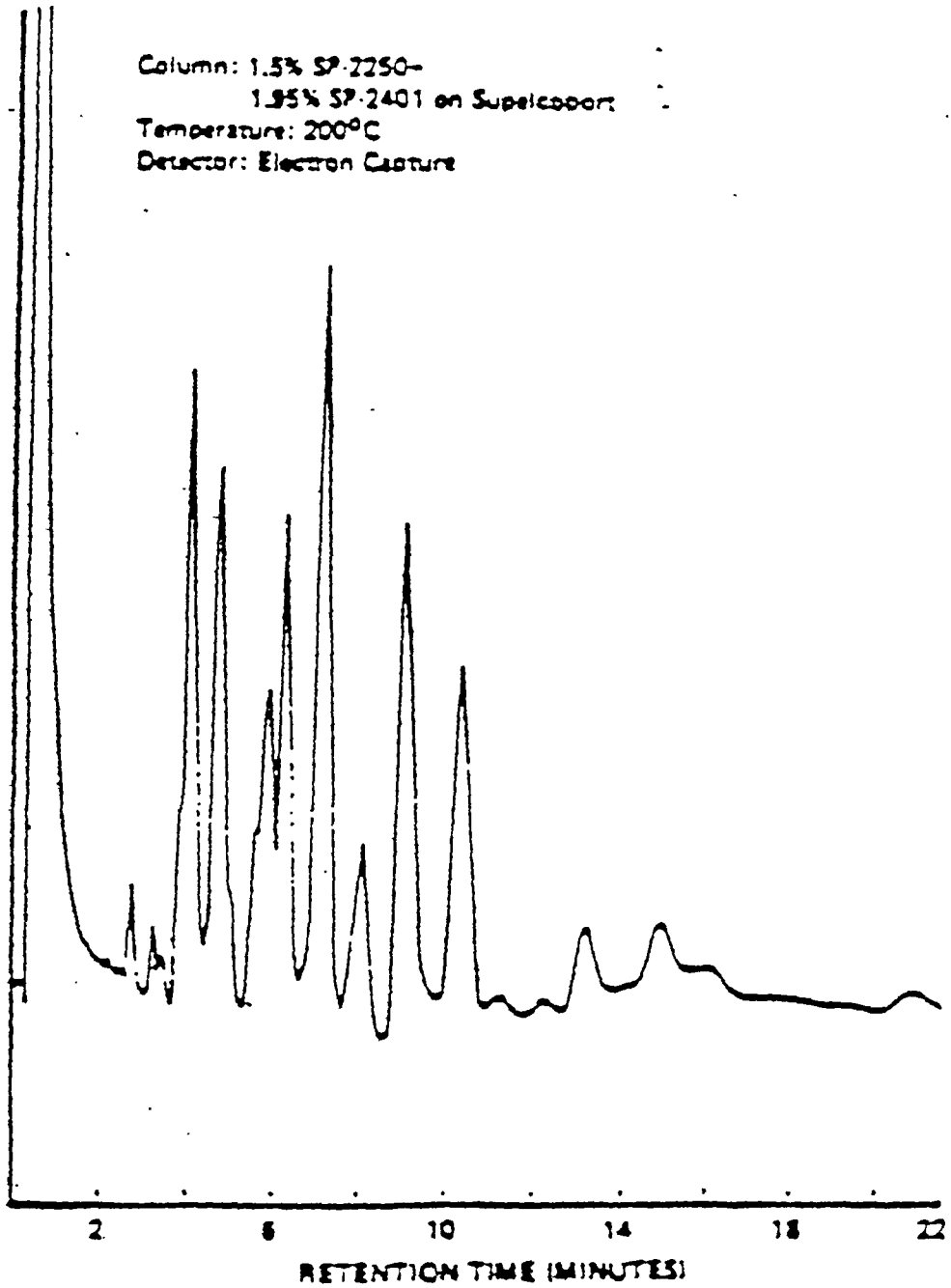


Figure 5
Gas Chromatogram of Aroclor 1260

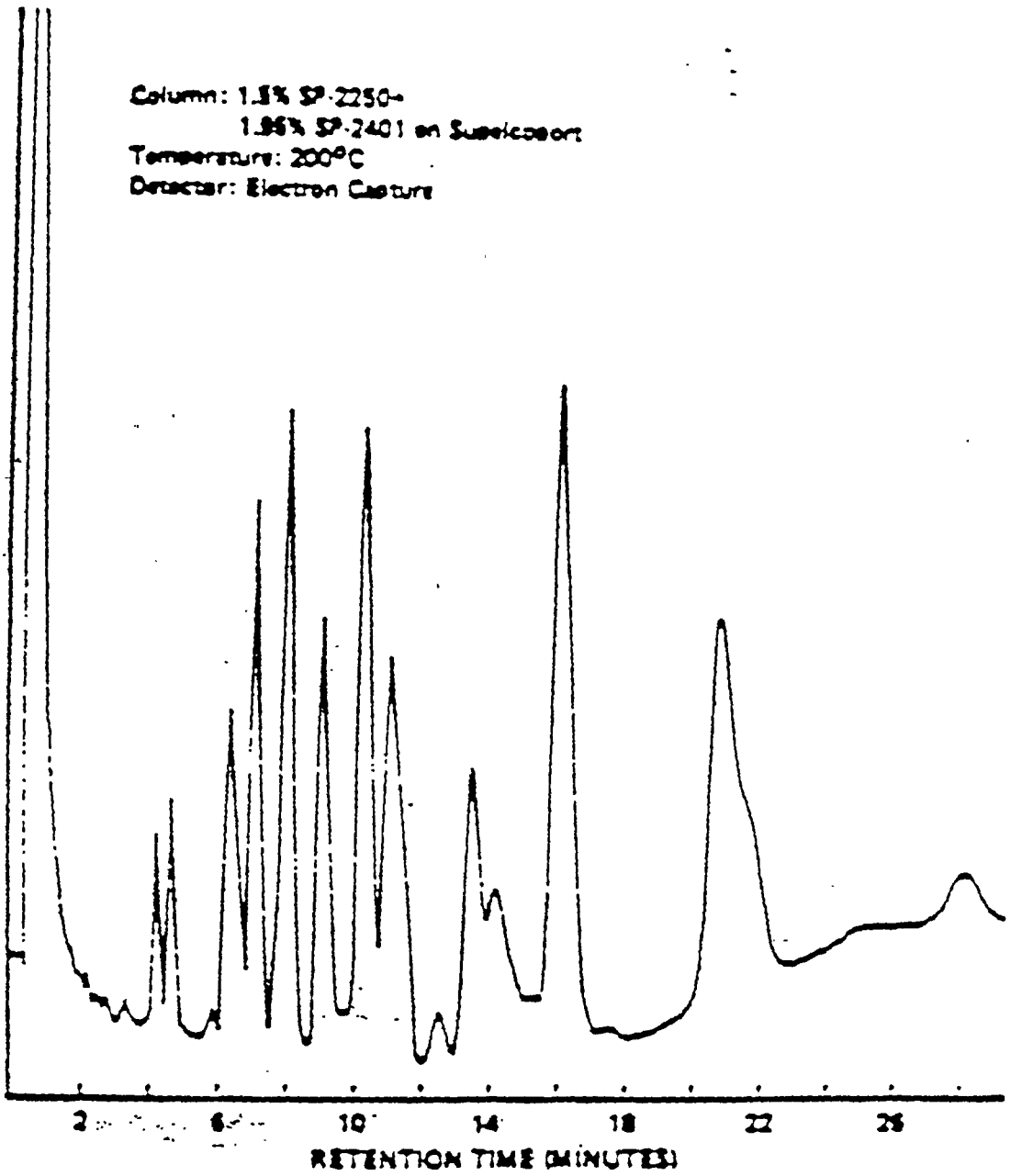


Figure 6

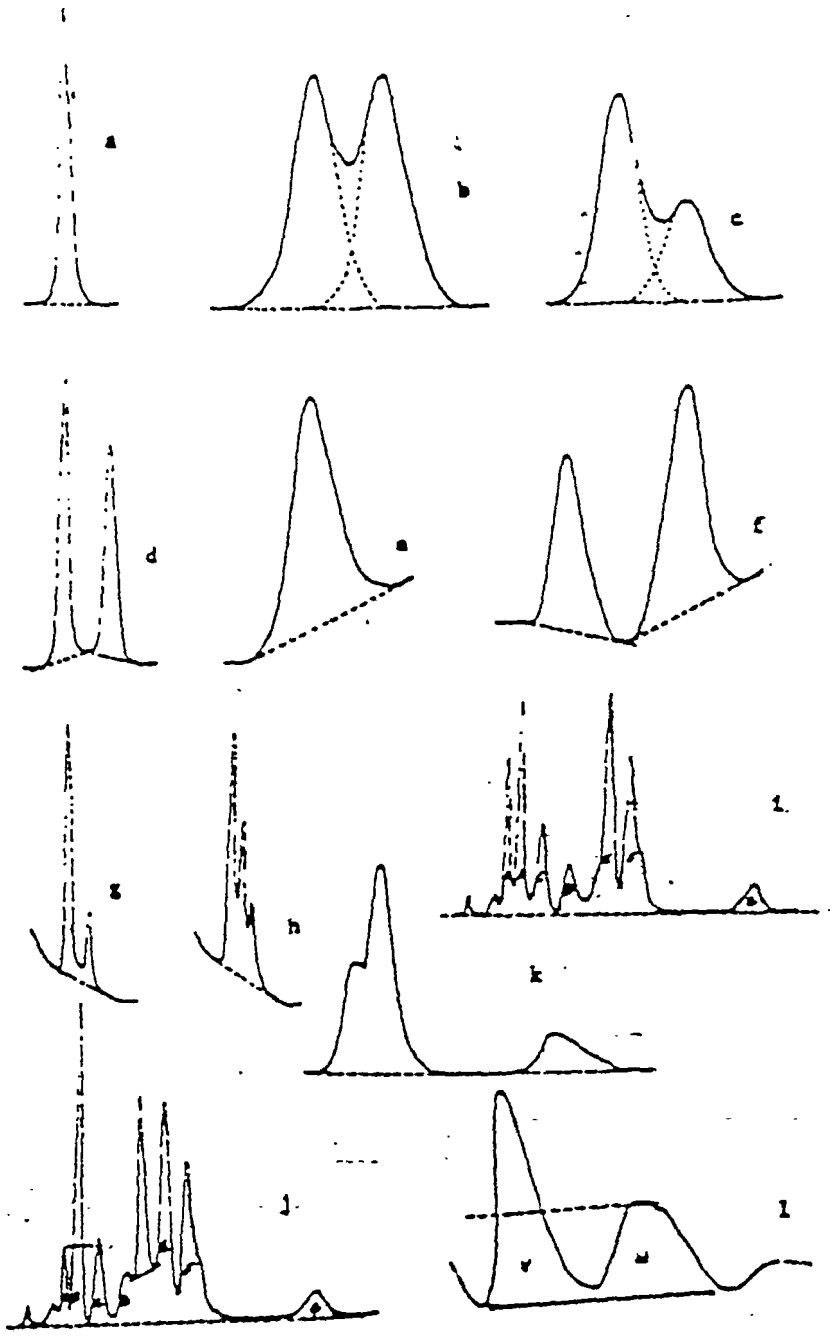


Fig. 6—Baseline constructions for some typical gas chromatographic peaks. a, symmetrical, separated flat baseline; b and c, overlapping flat baseline; d, separated (pen does not return to baseline between peaks); e, separated sloping baseline; f, separated (pen goes below baseline between peaks); g, α- and γ-BHC sloping baseline; h, α-, β-, and γ-BHC sloping baseline; i, chlordane flat baseline; j, heptachlor and heptachlor epoxide superimposed on chlordane; k, chair-shaped peaks, unsymmetrical peak; l, p,p'-DDT superimposed on toxaphene.

Figure 7

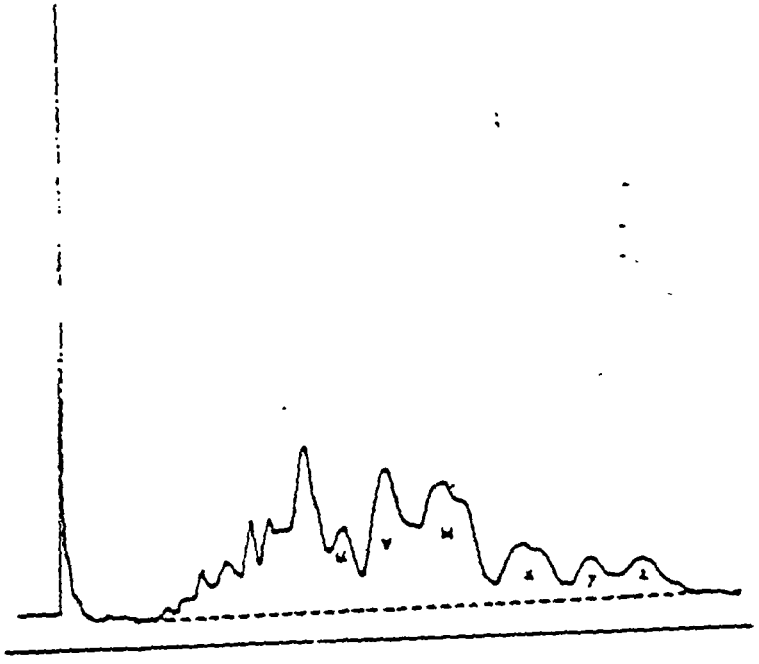


Fig. 7a—Baseline construction for multiple residues with standard toxaphene.

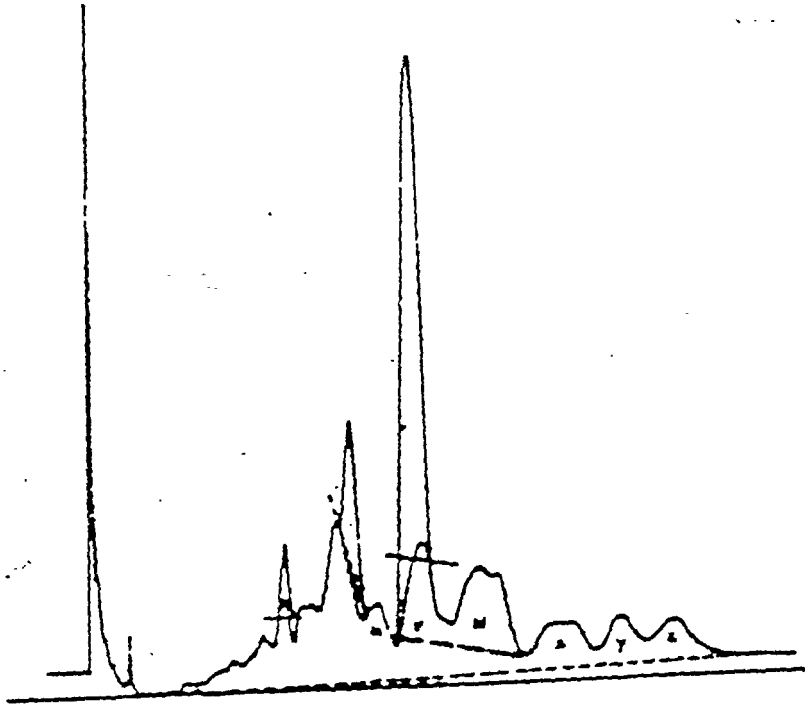


Fig. 7b—Baseline construction for multiple residues with toxaphene, DDE and o,p'- and p,p'-DDT.

Figure 8

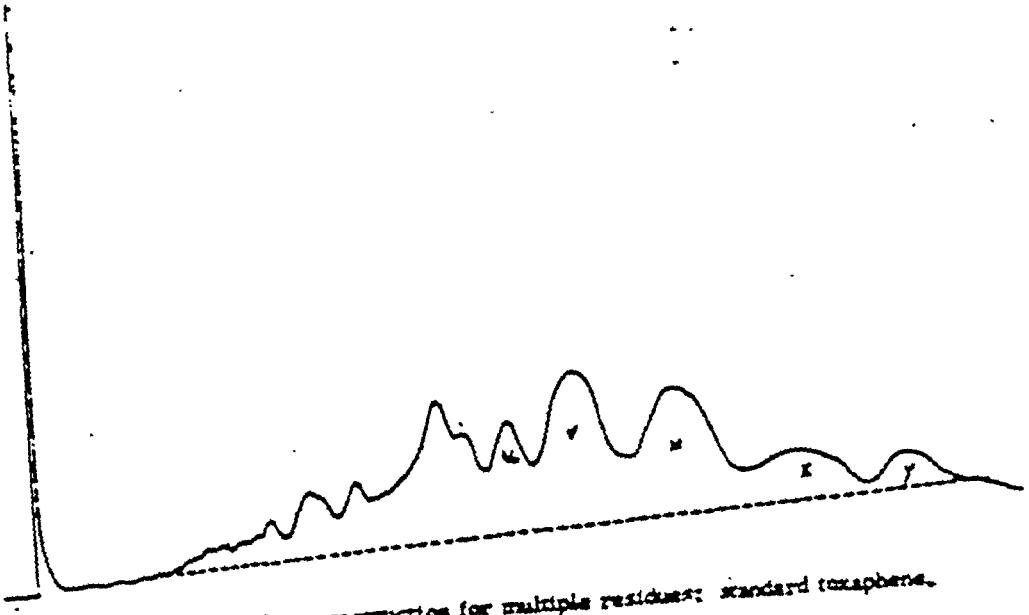


Fig. 8a—Baseline construction for multiple residues: standard toxaphene.

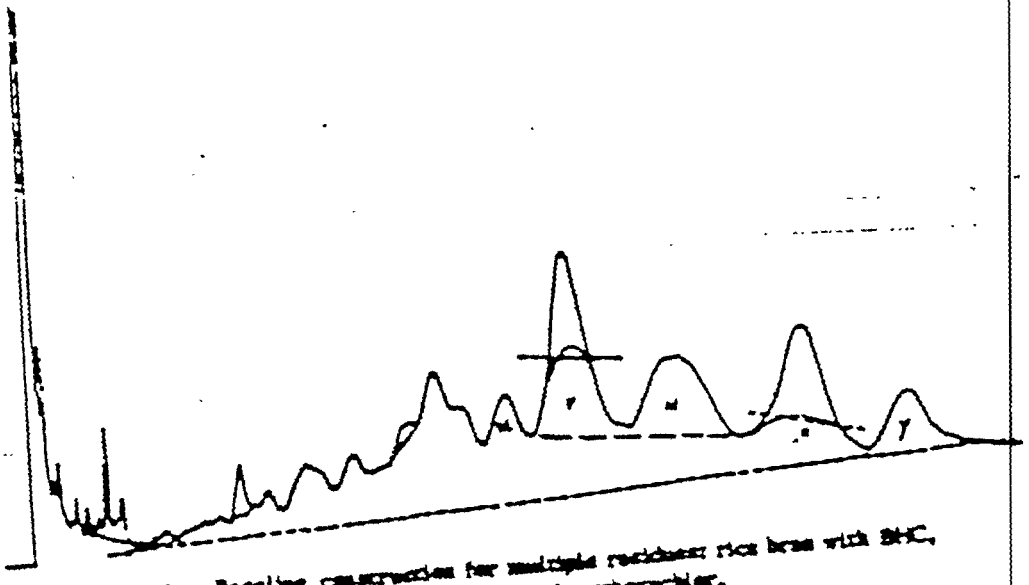


Fig. 8b—Baseline construction for multiple residues: rice bran with BHC, toxaphene, DDT, and methoxychlor.

Figure 9

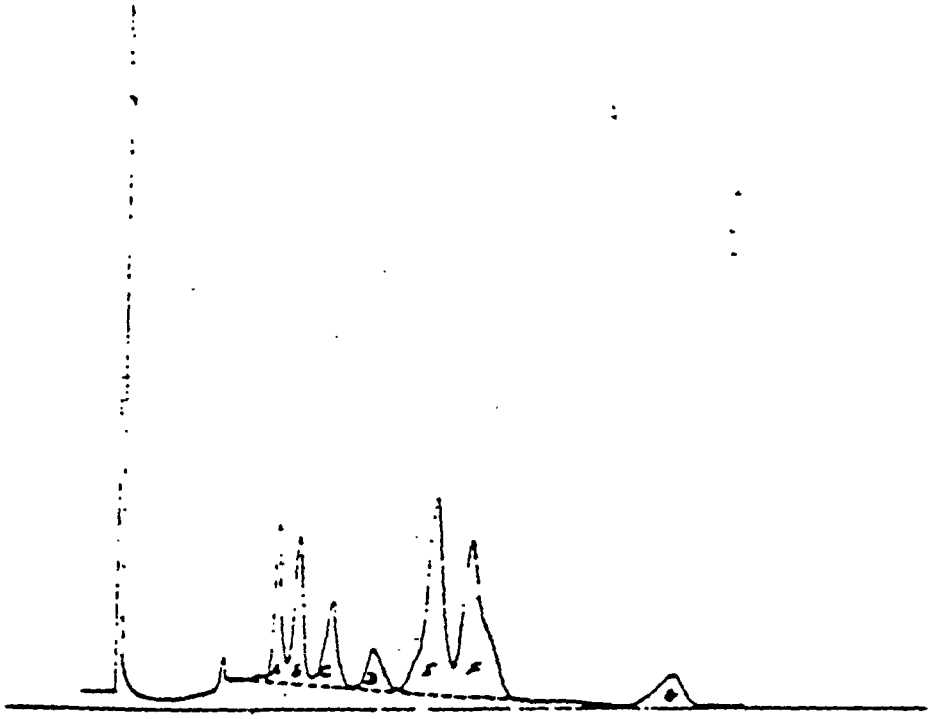


Fig. 9a—Baseline construction for multiple residues: standard chlordane.

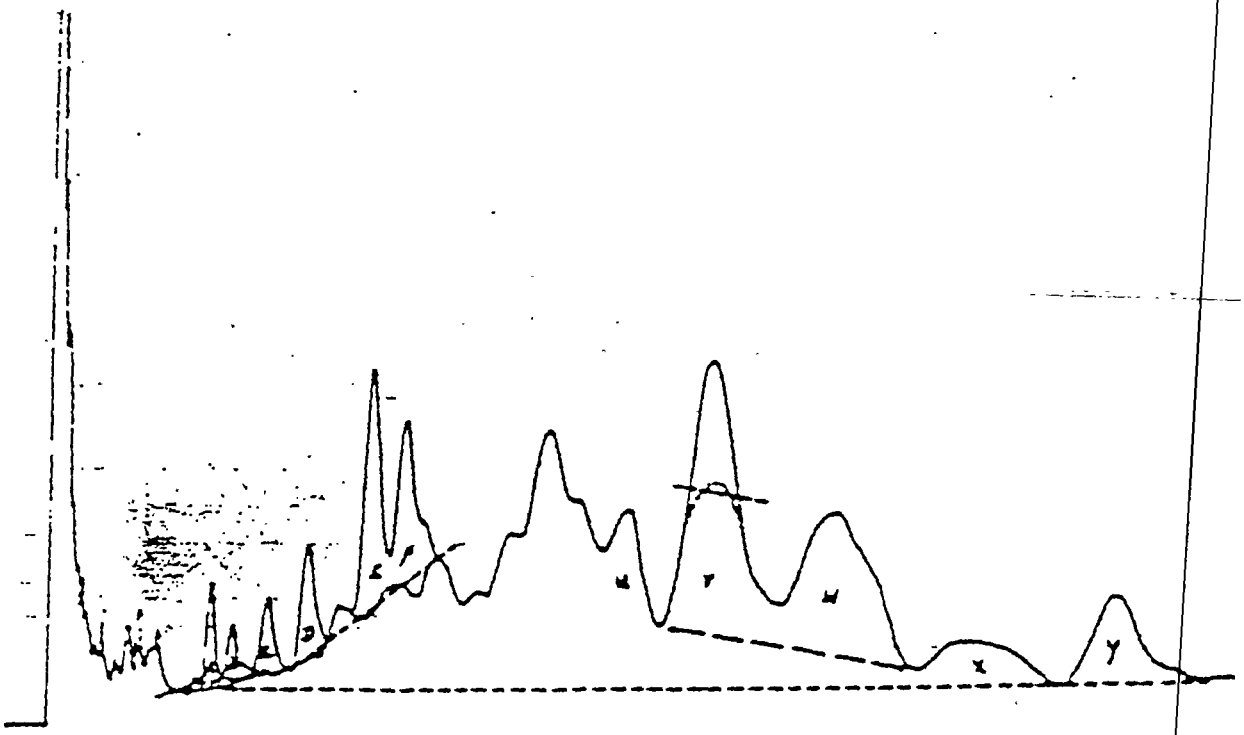
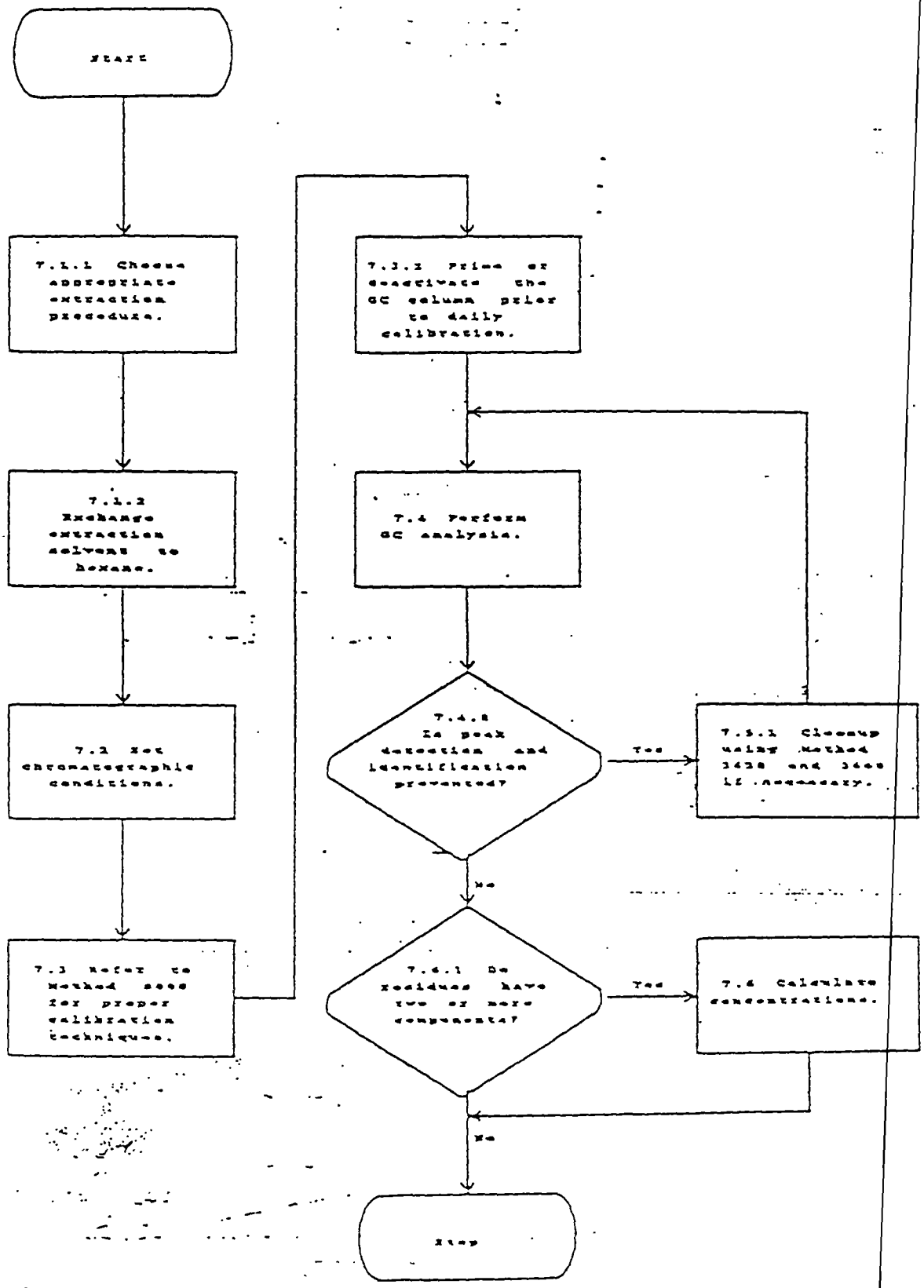


Fig. 9b—Baseline construction for multiple residues: rice bran with chlordane, toxaphene, and DDT.

07/20/97

METHOD 8080A
ORGANOCHLORINE PESTICIDES AND POLYCHLORINATED BIPHENYLS BY GAS CHROMATOGRAPHY



04/06/98

Vickery Site Specific

Procedure

SW846, Method 8080A

Polychlorinated Biphenyls (PCBs)

by

Gas Chromatography

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04/06/98

7.0 PROCEDURE

7.1.1 Refer to Chapter Two for guidance on choosing the appropriate extraction procedure. In general, water samples are extracted at the pH the sample is received with methylene chloride, using either Method 3510C, with Vickery Site Specific Procedure of SW846-3510C, or other appropriate procedure. Solid samples are extracted using Method 3540C or 3550C.

8.0 QUALITY CONTROL

8.3.1 If recovery is not within in-house surrogate limits, refer to Section 8.6.2, Method 8000B of SW846, Revision 2, December 1996 with Vickery Site Specific Procedure, SSP-8000B.

586 CCC-2

Vickery Site Specific

Procedure

SW846, Method 8000B

Determinative Chromatographic Separations

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8.0 QUALITY CONTROL

8.6.2.4 If no instrument problem is found, QC and spike samples are within in-house limits, and no low or high trend in surrogate recoveries is apparent, then no further action is required.

8.6.2.5 If a trend is apparent, further investigation is needed to determine if it is related to the sample matrix, to a dilution error, or to an analyst error,

- 8.6.2.5.1 If consistent within the matrix, problem should be noted and no further action is needed.
- 8.6.2.5.2 If a dilution error, the sample should be re-extracted and re-analyzed.
- 8.6.2.5.3 If analyst error, analyst should be retrained.

8.6.2.6 If upon re-analysis, the recovery is again not within limits, report the data as an "estimated concentration." If the recovery is within the limits in the re-analysis, provide the results of original and the re-analyzed in the data.

WASTE MANAGEMENT, INC.	Method No. 97-71	Date 12/29/97
2100 Cleanwater Drive	Supersedes 92-71	Page 1 of 2
Geneva, IL 60134	Approval Barbara Wall	Date 12-29-97

METHOD MODIFICATION

ASTM METHOD D 4980-89

SCREENING OF pH IN WASTE

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WASTE MANAGEMENT, INC. Method No. 97-71 Date 12/29/97

2100 Cleanwater Drive Supersedes 92-71 Page 2 of 2

Geneva, IL 60134 Approval Barbara Hill Date 12-29-97

1.0 SCOPE AND APPLICATION

1.6 This method modification is only applicable to waste samples, solids, sludges and non-aqueous liquids. The standard ASTM test method must be used for aqueous samples and discharge waters.

21.0 PROCEDURE

21.2 Thoroughly rinse and gently wipe the electrodes prior to measuring pH of each sample.Immerse the electrodes into the sample beaker or sample stream and gently stir at a constant rate to provide homogeneity and suspension of solids. Note and record sample pH and temperature. Wait for a least 15 seconds. If the sample pH value drifts by more than 0.5 pH unit, repeat the measurement on additional aliquots of sample until a constant pH is obtained.

WASTE MANAGEMENT, INC.
2100 Cleanwater Drive
Geneva, IL 60134

Method No. 97-36 Date 12/10/97
Supersedes 92-36 Page 1 of 3
Approval [illegible] Date 12-11-97

Method Modification

ASTM D 5928

Standard Test Method

for

Screening of Waste for Radioactivity

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4.0 Summary of Test Method

4.1 A sample is held 1 inch from the detector window of a radiation survey meter, and the visible or audible reaction of the meter, or both is noted. The result of the meter's reaction is noted as either "negative" or "positive."

9.0 Sample

9.1 Liquid samples exhibiting stratification will be thoroughly mixed in the original, closed container prior to testing. Solid samples of a heterogeneous nature may be subsampled to assure a representative portion. The test portion is spread out onto a watch glass prior to screening to increase the surface area being scanned and enhance the ability of the meter to detect any radiation being emitted.

10.0 Calibration and Standardization

10.2 Check the survey meter's performance at least daily using the Cs 137 source.

10.2.1 Set selector switch to X1 setting.

10.2.2 Place the cesium source at approximately one inch, three inches and nine inches from the detector. Record the responses.

10.3 The survey meter should be factory calibrated whenever detector readings from daily Cs check do not exhibit expected results. Counts should decrease in proportion to the distance from the source.

Example: If the detector yields 10,000 counts at 3 inches, then it should yield approximately 100 counts at 9 inches.

OR

Approximate counts at specified distances are not repeatable and no other assignable cause can be found. A survey meter should be sent to the manufacturer for recalibration every 3 to 5 years even if no faulty behaviors have been noted.

10.4 Assess the level of ambient background radiation annually. Data should be collected over multiple days to ensure randomness of background levels.

10.6 The criteria used to report "negative" or "positive" test results are as follows:

10.6.1 Negative is defined as equal to the background reading. The result may be expressed as "negative," "neg," "= background," or "= bkg."

10.6.2 Positive is defined as greater than background reading. The result may be expressed as "positive," "pos," "> background," or "> bkg."

10.6.2.1 Any positive result must be reported to supervisory personnel immediately.

10.6.2.2 Instrument performance will be checked, possible interferences will be investigated and repeat testing will be undertaken to ensure the result.

11.0 Procedure

11.3 Place the end-window of the survey meter at approximately 1 inch from the sample. Depending on the physical characteristics of the sample container (for example, the container is such that the sample is > one inch from the opening), it may be necessary to withdraw a representative portion of the sample to an alternate container, watch glass, or other appropriate vessel to allow the end-window to be placed at approximately one inch from the sample. Do not allow the survey meter to come in direct contact with the sample. This may contaminate the meter and may damage the end-window.

11.4 Note the counts for at least 5 seconds, record results as per the definitions of "negative" and "positive."

WASTE MANAGEMENT℠, INC.

2100 Cleanwater Drive

Geneva, IL 60134

Method No. 97-66 Date 12/07/97

Supersedes 91-66 Page 1 of 5

Approval [illegible] Date 12-11-97

ACID WASTE REACTIVITY BY

POTENTIOMETRIC TITRATION

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1.0 SCOPE AND APPLICATION

1.1 This method is used to address a specific acid waste reactivity problem related to potential nitrogen oxide evolution during deep well process operations.

1.2 The method determines the critical blend ratio of process wastes.

1.2.1 The critical blend ratio is defined as the ratio of the volume of received waste to the volume of blend tank waste.

1.2.2 The test is oriented for situations where the received load is an oxidizing acid and the waste tank blend is a reducing acid.

1.3 The method is applicable to acids including spent pickle liquors, plating and process residues received by deep well disposal sites.

1.3.1 Reducing wastes are usually hydrochloric acid based and may contain some organic reductants or sulfuric acid.

1.3.2 Oxidizing wastes are usually nitric acid based, but may also contain perchloric acid.

1.4 The method generates guideline data. Other information including tank volumes, prior received loads and site specific operational practices must be taken into consideration when interpreting the critical ratio data.

1.5 This method is a subset of, not a substitute for, the compatibility screen, ASTM D-5058-90, which must be performed first.

2.0 SUMMARY OF METHOD

2.1 A sample of the current waste tank blend is titrated with an acid sample from the received load, using a platinum-silver chloride electrode set, to a potentiometric endpoint of 610 mv or to a 1:1 volumetric ratio.

3.0 INTERFERENCES

3.1 Samples which contain oil may coat the electrodes and prevent the electrode pair from reaching equilibrium.

4.0 APPARATUS AND MATERIALS

4.1 Potentiometer, covering the voltage range of ±2000 millivolts. Corning Model 7, or equivalent.

4.2 Electrode, indicator, Orion platinum probe.

4.3 Electrode replating kit, Orion Co.

4.4 Electrode, reference, Orion silver/silver chloride.

4.5 Beaker, glass, 400 mL.

4.6 Pipet, automatic 10 mL volume.

4.7 Magnetic Stirrer and stirring bar.

4.8 Flask, Volumetric, 1L.

4.9 Graduated Cylinder, 100 mL.

5.0 REAGENTS

5.1 Reagent Water - Reagent water is defined as water in which an interference is not observed at, or above, the method detection limits (MDLs) of the analyte(s) of interest. Typically, double deionized water with electrical resistivity of > 1.0 Mohms-cm at 25°C or electrical conductivity of < 1.0 microsiemens/cm at 25°C is used.

5.2 Reference Solution - ASTM D-1498 Section 7.8. Dissolving 39.21 g of ferrous ammonium sulfate, 48.22 g of ferric ammonium sulfate and 56.2 mL of sulfuric acid in water and dilute to 1L.

6.0 SAMPLE PREPARATION, HANDLING AND STORAGE

6.1 Each sample must be analyzed immediately upon receipt in the laboratory.

6.2 If the sample remains in the laboratory for more than 15 minutes the data may be inaccurate.

7.0 PROCEDURE

7.1 Obtain a current sample of the appropriate waste tank blend.

7.2 Place the indicating and reference electrodes into the sample jar containing the waste. Measure and record the electrode potential in millivolts.

7.2.1 If this voltage is less than 610 millivolts, the test is considered positive and the waste can be processed in the appropriate manner.

7.2.2 If this voltage is greater than 610 millivolts, proceed with the method.

7.3 Transfer 100 mL of the received waste to a 400 mL beaker. Add the stirring bar, place on the stirring plate, begin stirring.

7.4 Place the electrodes into the solution. Measure and record the electrode potential.

7.5 Add 10 mL aliquots of the waste tank blend and record the electromotive potential.

7.6 Continue adding aliquots until the electrode potential exceeds 610 millivolts or 100 mL of the waste tank blend has been added. Record the number of aliquots added to the beaker.

7.7 Wash the electrodes carefully with reagent water. If there is any oily residue on the electrodes rinse with an appropriate solvent such as xylene, hexane isopropanol etc. to remove the oil.

7.8 When not in use keep the electrodes immersed in reagent water.

8.0 CALCULATIONS

8.1 Calculate the critical blending ratio using the following equation:

$$C = 100/(10A)$$

Where:

A = The number of 10 mL aliquots added to the beaker.
C = The critical blending ratio
10 = The volume of the aliquot of waste tank blend, mL.
100 = The volume of received waste, mL.

9.0 QUALITY ASSURANCE

9.1 Each morning measure the electrode potential using reagent water.

9.2 Each morning, or any time the electrodes are disconnected from the instrument, measure the electrode potential of the hydrochloric acid reference solution. The reading should be about +365 mV.

9.3 ASTM D-1498 Section 10.2. Verify the sensitivity of the electrodes by noting the change in mv reading when the pH is altered. The Oxidation-Reduction Potential will increase when the pH decreases and decrease when the pH increases.

9.4 If there is a significant deviation from + or - response performance, replatinize the platinum electrode according to the manufacturer's instructions.

9.5 Perform a duplicate analysis on every twentieth sample analyzed.

9.6 The precision of the test should be within ±10%.

10.0 REFERENCES

10.1 ASTM Method 1498-93, Standard Practice for Oxidation-Reduction Potential of Water, Annual Book of Standards, Vol. 11.01, 1993.

WASTE MANAGEMENT℠, INC.
2100 Cleanwater Drive
Geneva, IL 60134

Method No. 97 - 02 Date 12/11/97
Supersedes 95-02 Page 1 of 5
Approval Barbara Hill Date 12-11-1997

Method Modification
ASTM D 5830

Standard Test Method

for

Solvents Analysis in Hazardous Waste

Using Gas Chromatography

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8.0 Standard Preparation

8.1 Stock Standard Solutions

8.1.1 Stock standards are prepared from pure standard materials.

8.1.2 It is recommended that each component is 5 to 10% by weight.

8.1.2.1 For volatile components, such as ether and freons, it is recommended that a new stock standard be prepared daily or as needed.

8.1.3 The standard compounds must correspond to the compound list specified in the site specific practice (SSP).

8.3 Calibration Check Standard

8.3.1 A calibration check standard should be prepared from at least ten compounds.

8.3.2 The compounds should cover the major compound types, i.e., alcohols, aromatics, ketones, halogenates, etc.

8.3.3 The calibration check standard must include the following five compounds:

1,1,1-Trichloroethane	Ethylbenzene
Chloroform	p-Xylene

Methyl Isobutyl Ketone

8.3.4 The actual calibration check standard must be specified in an SSP and must cover the range of compound types analyzed.

10.0 Procedure

10.1 Sample Preparation

10.1.1 Carbon disulfide or M-Pyrol Preparation

10.1.1.1 For carbon disulfide preparation, weigh 3 grams of the waste sample in a 15-mL glass vial. Add 3 grams of carbon disulfide to the vial and vortex the mixture vigorously. After allowing the solids to settle, inject the CS_2 extract into the GC.

10.1.1.2 For M-Pyrol preparation, weigh 1.0 grams of the waste sample in a 15-mL glass vial. Add 4.0 grams of M-Pyrol to the vial and vortex the mixture vigorously. After allowing the solids to settle, inject the M-Pyrol extract into the GC.

10.2 Recommended GC Operating Conditions

10.2.5 Additional Columns and Conditions

10.2.5.1 <u>For capillary DB-1701 with FID</u>

Column flow rate	1.0 - 1.5 mL/min
Make-up gas flow rate	30 - 50 mL/min
Split flow	60 cc/min
Injector Temp	250°C
Detector Temp	250°C
Air flow for FID	Approx.300 mL/min
Hydrogen flow for FID	Approx. 30 mL/min
Initial oven temp	35°C
Initial Time	6.0 min
Level 1 rate	6.0°C/min
Level 1 Final Value	180°C
Level 2 Rate	10°C/min
Level 2 Final Value	230°C
Run Time	40 min
Threshold	4 units
Peak Width	0.04 min

10.2.5.2 For capillary DB-624 with FID

Column flow rate	3.5mL/min
Make-up gas flow	29mL/min
Air flow for FID	Approx. 300mL/min
Hydrogen flow for FID	Approx. 30mL/min
Injector temp.	275°C
Detector temp.	275°C
Initial oven temp	35°C
Initial time	5 min
Level 1 rate	5°C/min
Level 1 final value	150°C
Level 1 hold time	4 min
Level 2 rate	20°C/min
Level 2 final value	225°C
Run Time	45 min

10.2.5.3 For packed SP-1000 with FID

Column flow rate	40mL/min
Air pressure for FID	300kPa
H_2 pressure for FID	130kPa
Injector temperature	250°C
Detector temperature	250°C
Initial oven temp.	90°C
Initial time	6 min
Level 1 rate	3°C/min
Level 1 final value	120°C
Level 2 rate	5°C/min
Level 2 final value	180°C
Level 3 rate	10°C/min
Level 3 final value	230°C
Run time	46 min

10.2.5.4 For packed SP-2100 with FID

Carrier Gas flow	30mL/min
Injector temp	250°C
Detector temp	300°C
Air flow rate(FID)	Approx. 300mL/min
H_2 flow rate(FID)appx.	30 mL/min
Initial oven temp	45°C
Initial hold time	3 min
Level 1 rate	15°C/min
Level 1 final value	90°C
Level 2 rate	10°C/min
Level 2 final value	195°C
Run time	16.5 min

10.2.6 The column used, operating conditions and detector must be specified in a site specific practice (SSP).

10.3 Linear Range Determination - The linearity and linear range for each compound must be established on any GC system used for quantitation. This must be done when an instrument is first set up or after any major maintenance or alteration of the system configuration, e.g., detector or injection port replacement. To demonstrate linearity, standards are analyzed at 3 - 5 concentration levels and a response factor calculated for each compound at each concentration. If the % RSD of the response factors is less than 20% over the working range, linearity through the origin can be assumed, and the average calibration factor can be used for quantitation. Final quantitation for each compound must be done within the linear range of that compound.

10.4 Calibration (External Standard Procedure):

10.4.1 A single point initial calibration of all compounds must be performed on an annual basis. Inject 0.5 - 2 uL of the stock standards which were prepared as per sec. 8.1. Tabulate peak area against concentration and express response factors (RF) for each component. For ease of calculation, it is recommended that the response factors be expressed as area counts per % by weight.

Vickery Site Specific

Method for Screening of Sulfides

using

Gas Detector Tubes

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GAS DETECTOR TUBE METHOD FOR SULFIDE

1.0 SCOPE AND APPLICATION

1.1 This method is designed as a screening device to detect low level amounts of sulfide in a acidified atmosphere by the utilization of a gas detector tube as evolved hydrogen sulfide gas.

2.0 SUMMARY OF METHOD

2.1 A portion of the sample is acidified in an Erlenmeyer flask to release hydrogen sulfide gas. The gas is funneled through a gas detector tube creating a stain inside the tube in proportions to the concentration of sulfide gas in the vapor. A definite color change in the tube indicates the positive presence of sulfide.

3.0 TERMINOLOGY

3.1 Screening Method means a preliminary qualitative or semi-quantitative test developed from classical qualitative and quantitative techniques. The method is designed to efficiently give the user specific information about the waste which will aid in determining waste identification, process compatibility and safety in handling.

4.0 SAMPLE STORAGE AND PRESERVATION

4.1 Samples should be analyzed as soon as possible. All liquid sample should be preserved with 2.5N sodium hydroxide to adjust the pH range between 10 to 13, if pH is less than 10 and samples are to be stored.

5.0 APPARATUS

5.1 A 500 milliliter ground glass stoppered Erlenmeyer flask.

5.2 A gas detector pump.

5.3 An automatic dispensing pipetor.

5.4 A 100 milliliter graduated cylinder.

5.5 pH meter.

6.0 REAGENTS

6.1 Gas detector tube with hydrogen sulfide indicator.

6.2 Concentrated hydrochloric or sulfuric acid, or acidic waste.

6.3 pH paper

7.0 PROCEDURE

7.1 Use between 1 and 100 ml of sample. Volume can be measured by using a graduated cylinder and/or an automatic dispensing pipetor.

7.2 Acidify this sample test portion to a pH of 2 or less with concentrated hydrochloric, sulfuric or waste acid. If waste is to be used, place the waste acid in the flask and add the sample test portion to a total volume of 100 ml. Gas vapor should now form.

7.3 Break both of the glass tip ends of the gas detector tube. Insert the tube into the gas detector pump. (Arrow towards pump)

7.4 Place the gas detector tube inside the mouth of the 500 milliliter Erlenmeyer flask. The end of the tube should reach halfway inside the flask. Actuate the pump the number of times directed in the manufacturers instructions and read the measurement of concentration by total length of discoloration.

7.5 If the detector tube reading is above the scale of the tube, alter the amount of sample used and/or the detector tube with an appropriate scale. This will reduce the amount of sulfide released and will allow the vapor concentration to be on the scale of the detector tube.

8.0 CONCENTRATION CALCULATION

8.1 In order to screen the concentration of releasable sulfide in the liquid sample, the

concentration of the gas must be converted to a concentration in liquid. This can be done by using the following calculation.

$$1 \text{ ppm } H_2S \text{ in gas} = 1.42 \text{ mg } H_2S/m^3 \text{ in gas}$$

X = ml of liquid sample
Y = ml vapor space in Erlenmeyer flask
Z = ppm H_2S reading on tube

To determine the mass (mg) of H_2S released from the liquid into the gas:

$$Z \text{ ppm } H_2S \times \frac{1.42 \text{ mg } H_2S/m^3}{\text{ppm } H_2S} \times Y \text{ ml} \times \frac{1 \text{ cm}^3}{\text{ml}} \times \frac{1 \text{ m}^3}{(100 \text{ cm})^3} = 1.42 \times 10^{-6} YZ \text{ mg } H_2S$$

To determine the concentration of H_2S in the liquid sample:

$$1.42 \times 10^{-6} YZ \text{ mg } H_2S \times \frac{1}{X \text{ ml}} \times \frac{1000 \text{ ml}}{1 \text{ L}} = \frac{1.42 \times 10^{-3} YZ \text{ mg}}{X \text{ L}}$$

Example: if you use 5 ml of liquid sample and acidify it into 95 ml of waste from T-1 or T-2, the Erlenmeyer flask has a vapor volume of 500 ml and you obtain a reading on the tube of 100 ppm, the total releasable sulfide is calculated as:

$$\frac{1.42 \times 10^{-3} YZ \text{ mg}}{X \text{ L}} = \frac{1.42 \times 10^{-3} \times 500 \times 100}{5} = 14.2 \text{ mg/l}$$

9.0 REMARKS

9.1 The gas detector tube can only be used once and must be disposed of after a negative or positive result. After a positive result, the discoloration may persist for a short period of time, so that evaluation should be carried out immediately after the measurement.

9.2 Test the gas detector pump by inserting a gas detector tube with glass tip ends still intact. Actuate the pump once and the pump should maintain vacuum tightness.

9.3 All testing should be done in the fume hood.

10.0 QUALITY CONTROL

10.1 A quality control check sample is performed on each lot of sample tubes.

10.2 Duplicates and spikes will be performed on every 20th sample analyzed.

10.3 Since this is a semi-quantitative screening method, if the calculated concentration is 250 mg/l or larger, the sample should be analyzed by another, quantitative method. This is 1/2 the concentration of our site limit of 500 mg/l reactive (releasable) sulfide.

Vickery Site Specific Procedure

of

SW846, Method 3510C

Separatory Funnel Liquid-Liquid Extraction

"This method is confidential and is intended for the sole use and benefit of Waste Management of Ohio, Inc.-Vickery Facility, (WMO) and may not be modified, reproduced, circulated or quoted in whole or in part, except with the approval of Waste Management of Ohio, Inc.- Vickery Facility. WMO assumes no responsibility whatsoever for the precision and bias of results or the safety of any analysis utilizing this method unless performed by WMO. It is the responsibility of the user of this method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. This method may be changed by WMO at any time without notice to the user."

2.0 SUMMARY OF METHOD

2.1 A measured volume of sample, usually 100 ml, at the pH that the sample is received, is serially extracted with Methylene Chloride using a separatory funnel. It is extremely difficult to adjust the high pH and low pH samples due to the nature of the matrices involved.

4.0 APPARATUS AND MATERIALS

4.1 Separatory funnel - 0.5-2 liter, with polytetrafluoroethylene (PTFE)stopcock.

7.0 PROCEDURE

7.1 Using a 100 ml graduated cylinder, measure 100 ml(nominal) of sample. Quantitatively transfer the sample to a separatory funnel.

7.2 Measure a minimum of 100 microliter of the 25 ppm surrogate spiking solution into the sample and mix well. (See Method 3500B and the determinative method to be used for details on the surrogate standard solution and matrix spiking solution).

7.2.1 For the sample in each batch (see Chapter One) selected for use as a matrix spike sample, add an appropriate amount of the matrix spiking standard.

7.3 It is extremely difficult to adjust the high pH and low pH samples due to the nature of the matrices involved.

7.4 Use 20 ml of methylene chloride to rinse the cylinder and transfer this rinse solvent to the separatory funnel.

7.6 Allow the organic layer to separate from the sample phase. If the emulsion interface between layers is more than one-third the size of the solvent layer, the analyst must employ mechanical techniques to complete the phase separation. The optimum technique depends upon the sample and may include stirring, filtration of the emulsion through

glass wool, centrifugation or physical methods. Collect the solvent extract in a K-D Flask after filtering through Sodium Sulfate. If the emulsion cannot be broken (recovery <80% of the methylene chloride, corrected for the water solubility of methylene chloride), transfer the sample, solvent, and emulsion into the extraction chamber of a continuous extractor and proceed as described in Method 3520, Continuous Liquid-Liquid Extraction.

7.8 Serially extract three times with 20 ml of methylene chloride as outlined in Sec. 7.2-Sec. 7.5. Collect and combine the extracts and label the combined extract appropriately.

7.11 K-D Technique

7.11.4 Attach a three-ball Snyder column. Place the K-D apparatus on a hot water bath so that the concentrator tube is partially immersed in the hot water and the entire lower rounded surface of the flask is bathed with hot vapor. At the proper rate of distillation the balls of the column will actively chatter, but the chambers will not flood. When the apparent volume of liquid reached ~~1 ml~~ usually less than 10 mL, remove the K-D apparatus from the water bath and allow it to drain and cool.

04/06/98

Vickery Site Specific Procedure

to

SW846, Method 3660B

Sulfur Cleanup

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2.0 SUMMARY OF METHOD

2.1 The sample to undergo cleanup is mixed with either Copper, Mercury, or Tetrabutylammonuim (TBA) sulfite. The mixture is shaken and the extract is removed from the sulfur cleanup reagent.

5.0 REAGENTS

5.7 Mercury, triple distilled.

7.0 PROCEDURE

7.3 Removal of sulfur using mercury
NOTE: Mercury is a highly toxic metal. All operations involving mercury should be performed in a hood. Prior to using mercury, it is recommended that the analyst become acquainted with proper handling and cleanup techniques associated with this metal.

7.3.1 Concentrate the sample extract to below 10 ml and adjust to a final volume to 10 ml or higher depending on the desired dilution. Perform concentration using the K-D technique (Method 3510C, Sections 7.11.1 through 7.11.6).
CAUTION: When the volume of solvent is reduced below 1 ml, semi-volatile analytes may be lost.

7.3.2 Pipet approximately 5.0 ml of the extract into a clean concentrator tube or Teflon-sealed vial.

7.3.3 Add one to three drops of mercury to the vial and seal. Agitate the contents of the vial for 15-30 sec. Prolonged shaking (2 hrs) may be required. If so, use a mechanical shaker.

7.3.4 Separate the sample from the mercury by drawing off the extract with a disposable pipet and transfer to a clean vial.

7.4 Analyze the cleaned up extracts by gas chromatography (see determinative methods, Sec. 4.3 of this chapter).

Vickery Site Specific Procedure

to

SW846, Method 3665A

Sulfuric Acid/Permanganate Cleanup

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5.0 REAGENTS

5.3 Concentrated Sulfuric Acid (H_2SO_4).

7.0 PROCEDURE

7.1 Sulfuric acid cleanup

7.1.1 Pipet approximately 5.0 ml of the hexane extract to a vial and, in a fume hood, carefully add approximately 2.0 ml of concentrated sulfuric acid.

7.1.11 Remove any remaining Sulfuric Acid from the hexane extract with a Florisil wash before injecting.

7.2 Permanganate cleanup

7.2.1 Add approximately 1-2 ml of the 5 percent aqueous potassium permanganate solution to the combined hexane from 7.1.11.

7.3 Final Preparation

7.3.2 Remove any remaining Permanganate with a Silica Gel wash before injecting.

APPENDIX WAP-B

~~FACILITY WASTE ACCEPTANCE CONDITIONS~~

FIGURES

~~TABLE 2-1~~

~~SAMPLING METHODS AND EQUIPMENT~~

~~Material~~	~~Method~~	~~Equipment~~
~~Extremely viscous~~	~~ASTM D140[b] or ASTM E300~~	~~Coliwasa[a], tubing[c] or liquid thief~~
~~Crushed or powdered material~~	~~ASTM D346[b] or ASTM E300~~	~~Tubing[c], trier, scoop, or shovel~~
~~Soil or rock like material~~	~~ASTM D420[b] or ASTM E300~~	~~Tubing[c], trier, auger, scoop, or shovel~~
~~Soil like material~~	~~ASTM D1452[b] or ASTM E300~~	~~Tubing[c], trier, auger, scoop, or shovel~~
~~Containerized liquids, tank cars and tanks~~	~~SW-846[a] ASTM E300~~	~~Coliwasa[a], tubing[c], weighted bottle or bomb sampler~~
~~Liquids in pits, ponds, lagoons or reservoirs~~	~~SW-846[a]~~	~~Pond sampler, weighted bottle or bomb type sampler~~

~~a/ "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," SW-846, July 1982, second edition, USEPA, Office of Solid Waste and Emergency Response, Washington, DC or the most current approved edition.~~

~~b/ American Society for Testing Materials, ASTM, Annual Book of ASTM Standards, Philadelphia, PA.~~

~~c/ "Personal Protection and Safety Training Manual," 1981, USEPA, National Training and Operational Technology Center, Cincinnati, OH.~~

FIGURE 2-1

SAMPLING METHODS AND EQUIPMENT

MATERIAL	METHOD*	EQUIPMENT
Extremely viscous liquid	ASTM D140 ASTM E300	Tubing, trier or coliwasa
Crushed or powdered material	ASTM D346 ASTM E300	Tubing, trier, scoop, or shovel
Soil or rock-like material	ASTM D420 ASTM E300	Tubing, trier, auger, scoop, or shovel
Soil-like material	ASTM D1452 ASTM E300	Tubing, trier, auger, scoop, or shovel
Fly ash-like material	ASTM D2234 ASTM E300	Tubing, trier, auger, scoop, or shovel
Containerized liquids	SW-846 ASTM E300	Coliwasa or tubing
Liquids in impoundments	SW-846	Bomb sampler, tubing, weighted bottle, and/or dipper sampler

*ASTM refers to *Annual Book of ASTM Standards*, American Society for Testing Materials, Philadelphia, PA, 1994 or most recent edition. SW-846 refers to *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846, Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC, September 1986, as amended by Final Update I, July 1992, and Updates II and IIA, September 1994, or more recent edition or update.

FIGURE 3-1

USAGE OF "MANDATORY ANALYSES" ~~BASED ON PROCEDURE/PROTOCOL ESTABLISHED BY CWM~~

Test	Identification	
	Pre-Acceptance	Incoming
Physical Description	+	+
pH Screen	+	+
Specific Gravity	+	+
Liquid Waste Compatibility Test	+	+
Flammability Potential Screen	+	+
Cyanides Screen *	+	+
Sulfides Screen *	+	+
(VOC) Solvent Screen *	+	+
PCBs **	+	+
Radioactivity Screen	+	+

+ Test must be addressed.

* As required by Section (3.1).

** As required by section (3.1.1).

FIGURE 3-2

USAGE OF "SUPPLEMENTAL ANALYSES"
~~BASED ON PROCEDURE/PROTOCOL~~
~~ESTABLISHED BY CWM~~

Test	(Identification) Acceptance	(Identification) Incoming	(Process Applicability) Storage	(Process Applicability) Filtration	(Deepwell) Disposal
Timed Filtration	+	+		*	*
Process Blend Testing	+	+	*	*	*
pH Spectrum	+	+		*	*
Solvent Screen	+	+		*	*
~~Distillation~~	+	+	*	*	*
Process Testing or Core Testing	+	+		*	*
~~Radiation Screen~~	+	+			

\+ At the discretion of the Vickery General and/or Laboratory Managers.

* Test provides waste information which may be useful for these processes as described in Section 6.0.

FIGURE 3-~~3~~2 (CONTINUED)
~~SAGE~~ OF ~~"~~SUPPLEMENTAL ANALYSES~~" BASED ON "STANDARD METHODS" OR OTHER PROCEDURES~~

Test	Pre-Acceptance	Incoming	Storage	Filtration	Disposal
Heavy Metals	+	+		*	*
Miscellaneous Metals	+	+		*	*
~~Specific Gravity~~	~~+~~	~~+~~	~~*~~	~~*~~	~~*~~
pH	+	+	*	*	*
Sulfates	+	+		*	*
Specific Conductance	+	+	*		*
Chlorides	+	+		*	*
Nitrates	+	+			*
Fluorides	+	+	*		
Amenable Cyanides	+	+	*		*
Total Cyanide	+	+	*		*
Total Sulfide	+	+	*	*	*
Total Phenolics	+	+			*
Total Solids	+	+		*	*
TCLP	+	+	*		*
Suspended Solids	+	+		*	*
GC Scan	+	+			*
Flashpoint	+	+	*		
Viscosity	+	+		*	
Acidity	+	+	*		
Alkalinity	+	+	*		
Oil & Grease					*
Total Organic Carbon	+	+	*		*
Dissolved Solids	+	+		*	*
~~Total Volatile Residue~~	~~+~~	~~+~~			

\+ At the direction of the Vickery General and/or Laboratory Managers.

Test provides waste information which may be useful for these processes as described in Section 6.0.

7/20/97

FIGURE 4-1

OVERVIEW OF THE PRE-ACCEPTANCE PROCESS

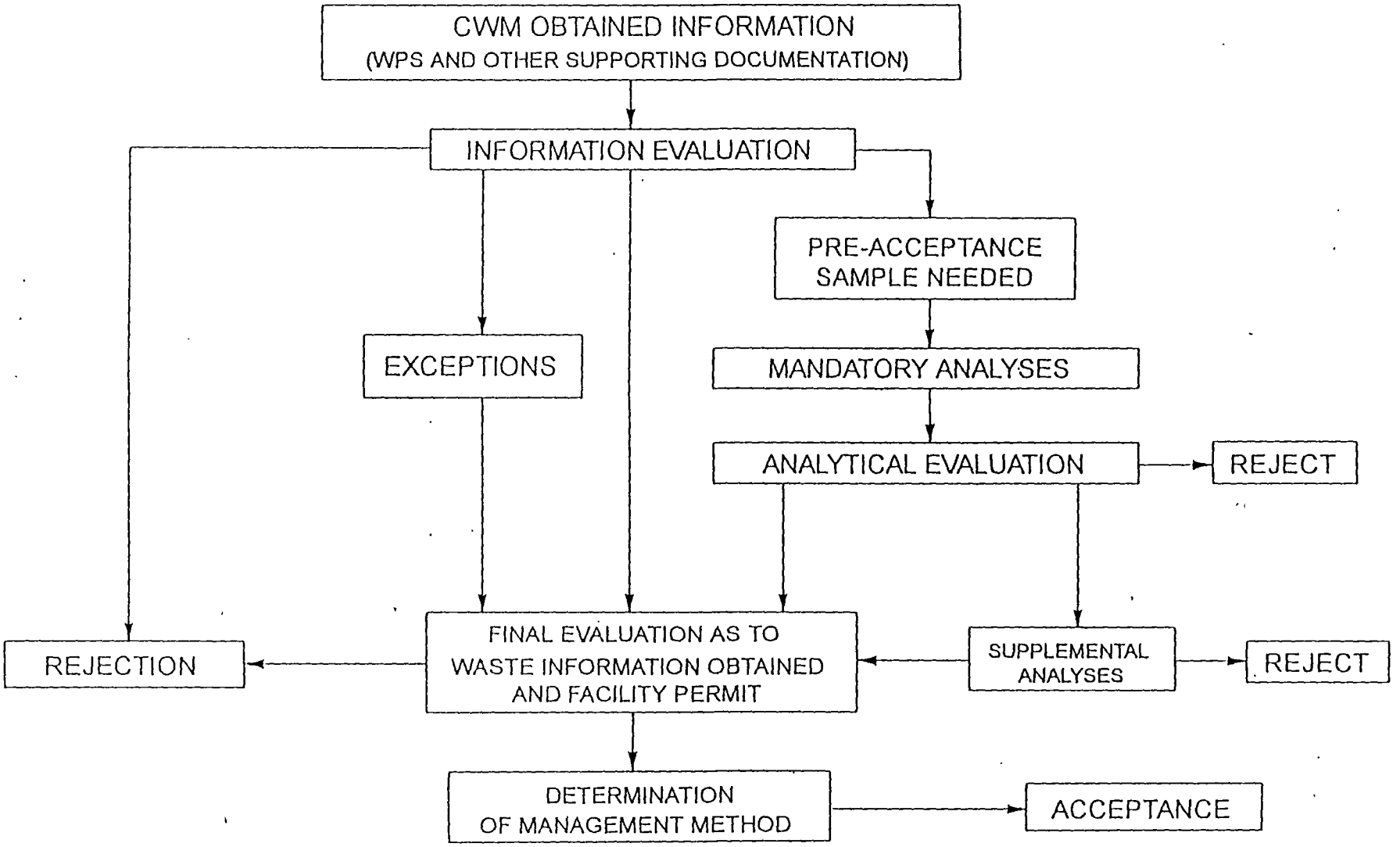


FIGURE 5-1
OVERVIEW OF THE INCOMING WASTE SHIPMENT IDENTIFICATION PROCESS

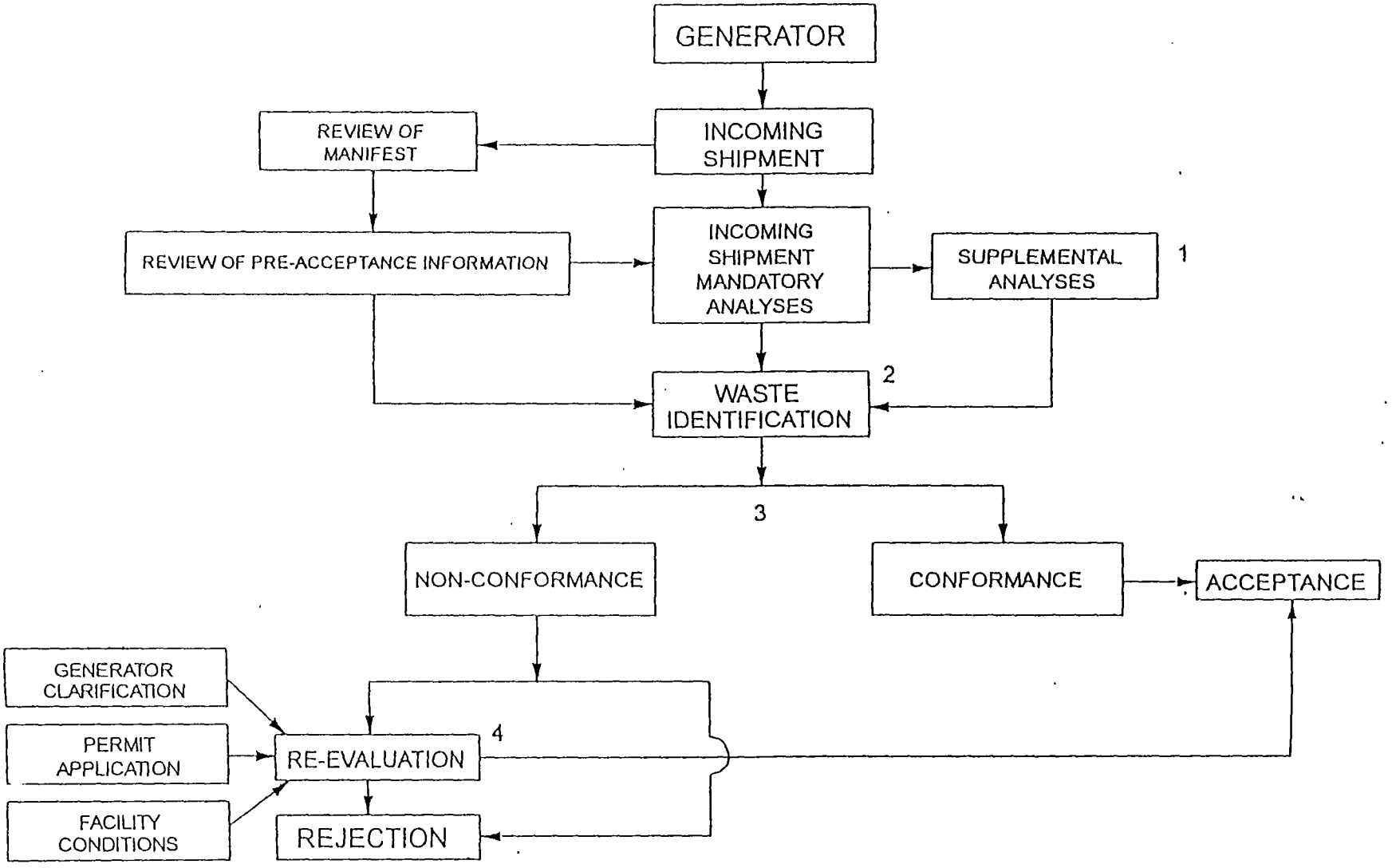
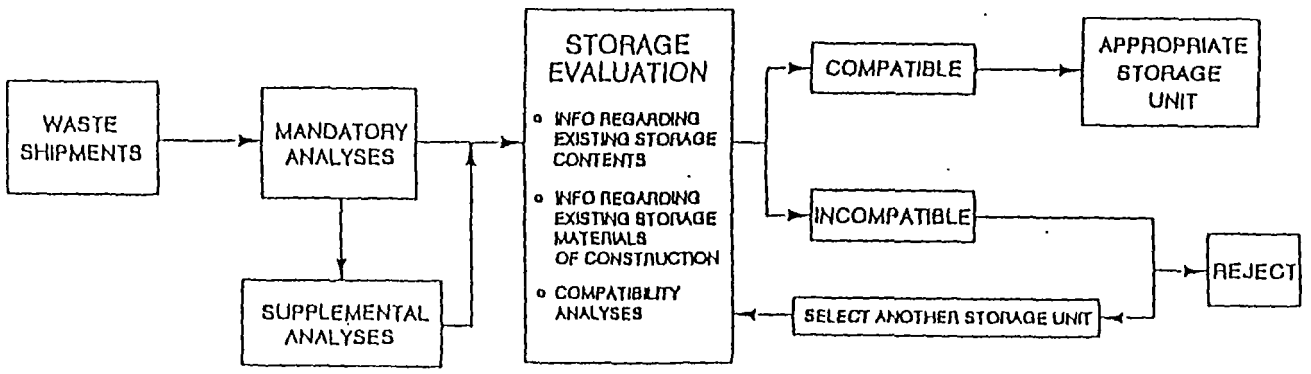


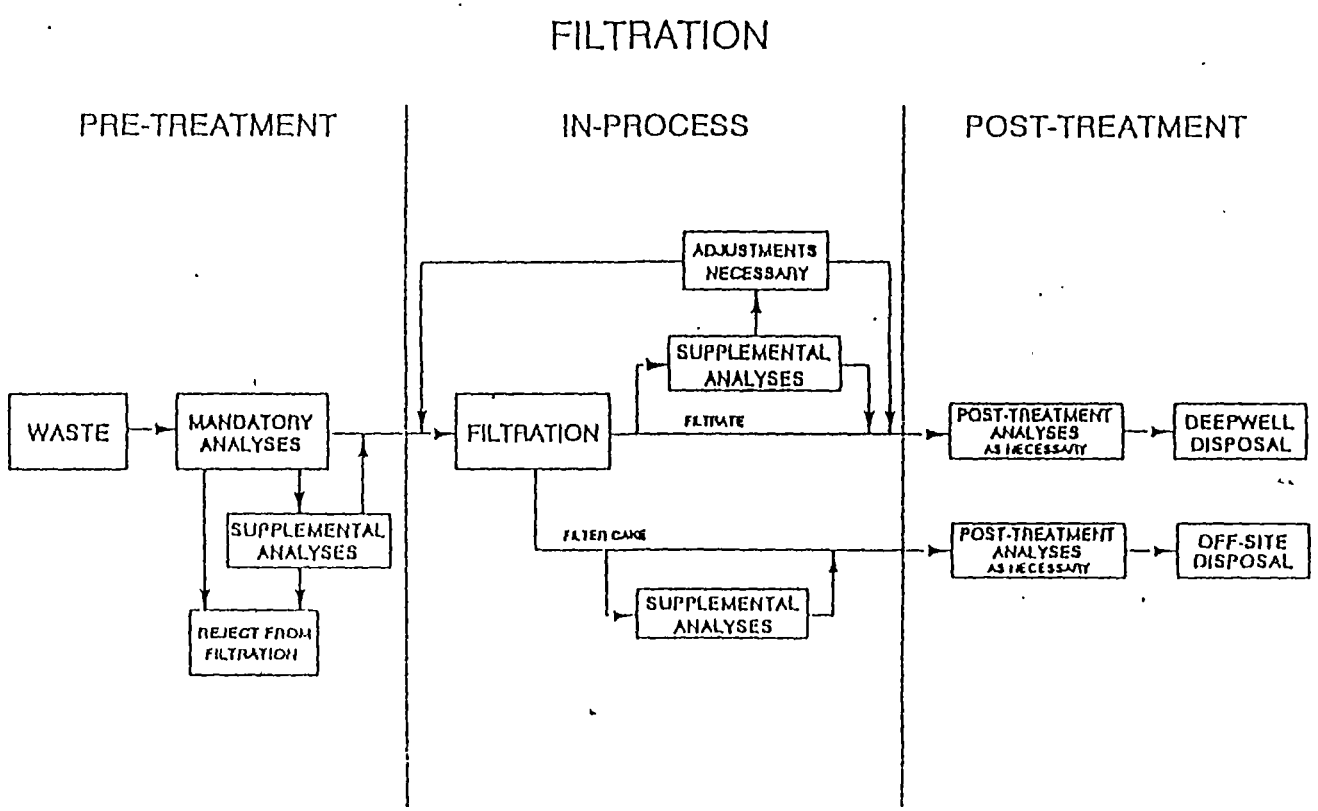
FIGURE 6-1

STORAGE



7/30/97

FIGURE 6-2



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APPENDIX WAP-C

FACILITY WASTE ACCEPTANCE CONDITIONS

The following are the current acceptance limitations for wastes at the CWM-Vickery Facility for deepwell injection:

1. Limited to 5% or less by volume oil, using standard BS&W test and corrected for tank shape if necessary. (Centrifuge Tube Acceptable)

2. Limited to less than 25 ppm detectable PCBs.

3. Closed cup flash point must exceed 140 ~~212~~°F.

4. Must be a pumpable liquid or semi-solid, not a paste or solid. (It may contain solids.)

5. Reactive cyanide (as Releasable) must be less than 250 ppm. ~~Phenols should not exceed 30,000 ppm.~~

6. ~~Reactive cyanide must be less than 250 ppm and~~ ~~R~~reactive sulfide (as Releasable) must be less than 500 ppm.

7. VOC (Solvent Screen) ~~(Volatile Organic Compounds)~~ must not exceed 5% by weight.

8. Waste must be compatible with existing materials of construction of the surface facilities and the injection wells.

9. Acceptable injectability must be indicated from previous CWM experience or from supplementary analytical results.

10. Radiation level must not exceed background.

This list will be revised when applicable to meet changing regulations ~~(if any)~~.

~~APPENDIX WAP-G~~

~~LAND DISPOSAL RESTRICTION SAMPLING~~

~~APPENDIX WAP C~~

~~LAND DISPOSAL RESTRICTION SAMPLING~~

~~The procedures described herein represent the sampling and analytical procedures established for use at the facility for the treatment, storage and disposal of Land Disposal Restricted hazardous waste, see 40 CFR Part 268.~~

~~LEACHATE~~

~~On-site generated untreated leachate will be sampled and analyzed for conformance to the treatment standards for F039 as specified in the preamble of the Third Third Final Rule, and at the following frequency:~~

1. ~~The untreated leachate, F039, will be sampled, analyzed and evaluated initially for all constituents on the BDAT Treatment Standards list. This constituents the "initial characterization".~~

2. ~~Semi-annually the untreated leachate will be sampled and analyzed for any and all constituents which, in the "initial characterization", exceeded one-half the value of the treatment standards, to ensure management of the leachate to the Land Disposal Restrictions of 40 CFR 268.~~

3. ~~The untreated leachate will be sampled and analyzed biennially (2 years) for the full BDAT list of constituents, to further ensure that no changes affecting the leachate have occurred.~~

~~The decision to accept off-site generated Leachate will be conducted as detailed in the pre-acceptance section of the Waste Analysis Plan. The generator will provide the necessary analytical data ion conformance with the Waste Analysis Plan from the generator's facility.~~

APPENDIX WAP-D

DESCRIPTION OF SAMPLING EQUIPMENT

COMPOSITE LIQUID WASTE SAMPLER
(Coliwasa)

Description

The Coliwasa is a device used to sample free-flowing liquids and slurries contained in drums, shallow open-top tanks, pits, and similar containers. It is especially useful for sampling wastes that consist of several immiscible liquid phases. It consists of a glass, plastic, or metal tube equipped with an end closure which can be opened and closed while the tube is submerged in the material to be sampled. The Coliwasa is available commercially or can be fabricated to conform to desired specifications.

Procedures for Use or see ASTM D5495):

1. Clean Coliwasa.

2. Adjust sampler's locking mechanism to ensure that the stopper provides tight closure. Open sampler by placing stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

3. Slowly lower the sampler into the waste at a rate that permits the level of liquid inside and outside the sampler to remain the same.

4. When the sampler hits the bottom of the waste container, push the sampler tube down to close and lock the stopper by turning the T-handle until it is upright and one end rests on the locking block.

5. Withdraw Coliwasa from waste and wipe the outside with a disposable cloth or rag.

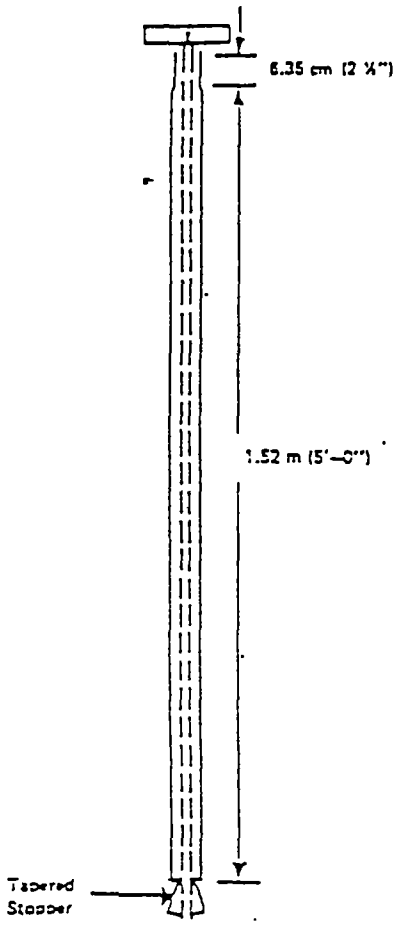
General Comments and Precautions:

1. Do not use a plastic Coliwasa, unless it is constructed of fluorocarbons (e.g., Teflon), to sample wastes containing organic materials.

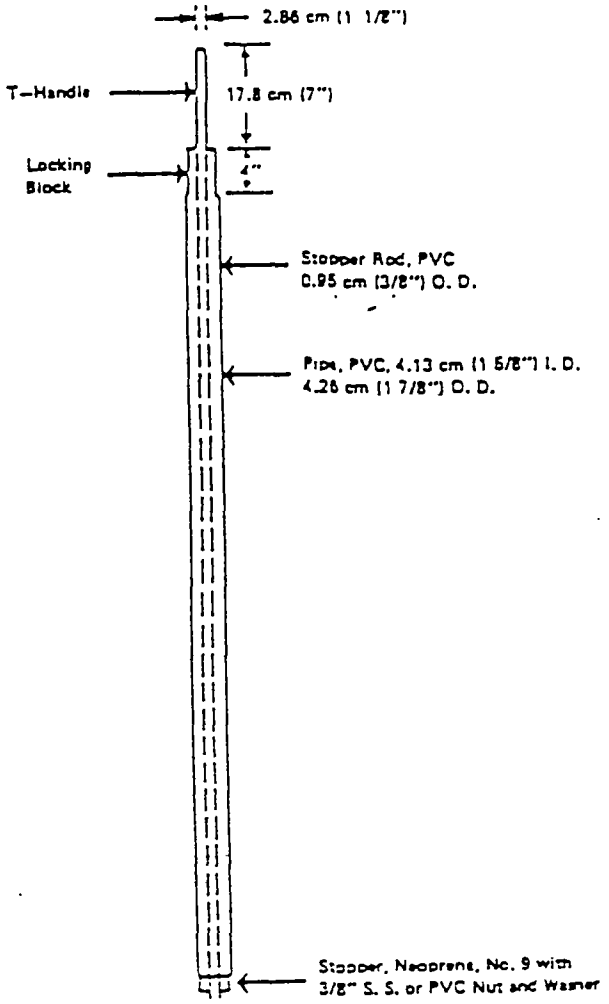
2. Do not use a glass Coliwasa to sample liquids that contain hydrofluoric acid.

3. If significant amounts of solid materials are present within 2 inches of the bottom of the container to be sampled, special procedures may be necessary to obtain a representative sample of this solid phase.

COLIWASA SAMPLER



SAMPLING POSITION



CLOSE POSITION

~~Typical Parts for Constructing a Coliwasa:~~

~~Qty.~~	~~Item~~	~~Comments~~	~~Supplier~~
~~1~~	~~Sample tube, translucent PVC plastic, 4.131 cm I.D. x 1.52 long x 0.4 cm wall thickness~~	~~Plastics Coliwasa only~~	~~Plastic supply houses~~
~~1~~	~~Sample tube, borosilicate 4.12 cm I.D. x 1.52 m long~~	~~Glass Coliwasa~~	~~Corning Glass Works #71-1602~~
~~1~~	~~Stopper, neoprene rubber #9~~		~~Laboratory supply houses~~
~~1~~	~~Stopper rod, PVC, 0.95 cm O.D. x 1.67 m long~~	~~Plastic Coliwasa only~~	~~Plastic supply houses~~
~~1~~	~~Stopper rod, Teflon, 0.95 cm O.D. x 1.67 m long~~	~~Glass or Plastic Coliwasa~~	~~Plastic supply houses~~
~~1~~	~~Locking block, PVC, 3.8 cm O.D x 10.2 cm long with 0.56 cm hole in center~~	~~Fabricate by drilling 0.56 cm hole through center~~	~~Plastic supply houses~~
~~1~~	~~T handle, aluminum, 18 cm long x 2.86 cm wide with 1.27 cm wide channel~~	~~Fabricate from aluminum bar~~	~~Hardware stores~~
~~1~~	~~Swivel, aluminum bar 1.27 cm square x 5.08 cm long with 3/8 in. NC inside thread to attach stopper rod~~	~~Fabricate from aluminum bar stock~~	~~Hardware stores~~
~~1~~	~~Nut, PVC, 3/8 in. NC~~		~~Plastic supplier~~
~~1~~	~~Washer, PVC, 3/8 in. NC~~		~~Plastic supplier~~

~~Typical Parts for Constructing a Coliwasa:~~

~~Qty.~~	~~Item~~	~~Comments~~	~~Supplier~~
~~1~~	~~Nut, stainless steel, 3/8 in. NC~~	~~Hardware~~	~~stores~~
~~1~~	~~Washer, stainless steel, 3/8 in.~~	~~Hardware~~	~~stores~~
~~1~~	~~Bolt, 3.12 cm long x 3.16 in. NC~~	~~Hardware~~	~~stores~~
~~1~~	~~Nut, 3/16 in. NC~~	~~Hardware~~	~~stores~~
~~1~~	~~Washer, lock 3/16 in.~~	~~Hardware~~	~~stores~~

~~Ref: Footnote 1 on page A-13, section 1.2.1.1 and 3 on page A-14, Method E300.~~

EPA METHOD FOR THE USE OF THE OPEN TUBE TUBING SAMPLER[2]

Description:

The open glass tube is the most versatile of hazardous liquid samplers because of its wide range of application, relatively low cost, and ease of operation. It is a hollow glass or plastic tube, usually 4 feet long, with an internal diameter of 0.25 to 0.50 inch, depending on the viscosity of the sample. Open tubes made specifically for sampling (i.e., drum samplers) can be purchased. The only difference between these and laboratory glass tubes is that the former have a constricted orifice at the top in order to facilitate plugging the opening to maintain a vacuum in the tube.

Procedure for Use:

Slowly lower the tube into the liquid to the desired depth. It may be desirable not to mix the contents of the containers so that a more representative sample can be collected.

When the sampler is inserted to the desired depth, stopper the tube with a rubber stopper, thumb, or by creasing a piece of flexible tubing attached to the open end of the sample tube. This is done to establish a vacuum in the tube, thereby enabling withdrawal of the sample from the container.

Slowly withdraw the tube from the vessel and expel the sample into the sample container. Avoid handling the portion of the sampler that was placed into the liquid. The tube can be disposed by placing it back into the container that was sampled.

---

2 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.

THIEF SAMPLER

Description:

A thief sampler consists of two slotted concentric tubes, usually constructed of stainless steel or brass. The outer tube has a conical pointed tip which permits the sampler to penetrate the material being sampled. The inner tube is rotated to pen and close the sampler. A thief is used to sample dry granules or powdered wastes whose particle diameter is less than one-third the width of the slots.

Procedures for Use:

1. Clean sampler.

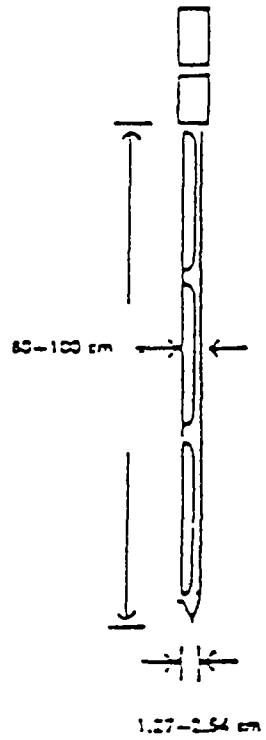
2. Insert closed thief into waste material. Rotate inner tube to open thief. Wiggle the unit to encourage material to flow into thief. Close thief and withdraw. Place sampler thief in a horizontal position with the slots facing upward. Remove inner tube from thief and transfer sample to a container.

Comments and Precautions:

1. Before sampling, ensure that the waste will not corrode the thief.

2. If necessary, the thief may be painted with a 2-part epoxy or other chemical resistant paint when the thief must be used on a corrosive waste.

Ref: Footnote 1 on page A-13, section 1.2.1.4 and 3 on page A-14, Method E300.



Thief Sampler

WEIGHTED BOTTLE SAMPLER/BOMB SAMPLER

Description:

The weighted bottle consists of a glass or plastic bottle, sinker, stopper, and a line which is used to lower, raise, and open the bottle. Bomb samplers can be obtained through a commercial source. The weighted bottle samples liquid and free-flowing slurries.

Procedures for Use:

1. Clean bottle/sampler.

2. Assemble weighted bottle sampler/bomb sampler.

3. Lower the sampler to desired depth and pull out the bottle stopper or open bomb by jerking the line.

4. Allow bottle/sampler to fill completely as evidenced by cessation of air bubbles. Close bomb prior to raising.

5. Raise bomb/sampler, cap bottle, and wipe off with a disposable cloth. The bottle can serve as a sample container. Transfer bomb contents to an appropriate container.

General Comments and Precautions:

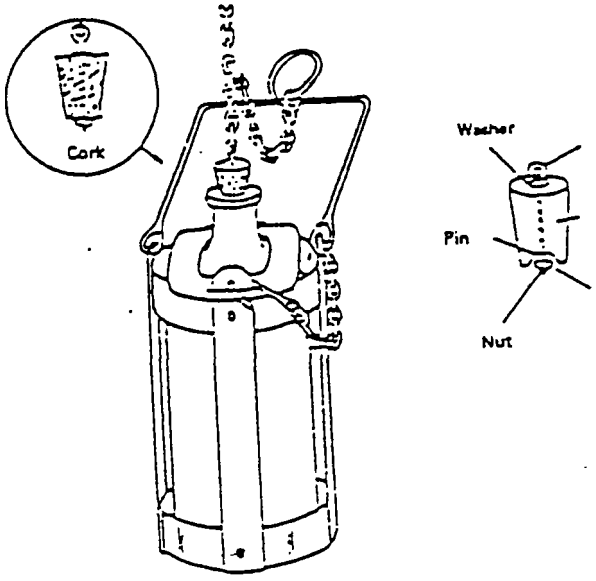
1. Do not use a nonfluorocarbon plastic bottle to sample wastes containing organic materials.

2. Do not use a glass bottle to sample wastes that contain hydrofluoric acid.

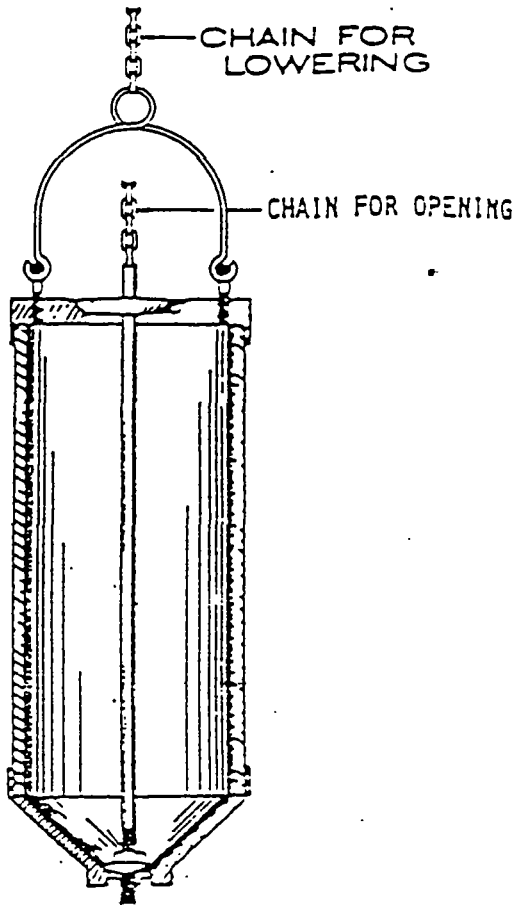
3. Before sampling, ensure that the waste will not corrode the sinker, bottle holder, or line.

Ref: Footnote 1 on page A-13, section 1.2.1.2 and 3 on page A-14, Method E300.

WEIGHTED BOTTLE SAMPLER



TYPICAL BOMB SAMPLER



TRIER

Scope and Application

A trier consists of a tube cut in half lengthwise with a sharpened tip that allows the sampler to cut into sticky solids and loosen soil. A trier samples moist or sticky solids with a particle diameter less than one-half the diameter of the trier.

Apparatus:

1. Triers 61 to 100 cm long and 1.27 to 2.54 cm in diameter are available at laboratory supply stores.

2. A large trier can be fabricated to conform to the specifications in Figure 5. A metal or polyvinyl chloride pipe, 1.52 m (5 ft.) long x 3.2 cm (1.4 in.) I.D., with a 0.32 cm (0.14 in.) wall thickness, is needed. The pipe should be sawed lengthwise, about 60-40 split, to form a trough stretching from one end to 10 cm away from the other end. The edges of the slot and the tip of the pipe are sharpened to permit the sampler to cut into the waste material being sampled. The unsplit length of the pipe serves as the handle.

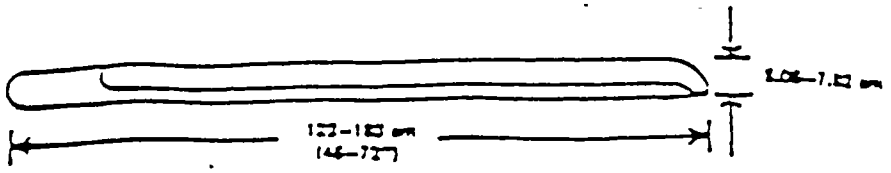
Procedure (or see ASTM D5491)

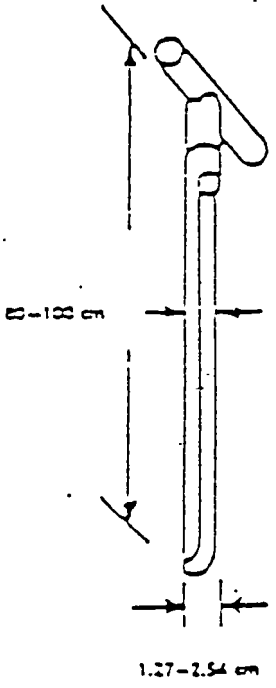
1. Clean trier

2. Insert trier into waste material 0 to 45° from horizontal. Rotate trier to cut a core of the waste. Remove trier with concave side up and transfer sample to container.

Ref: Footnote 1 on page A-13, Section 1.2.1.5.

SAMPLING TRIERS





AUGER

Scope and Application:

An auger consists of sharpened spiral blades attached to a hard metal central shaft. An auger samples hard or packed solids wastes or soil.

Procedure

1. Clean sampler.

2. Bore a hole through the middle of an aluminum pie pan large enough to allow the blade of the auger to pass through. The pan will be used to catch the sample brought to the surface by the auger.

3. Place pan against the sampling point. Auger through the hole in the pan until the desired sampling depth is reached. Back off the auger and transfer the sample in the pan and adhering to the auger to a container. Spoon out rest of the loosened sample with a sample trier.

Ref: Footnote 1 on page A-13, section 1.2.1.6 and 3 on page A-14, Method E300.

SCOOPS AND SHOVEL

Scope and Application:

Scoops are available at laboratory supply houses. Flatnosed shovels are available at hardware stores. Scoops and shovels are used to sample granular or powdered materials in bins, shallow containers and conveyor belts.

Procedures:

1. Clean sampler.

2. Obtain a full cross section of the waste material using a scoop or shovel that is large enough to contain the waste collected in one-cross section sweep.

Ref: Footnote 1 on page A-13, section 1.2.1.7 and 3 on page A-14, Method E300.

Attachment 2

Summary of Modifications

SUMMARY OF MODIFICATIONS
(APPROVED BY THE OHIO EPA AND PROPOSED IN THIS SUBMITTAL)

Revision Date (As submitted to the Ohio EPA)	Page Number of WAP	Description of Change	Reference to Appendix to 40 CFR 270.42
7/15/97	588	Clarified language to make consistent with Ohio EPA Permit condition.	A.1
7/20/97	506-602	Updated plan to bring it to 1997 standards. Revised language to accurately reflect site status and conditions. Removed language about methods that are not applicable to the Vickery facility.	A.1; A.2; B.1.d
7/20/97	586H-586DDDD	Included method modifications developed by Waste Management, Inc. that are utilized by the Vickery facility. This information was required to be submitted as an Ohio EPA condition of approval for the 7/20/97 Class 2 modification request.	B.1.a
4/6/98	586CCC-1 and 2; 586AAAA-BBBB	Corrected typographical errors.	A.2
8/3/98	526; 555-556	Clarified PCB analysis requirements for tanker trucks loaded from railcars that were sampled and analyzed.	B.1.d
8/3/98	586ZZZ	Updated section 7.11.4 of the facility's site specific procedure for SW-856, Method 3510C to change the apparent volume for 1mL to "usually less than 10 mL."	B.1.d
11/20/98	504	Renumbered appendix.	A.1

Attachment 3

Clean Copy of Facility's Approved Ohio Part B WAP

(Replace Attachment III of Facility's Final Federal Permit)

Attachment 4

Summary of Information Required by 40 CFR 270.42(b)

Summary of Information Required by 40 CFR 270.42(b)

Class 2 Modification 40 CFR 270.42(b)(1)...	Rule Requirement	Facility Response
(i)	Exact Change to be made to Permit	Included as Attachment 1 is a copy of the proposed RCRA Waste Analysis Plan, utilizing the redline/strikeout format, to show the exact changes that have been made. Included as Attachment 2 is a summary of the changes.
(ii)	Class 2 Modification	Although the majority of the modifications may be considered Class 1 modifications, WMO submits this modification as a Class 2 modification based on the criteria presented in 40 CFR 270.42(B)(1)(d) and based on discussions with Mr. Thomas Matheson of the US EPA, Region V.
(iii)	Why Modification Needed	Currently, there are six waste codes that are regulated by the US EPA that have not yet been added to Ohio Rules. These codes are K140, U408, K169, K170, K171 and K172. The facility has not yet managed these waste codes; however, in the event that they may be accepted, it would be better to have one approved WAP.
(iv)	Information Required by 40 CFR 270.13-270.21; 270.62; 270.63.	See information provided below.
	40 CFR 270.13-Part A	There are no changes to the contents of Part A of the Application.
	40 CFR 270.14-Part B	See Attachments 1 and 3 for a copy of the proposed RCRA WAP required by 40 CFR 270.14(b)(3). **The copy contained in Attachment 3 should replace the current copy in Attachment III of the facility's Federal Final Permit.** There are no other revisions to the Part B Application. The proposed changes are administrative in nature. There will not be any additional or different management practices. There will be no addition to or change in the treatment process. Blending of wastes will still occur in tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. The same type of waste the facility currently and previously has managed will continue to be managed. No new fire protection is required.

Summary of Information Required by 40 CFR 270.42(b)

Class 2 Modification 40 CFR 270.42(b)(1)...	Rule Requirement	Facility Response
(iv) (cont'd)	40 CFR 270.15-Containers	The facility does not manage hazardous wastes in these types of units under this rule.
	40 CFR 270.16-Tanks	The proposed changes in the RCRA WAP will not require any additional or different management practices. The proposed changes are administrative in nature. There will not be any additional or different management practices. There will be no addition to or change in the treatment process. Blending of wastes will still occur in tanks. Filtration of the waste stream will occur in the existing, permitted filtration operations. The same type of waste the facility currently and previously has managed will continue to be managed. No new fire protection is required.
	40 CFR 270.17 to 40 CFR 270.21; 40 CFR 270.62 and 40 CFR 270.63 Surface Impoundments, waste piles, incinerators, land treatment.	The facility does not manage hazardous wastes in these types of units.

Summary of Information Required by 40 CFR 270.42(b)

Class 2 Modification 40 CFR 270.42(b)(2)...	Rule Requirement	Facility Response
(2) and (2)(i) through (vi)	Notification to those on mailing list.	As required by 40 CFR 270.42(b)(2), WMO will send notification of the modification to all persons on the facility mailing list, as maintained by the Director and all appropriate State and local government. This notification will be made within 7 days after the submission of this modification application and will include all information required. The notice includes all information required by 40 CFR 270.42(2)(i) through (vi). Included as Attachment 5 is a copy of the notification sent to all persons on our facility mailing list including the public notice that is scheduled to appear in The Fremont News-Messenger newspaper on May 21, 1999. Included in Attachment 6 is a copy of our mailing list.
(3)	Copy of Modification	A copy of the permit modification application and supporting documents shall be available at the Birchard Public Library of Sandusky County in Fremont.
(4)	Public Meeting	A public meeting is scheduled for 7:00 pm, Wednesday, June 30, 1999 at the Sandusky County Board of Health Conference Room located at 2000 Countryside Drive, Fremont, Ohio.
(5)	Comment Period	The 60 day comment period shall be from May 21, 1999 to July 20, 1999.

Attachment 5

Letter of Notification and Public Notice

Attachment 6

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Attachment III to the Federal RCRA Permit

Modified August 24, 1999

Waste Management of Ohio, Inc.
OHD 020 273 819

3956 State Route 412
Vickery, Ohio 43464

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VICKERY

RCRA WASTE ANALYSIS PLAN

Waste Management of Ohio, Inc.
3956 State Route 412
Vickery, Ohio 43464

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7/20/97

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1.0 INTRODUCTION

In accordance with the regulatory requirements set forth in 40 CFR Part 264.13 and OAC 3745-54-13, Chemical Waste Management, Inc. (CWM) has developed this Waste Analysis Plan (WAP) for its Vickery facility located in Vickery, Sandusky County, Ohio. The Chemical Waste Management, Inc. Vickery Facility (CWM Vickery) is designed to receive waste from many industries. Material which can be deepwell injected are treated (blended, pH adjusted, filtered, etc.) and deepwell injected. The procedures set forth in this plan dictate that this facility is in compliance with all requirements of 40 CFR Part 264.13 and OAC 3745-54-13. A copy of this plan or the current approved Waste Analysis Plan is available at the facility at all times.

The purpose of this WAP is to document the necessary sampling methodologies, analytical techniques and overall procedures which are undertaken for all hazardous waste (hereinafter "waste") which enters this facility for treatment, storage or disposal. Specifically, the plan delineates the following:

- Sampling Procedures that are used to obtain samples of incoming shipments and injection fluids in order to perform the appropriate analyses needed to identify a waste shipment or injection fluid (see Section 2 and Appendix WAP-D)
- Analytical Parameters and Rationale and the test methods that CWM Vickery utilizes, when necessary, to determine or identify certain waste properties to ensure proper management of the waste (see Section 3 and Appendix WAP-A, *Analytical Procedures)*.
- Pre-Acceptance Procedures utilized to determine the acceptability of a particular waste stream, pursuant to facility permit conditions and operating capabilities, prior to acceptance of that waste by the facility (See Section 4 and Appendix WAP-C, Facility Acceptance Conditions.)
- Incoming Waste Shipment Procedures utilized to identify that the delivered waste matches the accompanying manifest, pre-acceptance documentation, and facility permit conditions

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(see Section 5).

- Quality Assurance and Control Policy that the facility laboratory follows to achieve quality analytical results and adequate laboratory controls (see Section 7).
- Process/Operation Procedures to maintain safe and environmentally sound methods of treatment, storage, disposal or movement of wastes within the facility (see Section 6).

It is the policy of CWM that all wastes received by this facility are subjected to these procedures. This is to help ensure that this facility is in compliance with applicable state and federal regulations and permits.

For the purpose of sampling or testing, CWM means the CWM Vickery laboratory, all CWM laboratories, all CWM subsidiary laboratories and contract laboratory used by CWM. The Laboratory, Technical, Environmental, Operations and/or General Manager or their designees, may hereinafter, be referred to individually or collectively as the Laboratory, Technical, Environmental, Operations and/or General Manager, or "Facility Management".

2.0 SAMPLING METHODOLOGY

Sampling may be performed by the generator at the generator's location to make an initial waste determination. Specific sampling procedures are dependent on both the nature of the material and type of containment. Waste generators are referred to 40 CFR 261, Appendix I, for sampling procedures. Sampling is also performed by CWM Vickery personnel at the facility to identify waste shipments. This section presents sampling methodologies to be utilized by CWM Vickery personnel

When a waste shipment arrives at the facility for management, a determination has already been made by the generator that the waste is as follows

- A listed hazardous waste in Subpart D of 40 CFR Part 261 and/or OAC 3745-51-30, and/or
- A characteristic waste as defined in Subpart C of 40 CFR Part 261 and/or OAC 3745-51-

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20; and/or

- A recyclable hazardous waste, as defined by 40 CFR Part 261.6; and/or
- A solid waste which is not a hazardous waste as defined in 40 CFR Part 261.4(b), and/or OAC 3745-51-04(B).

This characterization, a waste profile, provides CWM Vickery with information concerning the distribution, as well as the nature of the waste components. (See Section 4.1 for a discussion regarding the information and/or data to be supplied by the generator.) Therefore, as described in EPA document SW-846, CWM Vickery can appropriately use a less comprehensive sampling approach than that used by the generator to initially characterize the waste (for example, vertical compositing to yield a representative sample).

Upon arrival, the shipment of waste is sampled and analyzed to ensure that it matches the overall identity of the waste designated on the accompanying manifest or shipping paper and the pre-acceptance paperwork. The analysis will also help to ensure the appropriate management technique(s) can be utilized. Quality control procedures for sampling and analysis are described in Secton 7.0.

2.1 Sampling Techniques

The sampling methodologies described in the Waste Analysis Plan represent the recommended facility's sampling protocol. Certain waste materials will require deviations from 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

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chisel. Therefore, deviations from the recommended protocol do not constitute an excursion from acceptable sampling practices or the conditions of this Waste Analysis Plan.

Procedures and equipment may be updated and revised as new equipment or procedures become available. In general, the equipment utilized corresponds to those referenced in 40 CFR 261, Appendix I, or OAC 3745-51, Appendix I. The sampling methods and the equipment used for different materials are presented in Figure 2-1 of Appendix WAP-B along with drawings and descriptions of the listed sampling devices in Appendix WAP-D. Dimensions of equipment identified in Attachment WAP-D are typical and will be adjusted as necessary to ensure a full vertical section.

2.2 Types of Containerment

In addition to American Society for Testing and Materials (ASTM) and SW-846 sampling procedures, CWM Vickery has instituted specific methodologies for ensuring that samples taken from various types of containments are representative. The type of containment may be transportable such as drums, portable transport units (for example, portable tanks, roll-off boxes, lugger boxes, supersacks) and tanker trucks; or stationary, such as tanks, impoundments, and in-process sources The sampling devices are selected depending on the size and type of the containment and on the specific waste material involved.

2.2.1 Containers and Tanks

Sampling of containers (drums, pails, and other small units) varies with the nature of the waste material For flowable materials, the sampling device of choice is either a Coliwasa or tubing to draw a full vertical section. For non-flowable wastes, a scoop, tubing, trier or other equipment, as listed in Figure 2-1, is used to obtain a representative sample.

Large containments and tanks for flowable materials and bulk containments for solid materials may be either stationary or mobile. Liquids are sampled with a Coliwasa or tubing to obtain a vertical section,

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by a weighted bottle or bomb sampler to allow for sampling at various depths, or along the outside or from influent or discharge lines through sampling taps or valves. Light, dry powders and granules are sampled with a tube or other equipment, as listed in Figure 2-1, through ports or from the top. Heavier solids are sampled by scoop, shovel, trier, auger, coring with heavy tubing or by other equipment as listed in Figure 2-1. Tank sediments are sampled from a bottom sampling valve when not readily sampled from above.

2.3 Process In-Line Sampling

The variability of the waste stream at any point in a waste treatment process is first determined from knowledge of the process producing the stream, or from the results of a preliminary investigation of the waste variability. The sampling procedures consists of obtaining individual samples from appropriate in-line sampling points in the process stream and compositing them as necessary for analysis. These sampling points include valves in circulation and transfer lines or ports on tanks. For compatibility analysis purposes, samples are taken from the applicable tank recirculation lines.

The sampling device can be varied in size depending on the flow rate of the stream. For solid or semi-solid streams samples are taken from a conveyor or pile using a scoop, shovel or similar device.

3.0 ANALYTICAL RATIONALE

The usage and applicability of analyses are described herein The analytical techniques given in this text and listed in Appendix WAP-A, whether standard procedures or those developed by CWM Vickery through its operating experience, have been chosen for their ability to identify waste and to provide the information required to properly and safely manage wastes. Analyses are not necessarily repeated for sequential activities or movement of the same waste within the facility.

Analytical methods are classified as either "Mandatory Analyses" and "Supplemental Analyses." All waste samples are subjected to the mandatory analyses as a first step in the analytical scheme.

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Supplemental analyses may be performed to obtain information required for efficient process control or to further evaluate a positive result from a mandatory screening test (e.g , a flash point may be run to provide more specific waste data when a positive flammability potential is reported during the mandatory analysis testing). This arrangement allows a tiered approach to waste identification, enabling CWM Vickery to structure the analyses to adequately identify the waste or to define operational parameters for proper management.

Analyses, if required, may be performed prior to or after arrival of the waste at the facility. Most analyses utilize standard analytical techniques which are commonly used. Other analyses are unique tests that have been developed by CWM and meet CWM performance standards. These procedures and protocols have been formulated by CWM through its operating experience and are found to be preferable for waste identification or they may be used in the absence of standard techniques. The parameters which constitute the mandatory and supplemental analyses and their rationales are listed below. A description of the analytical methods which may be used to determine these parameters can be found in Appendix WAP-A.

3.1 Mandatory Analyses

Mandatory analyses include screening procedures that are used to indicate the type of treatment, storage and disposal that is most suitable for that particular waste and to identify incoming waste shipments These are analytical procedures designed to identify or screen a specific waste and are a rapid but effective means for establishing key decision parameters pertinent to proper waste management and identification.

The parameters and associated rationale of the mandatory analyses, as shown in Figure 3-1, are as follows

- Physical Description is used to determine the general physical properties of the waste. This

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facilitates subjective comparison of the sampled waste with prior waste descriptions or samples. It is used to identify any obvious changes in the waste's physical properties (type).

- pH Screen is undertaken to indicate the pH and general corrosive nature of the waste. pH may not apply to certain special wastes, (e.g , organic solvents, oily waste, or insoluble solid waste).

- Specific Gravity is run to determine the density of the waste compared to that of water as an identifying characteristic. This is also used to determine the amount of waste received by inserting the result into the calculation conversion from gallons to pounds

- Liquid Waste Compatibility is used to determine whether there is a potential to vigorously react with the tank contents that the waste will be unloaded or blended with, to form gases, other products, and/or generate significant heat.

- Flammability Potential Screening is used to indicate the fire producing potential of the waste. This test can be applied to all waste liquids, semi-solids or solids. This is used to identify any obvious changes in the waste type or properties such as a waste solvent substituted for a waste acid.

- Cyanide Screening is used to indicate whether the waste has the potential to release hydrogen cyanide gas upon acidification. The screen is not required if the pH is less than five (5) pH units, if the waste is not water soluble or if the waste is non-aqueous.

- Sulfide Screening is used to indicate whether the waste has the potential to release hydrogen sulfide gas upon acidification. The screen is not required if the pH is less than five (5) pH units, if the waste is not water soluble or if the waste is non-aqueous.

- (VOC) Solvent Screening Volatile Organic Constituent analysis is used to determine whether special handling is required. It is not required if

  -- The Generator Waste Profile Sheet indicates the volatile organic constituent concentration is less than or equal to five (5) percent, or

  -- The Total Organic Carbon content of the representative sample is less than or equal to five (5) percent, or

  -- The process generating the waste does not use or generate volatile organic constituents greater than five (5) percent, such as steel pickling, metal plating, or inorganic chemical production, or

  -- Analysis of a pre-acceptance sample indicates the volatile organic constituent concentration is less than five (5) percent

- Radioactivity Screen is used to ensure that no radioactive materials above background are present in the waste

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- PCB Screening is applicable when representative phases, such as, oil bearing waste, aqueous solvents, settled solids, suspended solids, etc., are analyzed according to the rationale outlined below in Section 3.1.1.

3.1.1 PCB Analysis

No waste is accepted or off-loaded for treatment, storage and disposal at the Vickery facility unless the Pre-Acceptance Procedures (described in Section 4) and the following steps have been completed:

1. The generator submits to CWM either the concentration or the absence of detection of PCB's for the waste stream. If no PCB information is given, CWM will obtain PCB data . If information indicates PCB concentration less than or equal to 10 ppm, the waste stream qualifies for reduced PCB analysis frequency. No waste stream is approved for acceptance at the Vickery facility if the waste profile or CWM's analysis of a representative sample (or a phase of the sample) indicates the presence of PCB's in a concentration of over 25 ppm.

2. CWM performs incoming receipt analysis including PCB analysis of a representative sample from the particular shipment of the waste stream presented for acceptance at the facility. This fingerprint analysis is designed to assure the shipment is the waste stream indicated.

   CWM maintains a list comprised of streams which are believed to have no potential for PCB contamination. This list is called the "Reduced PCB Analysis Frequency" list. Except for waste streams qualified for "Reduced PCB Analysis Frequency," 100% of loads are analyzed for PCBs.

   Reduced PCB Analysis Frequency is conducted as follows. The incoming receipt analysis of the first 10 shipments includes PCB analysis. At least 10% (1 in 10 loads) of the subsequent shipments of those waste streams includes PCB analysis. If any incoming receipt analysis indicates the presence of PCB's in excess of 10 ppm, the stream is deleted from the "Reduced PCB Analysis Frequency" list. All receipts found exceeding 25 ppm PCBs are rejected.

3. Any waste from the following sources is not eligible for the "Reduced PCB Analysis Frequency" list.

   1 Waste Brokers
   2 Electrical Utility Companies
   3. Solvent Recovery, Reuse or Recycling Units

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4. Oil Recovery, Reuse or Recycling Units
5. Natural Gas Pipeline Transmission Companies
6. Oil Maintenance Centers
7. Pond Closures
8. Remedial Action Superfund Sites*
9. RCRA Corrective Action Projects*
10. Timber/Lumber Treating Facilities
11. Hydraulic Equipment
12. Remedial Action Projects*

* Unless demonstrated non-TSCA

4. Before each load is considered for acceptance without PCB analysis, CWM obtains information from the transporter regarding the contents of the last load contained in the tanker prior to the load being received at the Vickery Facility. If the last load was from a generator who would not likely qualify for the Reduced list, and testing was not performed to confirm the absence of PCB's in the last load, a PCB analysis is run on the current load prior to acceptance. If no information can be obtained on the last load, PCB analysis is run on the current load prior to acceptance. NOTE: If the truck was washed/cleaned before picking up the current load, the current load may be considered for acceptance without PCB analysis.

5. If a PCB analysis is required and the representative sample contains a visible layer of solids over 5% of volume, visible oil (1% by volume), or an oily appearing phase of 1% by volume, CWM shall first analyze for PCB in the composite sample. If the presence of PCB,s is detected, Each phase will then be analyzed. Solids content and oil content will be determined by centrifuging a portion of the representative sample. Total PCB's in the waste is calculated to represent all the visible phases analyzed as aqueous, solid and oil PCB contents in ratio perspective for the entire sample.

[(% Phase of Sample)/(100) x (ppm PCB's in Phase)] = [(Total PCB's in Phase)]
[(Solid Phase) + (Aqueous Phase) + (Oil Phase)] = [(Total PCB's in sample)]

6. All PCB analyses may be done on a composite of samples. A maximum of 10 receipts are composited, extracted and analyzed. A 100 milliliter sample is taken from each receipt. If the analysis indicates that a single shipment in the composite could exceed 25 ppm PCBs, each shipment in the composite is individually analyzed to determine which shipment(s) contain PCBs. If the analysis indicates the level of PCBs exceeds 1 ppm for landfill leachate or 10 ppm for all other single shipments a decision is made whether to further analyze these loads.

7 For railcar shipments, the railcar is sampled and analyzed as required by Section 5.1. PCB analysis on the railcar sample would be performed as required by Section 3.1.1. Each tanker load would not require PCB analysis as long as Vickery obtains information from the transporter regarding the contents of the last load contained in the tanker prior to the load being received at the Vickery Facility If the last load was from a generator who would not likely qualify for the Reduced list, and testing was not performed to confirm the absence of PCB's in the last load, a PCB analysis is run on the current load prior to acceptance. If no information can be obtained on the last load, PCB analysis is run on the current load prior to acceptance. NOTE: If the truck was washed/cleaned before picking up the current load, the current load may be considered for acceptance without PCB analysis.

3.2 Supplemental Analysis

"Supplemental Analysis" are performed during pre-acceptance testing or during testing of incoming shipments to further identify wastes or ensure the proper waste management technique can be utilized. The

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results of these analyses provide another level of confidence concerning the proper means of treatment, storage and disposal. Some of these additional supplemental analyzes utilize unique procedures and protocol formulated by CWM, which have been developed in the absence of standard procedures through CWM's operating experience. Other analyses utilize standard analytical techniques recognized by the USEPA, the ASTM, or equivalent organizations (i.e., AOAC, etc.).

The basis of requiring these additional supplemental analyses are:

- Facility management's knowledge, experience and judgment.
- WPS or other description of the chemical and physical properties of the waste.
- WPS or other description of the process generating the waste.
- Results of the "Mandatory Analyses" obtained.
- Potential waste management technique.

The parameters and associated rationale of the supplemental analyses are listed below. Analytical procedures can be found in Appendix WAP-A:

- Timed Filtration allows the CWM laboratory to quickly ascertain the filter loadings caused by suspended solids in the wastes and gain a rough approximation of potential filtering
- Process Blend Testing (TWO Test) is done to discover other wastes or waste blends with which the waste (or blend) can be mixed to yield an injectable mixture. The testing is also done to discover any problems that could result in adding a waste or blend to existing tank contents. The testing can also be used to determine proper spacer fluids to be used during injection of otherwise nonblendable wastes. This test is also used to evaluate the potential of a new stream to cause post blending and filtration reactions.
- pH Spectrum is to determine the phase behavior of the waste over a wide pH change, and is particularly applicable to blending and filtration.
- Solvent Screen is used to separate and identify organic compounds and also to determine whether waste contains Land Disposal Restricted organic constituents.
- Process Testing is conducted to determine if new pretreatment will be required to inject a new waste. This testing will only be done under particular circumstances when preacceptance testing indicates that existing treatment would be inadequate.

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- Total Organic Carbon measures the total organic content of a solution.
- Specific Conductance is a reading of the ionic activity and mineral concentration of a solution.
- Percent Acidity determines the acid content in the waste by species or as $CaCO_3$. It is only used if the waste is aqueous and below a pH of 7.
- Heavy Metals (e.g., Ag, As, Ba, Cd, Cr, Pb, Hg, Se, etc.) are run to quantify heavy metals concentration .
- Miscellaneous Metals (e.g., Cu, Fe, Ni, Zn, etc.) determines potential salt precipitation and is used for monitoring certain processes.
- pH provides a more precise measurement of pH and an indication of corrosivity when determining process parameters.
- Sulfates determines the concentration of sulfates in materials. It is used in determining processing and/or disposal.
- Toxicity Characteristics Leaching Procedure (TCLP) determines whether a treated waste residue (or a waste stream) contains levels of restricted constituents above appropriate treatment standards.
- Chlorides determines the concentration of chlorides in materials. It is used in determining processing and/or disposal.
- Nitrates determines the concentration of nitrates in materials. It is used in determining processing and/or disposal.
- Percent Alkalinity determines the alkaline content in the waste by species or as $CaCO_3$. It is only used if the waste is aqueous and above a pH of 7
- Total Sulfides determines complex sulfides the concentration of sulfides in materials It is used in determining processing and/or disposal.
- Fluorides determines the concentration of fluorides in materials It is used in determining processing and/or disposal.
- Total Solids quantifies the suspended and dissolved solids present and moisture content for selected processes and disposal
- Dissolved Solids quantifies the dissolved solids present in a material It is used in determining processing and/or disposal
- Suspended Solids quantifies the suspended solids present in a material. It is used in determining processing and/or disposal.

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- Viscosity determines the waste pumpability. Also used to determine waste mixing properties.
- Total Cyanides quantifies the concentration of all free and most complexed cyanides in a waste material. It is used in determining processing and/or disposal.
- Amenable Cyanides quantifies the concentration of all free cyanides in a waste material. It is used in determining processing and/or disposal.
- Total Phenols quantifies the concentration of phenols in a waste material. It is used in determining processing and/or disposal.
- Flash Point further identifies ignitable wastes to establish proper storage mode and conformance with permit conditions.
- Oil and Grease quantifies the concentration of oil and grease in a waste material. It is used in determining processing and/or disposal.
- GC Scan indicates the concentrations of specific organics. It is used in determining processing and/or disposal.

4.0 PRE-ACCEPTANCE PROCEDURES

CWM has developed a series of control procedures to determine the acceptability of specific wastes for receipt at the facility. These control procedures are referred to as the pre-acceptance procedures. The pre-acceptance procedure dictates what information a potential customer must provide to enable CWM to determine the acceptability of the waste for treatment, storage, or disposal. At a minimum, the information required by 40 CFR Part 264 13(a)(1) [Ref· 40 CFR Part 264.13(a)(2) and comment] and OAC 3745-54-13(A)(1) [Ref. OAC 3745-54-13(A)(2) and comment] will be obtained for evaluation .

Pre-acceptance control 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 or limitations of existing regulations and permits, and its compatibility with other wastes being treated, stored or disposed at the facility

4.1 Procedural Requirements

For each new waste stream that is a candidate for acceptance at the facility, the following

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procedures are implemented.

CWM will obtain:

(1) Pertinent chemical and physical data on the Waste Profile Sheet (WPS). The waste profile sheet will include the following information: Generator name, address, phone number, EPA ID# (if applicable), contact person, waste name, process generating waste, EPA waste number(s) (if applicable), physical state, pH, flash point and chemical composition ranges;

(2) A representative sample, if required; (a representative sample may not be required by CWM if facility management determines that the pre-acceptance documentation obtained gives sufficient information to maintain compliance with permit and operational constraints and that submittal of a sample for analysis would not aid in the decision process.);

(3) Land Disposal Restriction (LDR) Notification/Certification Information and/or data (40 CFR Part 268.7 and OAC 3745-59-07).

(4) Other supporting documentation including any information such as additional analytical results, material safety data sheets, product ingredients, etc.

CWM may perform the mandatory analyses on the pre-acceptance waste sample(s) , if obtained. Parameters are determined as outlined in Section 3.0 using methods designated in Appendix WAP-A. Based upon the results of the mandatory analyses and an initial review of the waste profile, certain supplemental analyses" may be performed to ensure that the proper management techniques are utilized. After evaluating the data obtained on the waste profile and that obtained from mandatory and supplemental analyses if performed, CWM will determine the acceptability of the waste based on the following criteria:

(1) Applicable regulations and the permit conditions for the facility,

(2) The availability of the proper waste management techniques, and

(3) The available capacity at the facility.

4.1.1 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

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assigning a listed waste code to similar process wastes.

An analytical database is developed for a specific standard profile based on analytical data from waste streams that are representative of wastes from similar industries or processes or based on historical data. The database will be reviewed and it will be determined whether the individual waste streams are sufficiently similar in physical and chemical characteristics to an established a standard profile. The analytical database developed as discussed replaces the pre-acceptance sample for each applicable waste stream.

Specific candidate waste streams which upon review, are identified as conforming to an existing approved standard profile will be managed under the existing decision specific for that standard profile.

4.2 Evaluation

Pre-acceptance information is evaluated and a decision is made to approve or not approve the wastestream. Figure 4-1 presents a general logic diagram of the preacceptance process.

The pre-acceptance evaluation and decision logic are based on the following:

- Management methods available.
- Conditions or limitations of existing permits and regulations.
- Capability to manage the waste in a safe and environmentally sound manner.
- Waste profile description of the waste.
- Any additional documentation supplied by the generator.See Section 4.1 for further discussion
- Results of mandatory and supplemental analyses
- The facility's technical knowledge, experience and judgment.

The pre-acceptance evaluation process is concluded with the documentation of the decision to manage the waste

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4.3 Waste Profile Re-evaluation

In accordance with 40 CFR Part 264.13 and OAC 3745-54-13, a waste profile re-evaluation will be conducted when one of the following occurs:

- A generator notifies CWM that the process generating the waste has changed; or
- 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 pre-acceptance documentation, in which case the procedure in Section 5.2 is followed.

When this occurs CWM will review the available information, if existing analytical is not sufficient. The generator may be asked to review the current waste profile, to supply a new profile or analysis, and/or to submit a sample for analysis, or CWM may obtain a sample from a load of the waste.

5.0 INCOMING WASTE SHIPMENT PROCEDURES

Each shipment of waste is inspected, sampled and analyzed as defined herein before the initiation of any further activity. This serves two purposes. First, it compares the results of incoming waste shipment mandatory analyses with the pre-acceptance phase waste profile and the waste identity listed on the manifest or shipping papers Secondly, it further ensures the proper disposition of the waste . In addition, all wastes which are subject to the Land Disposal Restrictions of 40 CFR Part 268 and have been treated, exempted, or 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 (or that the untreated waste naturally meeting the treatment standard or prohibition) meets the appropriate treatment standard or prohibition and includes the applicable analytical data or reference to that data or documentation (in accordance with 40 CFR Part 268.7)

Furthermore, all materials which are subject to the Land Disposal Restrictions of 40 CFR Part 268 and require treatment must be accompanied by a form from the generator notifying the treater of appropriate treatment standards and/or all applicable prohibitions which must be met and includes any

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applicable analytical data or reference to such data or documentation (in accordance with 40 CFR 268.7).

5.1 Receiving Procedures

Incoming load identification begins upon arrival of the waste at the facility. The inspection, sampling and analysis of the incoming waste shipment will be performed in accordance with the methods and parameters described in this WAP . Site personnel or other CWM personnel can provide the sampling and mandatory and/or supplemental analysis required prior to, or in conjunction with, arrival of a shipment onsite. Waste shipments that have arrived at the facility are considered to be in the receiving process until the laboratory or facility management makes a final decision regarding waste acceptability.

All bulk liquid waste deliveries are sampled and analyzed, with the exception of tank truck loads from the CWM Toledo Transfer Facility. Each rail car is presampled at the CWM Toledo Transfer Facility, DOT packaged and transported to the Vickery facility to be analyzed. All tanker truck transfer shipments from the individual rail cars need not be resampled except to provide the analysis necessary o safely manage the load in the facility's tank system. All tanker truck transfer shipments are subject to chain-of-custody procedures. Samples from incoming waste shipments are subject to the "Mandatory Analyses" identified in Section 3.1.

5.2 Decision Evaluation Logic

The technical evaluation logic utilized in deciding whether to accept or reject a particular waste shipment is depicted in Figure 5-1. As outlined in Figure 5-1, there are specific major decision points. They are

- The need for additional supplemental analyses
- The actual waste identification

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- An evaluation of whether a waste conforms to the waste profile, and
- An evaluation of whether a waste found to be in "non-conformance" can still be accepted.

(1) The need for additional supplemental analyses

Decisions about whether additional supplemental analyses are required for a particular waste are based on the following:

- Results of mandatory analyses;
- Knowledge of generator and/or waste-generating process;
- Results of pre-acceptance evaluation;
- Experience and judgment in determining that more information is needed in order to properly identify an incoming waste shipment or to ensure the appropriate management technique can be utilized.

Further testing is required if the results indicate unexpected information when compared to the waste profile or there is a reason to suspect that the waste composition has changed.

(2) The actual waste identification

The effectiveness of the waste identification step is dependent on the following components:

- Inspection;
- Sampling;
- Analytical results,
- Waste profile sheet;
- Waste manifest,
- Any additional documentation supplied by the generator such as MSDS forms, material ingredients, etc,
- Pre-acceptance analytical results, if required,
- Facility judgment; and
- Appropriate land disposal restriction notification and/or certification forms (see section 5.0).

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(3) Evaluation of whether a waste is in conformance or non-conformance

The facility management must classify the waste as being in "non-conformance" if it is significantly different in composition from the information shown in the WPS, the pre-acceptance information, or the identity and volume on the manifest, in accordance with 40 CFR Part 264.72 and OAC 3745-54-72. Three major criteria are used to arrive at this decision. They are:

- If the amount of bulk waste varies more than 10 percent in volume.
- If, in batch wastes (e.g., drums, bags, roll-off boxes, etc.), there is any variation in piece count. That is, the number of pieces listed on the manifest does not agree with the number of pieces on the truck when received.
- If inspection or analysis of any waste reveals obvious differences in waste type, such as acid substituted for a solvent or a toxic constituent not reported on the manifest or shipping paper.

Manifest discrepancies or non-conformances that do not fall within these criteria are considered to be "minor". If CWM has reason to believe that a minor discrepancy is not a one-time variation and that a particular waste is different from its documented values, the shipment will be classified as non-conforming.

(4) Evaluation if waste found to be in non-conformance can be accepted

Wastes found to be non-conformance may be rejected out-of-hand, or they may be re-evaluated for possible acceptance by the facility This procedure is intended to prevent the unnecessary movement of a waste material back and forth between the facility and the generator, when the material can be readily handled by the facility. CWM is attempting to reduce the possible exposure of human health or the environment to this waste by eliminating the unnecessary movement of the waste in public commerce

The re-evaluation will be based on the following criteria:

- Permit conditions and current regulations,
- Discussions with the generator;
- Need for any additional supplemental analyses;
- Facility ability to handle the material in a safe and environmentally sound manner; and

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- Facility judgment.

In addition to the CWM evaluation and pursuant to 40 CFR Part 264.72 and/or OAC 3745-54-72, CWM discusses and attempts to resolve with the generator, any non-conformance between the actual waste shipment and that shown on the manifest. If the load is found to be acceptable at the facility, a decision process is initiated.

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 analysis 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 load analysis and are found on the waste profile . These are not repeated unless it is known or believed that the waste characteristics may have changed during storage or processing.

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

- Storage
- Treatment - Filtration
- Disposal - Deepwell Injection (See the UIC Waste Analysis Plan)

The analytical procedures for each of these processes is described separately below

6.1 STORAGE

Once the facility has decided to accept a waste shipment, wastes are segregated with respect to hazardous compatibility Wastes, which are transferred from portable tanks or tank trucks, are placed in bulk storage prior to further treatment. Before any wastes are placed in a storage unit, the facility assesses

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the hazardous compatibility of the waste with the storage unit materials of construction, as well as the treatment and disposal equipment materials of construction, and wastes already in storage. If there is any suspicion of incompatibility, additional compatibility testing is performed. The general analytical flow diagram is shown in Figure 6-1.

6.1.1 Nitric Acid Wastes

Following the acceptance of a nitric acid waste shipment, a millivolt potential assessment is preformed, determining the compatibility for the nitric acid stream to the storage tank.

Prior to blending nitrating acids, the liquid waste compatibility test is conducted and approval to blend must be obtained from the Laboratory Manager or Technical Manager or their acting designee. If an approval signature can not be obtained prior to blending, then verbal approval must be obtained and the following information entered on the waste compatibility sheet the statement, "approved as per..." and the date, time and initials of the contacted approving manager. The approving manager must sign the original Waste Compatibility Sheet on the next working day

6.2 Treatment Operations

The proper and complete treatment of a particular waste depends upon appropriate sampling and analysis during selected phases of the operation. The results of this analytical program serve to determine safety constraints, confirm treatment method selection, and identify processing. The treatment sampling and analysis program may be divided into three segments, each with a specific purpose:

- Pre-treatment analyses ensure that the waste is acceptable for processing and will allow the fine tuning of the process operational conditions for optimum treatment;
- In-process analyses are performed to monitor the treatment at various stages to determine acceptability for next stage of treatment.
- Post-treatment analyses confirm successful treatment and that the process effluent is ready

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for additional treatment and/or disposal, based upon permit or process constraints.

Residue(s) resulting from on-site treatment of Land Disposal Restricted wastes will be analyzed and/or evaluated, as needed against the appropriate treatment standard and/or prohibitions. Wastes or the residue from the treatment of land disposal restricted wastes that are sent off-site for further treatment (or disposal) will have appropriate notification and/or certification (in accordance with 40 CFR Part 268).

6.2.1 Filtration

In this process, liquid wastes with suspended solids are passed through a filter. This results in a filter cake and filtrate (effluent) with acceptably low suspended solids. The general analytical approach is shown in the Figure 6-2.

The feed to the filter must be evaluated with respect to the content of suspended solids. Excessive solids concentrations may result in shortened filter runs, wetter filter cakes, and excessive solids in the effluent.

The following is checked regularly in order to monitor the operation:

- timed filtration

This provides an indication of the potential flow rate through the filtering operations.

Post-treatment analyses consist of those tests necessary to ensure that the filter cake and filtrate meet the required criteria for further treatment or direct disposal.

6.3 Final Disposal:

A sampling and analysis program is an integral part of this phase of operation. The results of this program serve to evaluate compliance with site permits, confirm disposal method selections, and determine safety constraints.

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6.3.1 Deepwell Injection:

In this disposal method, liquid wastes are pressure-injected down a deepwell into an isolated, porous stratum. Wastes are composited in tanks, pH adjusted and filtered, as necessary prior to injection. The major concern with deepwell injection is compatibility with and prevention of plugging of the well or receiving stratum. Pre-disposal analyses attempt to identify those wastes that would have the potential to cause solids precipitation or plugging problems, and to screen out those that cannot be injected until after additional treatment. Samples are taken of all wastes prior to their compositing in batch tanks for this purpose . In-process analyses are performed on samples from the tank to check suitability for injection. When it is determined that the waste to be injected is fully compatible with the deepwell system, it is passed through a final filter and pressure injected down the well. For additional information related to testing for deepwell injection, see the UIC Waste Analysis Plan.

7.0 QUALITY ASSURANCE/QUALITY CONTROL

The following sampling and analytical quality assurance/quality control (QA/QC or "quality") information for this facility is being provided as required by 40 CFR Part 270.30(e). At minimum, CWM will follow guidelines established in the following documents:

- *Handbook for Analytical Quality Control in Water and Wastewater Laboratories*, EPA 600/4-79-019, March 1979, U.S Environmental Protection Agency (U S. EPA), Environmental Monitoring and Support Laboratory (EMSL), Cincinnati, OH, March 1979 (available from EMSL, Cincinnati, OH 45268).

- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846, Third Edition, Final Update I, U.S EPA, Office of Solid Waste, Washington, DC, July 1992, Chapter One (available from Superintendent of Documents, Government Printing Office, Washington, DC 20402).

Quality procedures are applicable to both sampling procedures and analytical techniques Quality information for these two elements has been included in this WAP.

This section does not provide specific performance standards of quality procedures for individual

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sampling and analysis techniques. Such specifics are defined on a corporate-wide basis for all company facilities. The specific performance standards are dynamic and are revised as warranted to reflect technological advances in sampling and analytical techniques. These performance standards are described in corporate policies, which are maintained and used at this facility and which are available for regulatory review. Portions of these policies have been summarized in the following sections.

7.1 Sampling Program

Sampling procedures for facility operations are described in Section 2 of the WAP. The selection of the sample collection device depends on the type of sample, the sample container, the sampling location and the nature and distribution of the waste components. In general, the methodologies used for specific materials correspond to those referenced in 40 CFR Part 261, Appendix I. The selection and use of the sampling device is supervised or performed by a person thoroughly familiar with the sampling requirements.

Sampling equipment is constructed of nonreactive materials such as glass, PVC plastic, aluminum, or stainless steel. Care is taken in the selection of the sampling device to prevent contamination of the sample and to ensure compatibility of materials. For example, glass bottles are not used to collect hydrofluoric acid wastes.

Individual container samples may be composited prior to analysis, provided that individual samples are compatible. (Samples are determined to be compatible if they can be mixed together without causing a change of phase or excessive heat or reaction.)

7.2 Analytical Program

The company has developed a program of analytical quality practices and procedures to ensure that precision and accuracy are maintained throughout its laboratories Company facility laboratories are required to participate in this program Noncompany laboratories employed by the company demonstrate

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quality practices that are comparable to the company's program.

Good laboratory practices which encompass sampling, sample handling, housekeeping and safety are maintained at all laboratories.

7.3 Conclusion

The aforementioned sampling and analytical quality practices help ensure that the data obtained are precise and accurate for the waste stream being sampled. The analytical results are used by facility management to decide whether or not to accept a particular waste and, upon acceptance, to determine the appropriate method of treatment, storage, and disposal. Results are also important to ensure that wastes are managed properly by the facility and that incompatible wastes are not inadvertently combined. Just as these results are important so is the quality of these results. Thus, the quality of the analytical data, the thoroughness and care with which the sampling and analyses are performed and reported, provides an important basis for day-to-day operational decisions.

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APPENDIX WAP-A

ANALYTICAL PROCEDURES

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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. Analytical procedures, not listed below, may be added as necessary and will be taken from the references listed at the end of this appendix or other recognized sources, for example, Association of Official Analytical Chemists (AOAC), or will be developed by CWM and meet CWM performance standards.

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 CWM-developed analytical procedures have been found by CWM to provide important information pertinent to certain processes. In some cases, these tests provide information not available from standard analytical procedures found in Section II, which follows. The methods described below are based on ASTM standards or standard procedures recognized by EPA or are based on procedures and protocol formulated by CWM and meet CWM performance standards These tests provide important operational information

Process Testing - Samples of process candidate wastes are combined with samples of other wastes, spacer fluids, filter aids or other reagents at predetermined ratios. Further testing may be required in order to confirm that no undesirable reaction has occurred

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Process Blend Test (TWO Test) - This bench-scale process test determines compatibility between candidate wastes or waste blends, and determines the need for, and compatibility with, spacer fluids. Samples of wastes, waste blends, and/or spacer fluids are mixed in pre-determined ratios and subjected to specified shaking and heating regimes. The mixtures are observed for compatibility and unacceptable color changes, precipitate or emulsion formations, or phase separations. Promising mixtures may be further tested, as requested.

Timed Filtration - This bench-scale process test is conducted at ambient temperatures (1) to approximate the filtration that occurs naturally in the formation into which wastes may be injected or (2) to simulate alternative filtering processes and conditions to which a waste may be subjected prior to deepwell injection. The key parameter measured is the time required for filtering a specified quantity of sample under specified conditions. Other observations are made. These may include the formation of any emulsions, polymers, or precipitates during or following filtration and the color, odor, or other notable changes in the collected solids. The collected solids from this test may utilized for additional tests, if requested.

Organics Screen by Immunoassay - A portion of the waste sample is prepared for immunoassay 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)

pH Spectrum - For this bench-scale process test, strong mineral acid is added to an aliquot of waste sample

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to adjust the pH to nearly 1. Then strong caustic is added to another aliquot to change the pH to near 14. During the pH change, waste behavior is noted with respect to production of solids, temperature change, and gas evolution.

Phenol Screen - After extraction and pH adjustment, the sample is mixed with reagents. Phenolic materials react with 4-aminoantipyrine in the presence of potassium ferricyanide at a pH of 10, to form a stable reddish-brown colored antipyrine dye. The generation of color indicates phenolics.

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

Solvent Screen - Uses standard analytical procedures tailored to cover a range of organic compound types for quick screening of common industrial organics.

Volatile Organic Constituents - This is a modification of ASTM D5830-Solvents Analysis in Hazardous Waste using Gas Chromatograph, and is meant to be used for determining the compounds identified by OEPA and CWM as volatile organic constituents. Waste samples are analyzed by direct injection, or by carbon disulfide extraction and injection of the extract Detection is achieved by use of a Flame Ionization Detector (FID).

Included at the end of Section II is a listing of and copies of site specific procedures, site specific methods and company method modification s for methods which are utilized to analyze the samples in accordance with OAC 3745-54-13.

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II. STANDARD ANALYTICAL PROCEDURES

PARAMETER	METHOD	REFERENCE
Sample Work-Up Techniques		
	General Extractions	
	Extraction Procedure (EP) Toxicity Test Method and Structural Integrity Test	1/1310A
	Toxicity Characteristic Leaching Procedure (TCLP)	1/1311
	Metals Acid Digestions	
	For flame atomic absorption spectroscopy (AAS) or inductively coupled plasma spectroscopy (ICP)	1/3005A, 3010A
	Microwave assisted	1/3015; 2/3030K; 3/D4309, D5258
	For graphite furnace atomic absorption spectroscopy (GFAA)	1/3020A
	Of sediments, sludges, soils, and oils	1/3050B
	-- Microwave assisted	1/3051
	Parr acid bomb digestion	3/E886, E926; 6/
	Organic Extractions and Cleanups	
	Separatory funnel liquid-liquid extraction	1/3510C
	Continuous liquid-liquid extraction	1/3520C
	Solid phase extraction (SPE)	1/3535
	Soxhlet extraction	1/3540C, 3541
	Sonication extraction	1/3550B
	Waste dilution	1/3580A, 3585
	Alumina cleanup	1/3610B, 3611B
	Florisil cleanup	1/3620B
	Silica gel cleanup	1/3630C
	Gel-permeation cleanup	1/3640A
	Acid-base partition cleanup	1/3650B
	Sulfur cleanup	1/3660B
	Sulfuric acid/permanganate cleanup	1/3665A
Elemental Analytical Methods		
	Inductively coupled plasma atomic emission spectroscopy (ICP)	1/6010B
	Antimony	
	Atomic absorption, direct aspiration method	1/7040; 4/204 1
	Atomic absorption, furnace technique	1/7041, 4/204 2

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PARAMETER	METHOD	REFERENCE
Arsenic		
	Atomic absorption, furnace technique	1/7060A; 4/206.2
	Atomic absorption, gaseous hydride method	1/7061A; 4/206.3
Barium		
	Atomic absorption, direct aspiration method	1/7080A; 4/208.1
	Atomic absorption, furnace technique	1/7081; 4/208.2
Beryllium		
	Atomic absorption, direct aspiration method	1/7090; 4/210.1
	Atomic absorption, furnace technique	1/7091; 4/210.2
Cadmium		
	Atomic absorption, direct aspiration method	1/7130; 4/213.1
	Atomic absorption, furnace technique	1/7131A; 4/213.2
Calcium		
	Atomic absorption, direct aspiration method	1/7140; 4/215.1
	Atomic absorption, furnace technique	4/215.2
Chromium		
	Atomic absorption, direct aspiration method	1/7190; 4/218.1
	Atomic absorption, furnace technique	1/7191; 4/218.2
	Hexavalent chromium: Co/precipitation	1/7195
	Hexavalent chromium: Colorimetric	1/7196A; 2/3500CrD
	Hexavalent chromium: Chelation/extraction	1/7197; 4/218.4
	Hexavalent chromium: Ion Chromatography	2/3500CrE
Copper		
	Atomic absorption, direct aspiration method	1/7210; 4/220.1
	Atomic absorption, furnace technique	1/7211; 4/220.2
Iron		
	Atomic absorption, direct aspiration method	1/7380; 4/236.1
	Atomic absorption, furnace technique	1/7381; 4/236.2
	Phenanthroline method (ferrous)	2/3500FeD
Lead		
	Atomic absorption, direct aspiration method	1/7420, 4/239.1
	Atomic absorption, furnace technique	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 technique	1/7461; 4/243.2
Mercury (manual cold/vapor technique)		
	In liquid waste	1/7470A
	In solid or semisolid waste	1/7471A

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PARAMETER	METHOD	REFERENCE
Nickel		
	Atomic absorption, direct aspiration method	1/7520; 4/249.1
	Atomic absorption, furnace technique	1/7521; 4/249.2
Selenium		
	Atomic absorption, furnace technique	1/7740; 4/270.2
	Atomic absorption, gaseous hydride method	1/7741A; 4/270.3
Silver		
	Atomic absorption, direct aspiration method	1/7760A; 4/272.1
	Atomic absorption, furnace technique	1/7761; 4/272.2
Thallium		
	Atomic absorption, direct aspiration method	1/7840; 4/279.1
	Atomic absorption, furnace technique	1/7841; 4/279.2
Zinc		
	Atomic absorption, direct aspiration method	1/7950; 4/289.1
	Atomic absorption, furnace technique	1/7951; 4/289.2
Organic Analytical Methods		
Gas Chromatography Methods		
	Halogenated volatile organics	1/8010B, 8021B
	Volatile Organics	3/D5830
	Nonhalogenated volatile organics	1/8015B
	Aromatic volatile organics	1/8021B
	Phenols	1/8041
	Phthalate esters	1/8061A
	Nitrosamines	8070A
	Organochlorine pesticides and halowaxes	1/8081A
	Polychlorinated biphenyls (PCBs)	1/8082; 8080A
	Nitroaromatics and cyclic ketones	1/8091
	Polynuclear aromatic hydrocarbons	1/8100
	Haloethers	1/8111
	Chlorinated hydrocarbons	1/8121
	Organophosphorous pesticides	1/8141A
	Chlorinated herbicides	1/8151A
Gas Chromatography/Mass Spectroscopy Methods		
	Volatile organics	1/8260B; 7/624
	Semi-volatile organics	1/8270C; 7/625

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PARAMETER	METHOD	REFERENCE
Other Organic Methods		
	Qualitative infrared spectroscopy	1/8410, 8430, 8440; 3/D2621, D4053; 5/
	GC/FTIR method	1/8410
	Heat of combustion, bomb calorimeter method	1/5050; 3/D240, D2015
	Halogen and sulfur content	
	Chlorine content	3/D808, D2361, D4327
	Halogen content	3/D808, D2361, D4327
	Sulfur content	3/D129, D3177, D4327
	Oil and grease	1/4030, 9070, 9071A; 2/5520; 4/413.1, 413.2
	Petroleum hydrocarbons, total recoverable	2/5520F; 4/418.1
	Phenolics	1/9065, 9066, 9067, 2/5530, 6420; 4/420.1
	Solvent Distillation	3/D86, D1078
	Total organic carbon	1/9060; 2/5310; 3/D2579
Screening Methods		
	Physical description	3/D4979
	Flammability potential screen	3/D4982
	Water compatibility	3/D5058C
	Oxidizer screen	3/D4981
	pH screen	3/D4980
	Sulfide screen	3/D4978
	Cyanide screen	3/D5049
	Commingled waste compatibility	3/D5058A
	Polymerization potential	3/D5058B
	Paint filter test	1/9095A
	Bulk density and apparent specific gravity screen	3/D5057
	Polychlorinated bephenyls (PCBs) screen	1/4020, 9078

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PARAMETER	METHOD	REFERENCE
Miscellaneous Analytical Methods		
Acidity		2/2310
Alkalinity		2/2320
Ammonia		2/4500NH_3; 4/350.3
Anions		
By ion chromatography		1/9056; 3/D4327; 4/300.0
Chlorides		1/9250, 9251, 9252A, 9253; 2/4500Cl^-; 4/300.0, 325.3
Sulfates		1/9035, 9036, 9038; 2/4500SO_4^{2-}; 4/300.0, 375.3
Nitrates		1/9200A, 9210; 2/4500NO_3^-; 4/300.0, 352.1, 353.2
Fluoride		1/9214; 2/4500F^-; 4/300.0, 340.2, 340.3
Bromides		1/9211; 2/4500Br^-; 4/300.0, 320.1
Phosphates		2/4500P; 4/300.0, 365.1/4
Ash content		2/2840G; 3/D482, D3174
Conductivity/conductance		1/9050A; 2/2510; 3/D1125; 4/120.1
Cyanides		
Total and amenable cyanides		1/9010A, 9012A, 9013; 2/4500CN^-C,G; 4/335.1
Dissociable cyanides		1/9213; 2/4500CN^-I
Flash point		
Pensky-Martens closed-cup method		1/1010; 3/D93
Setaflash closed-cup method		1/1020A; 3/D3278
Cleveland open-cup method		3/D92
Oxidation/reduction (redox) potential (ORP)		3/D1498
pH measurement		1/9040B, 9041A, 9045C; 2/4500H^+; 3/E70; 4/150.1
Solids		
Total (TS) at 103/105°C		2/2540B; 4/160.3
Dissolved (TDS) at 180°C		2/2540C; 4/160.1
Total suspended (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
Sulfides		
Extractable sulfides		1/9031
Soluble sulfides		1/9215; 2/4500S^{2-}
Total sulfides		1/9030A; 2/4500S^{2-}
Viscosity		3/D88, D446, D2983
Water content		3/D95, D3173, D4006, E203

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The leading digit of the reference numbers above are keyed to the numbered publications below.

1/ *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846, Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC, September 1986, as amended by Final Update I (July 1992), and Final Update II (September 1994), Final Update IIA (August 1993), and Final Update IIB (January 1995), or more recent edition, update or revision including Proposed Update III (available from Superintendent of Documents, Government Printing Office, Washington, DC 20402).

2/ *Standard Methods for the Examination of Water and Wastewater*, 18th Edition, American Public Health Association (APHA), American Water Works Association, Water Environment Federation, 1992, and 18th Edition Supplement, 1994, or more recent edition or update (available from APHA, 1015 Fifteenth Street, NW, Washington, DC 20005).

3/ *Annual Book of ASTM Standards*, American Society for Testing and Materials (ASTM), 1993, or more recent edition or revision (available from 1916 Race Street, Philadelphia, PA 19013).

4/ *Methods for Chemical Analysis of Water and Wastes*, EPA-600/4-79-020, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory (EMSL), Cincinnati, 1979, as revised March 1983, or more recent revision or technical addition (available from EMSL, Cincinnati, OH 45268).

5/ "Infrared Analysis Method" in *IERL-RTP Procedures Manual: Level 1 Environmental Assessment*, Second 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", Title 40, Part 136, Appendix A, Code of Federal Regulations, U. S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory/Cincinnati, as amended June 1986, or more recent revision (available from Superintendent of Documents, Government Printing Office, Washington, DC 20402).

8/ Bellar, T. A., and Lichtenberg, J. J., "The Determination of Polychlorinated Biphenyls in Transformer Fluid and Waste Oils", EPA-600/4-81-045, U.S Environmental Protection Agency, Environmental Monitoring and Support Laboratory (EMSL), Cincinnati, 1982.

Standard analytical procedures not listed here, which may be needed, will be taken from the above-referenced sources or other recognized sources, e g., Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), 15th Edition, AOAC, Arlington, Virginia, 1990, or more recent supplements or editions (available from AOAC, 2200 Wilson Blvd., Suite 400, Arlington, VA 22201)

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7/20/97

Below is a summary table which lists the site specific methods and procedures and company modifications included in the following pages. The summary table provides a description of the method, the site specific number assigned to the document and, if applicable, the ASTM, EPA, Standard Method or SW846 Method that it is a modification of.

METHOD DESCRIPTION	SITE SPECIFIC #	METHOD MODIFICATION OF:
Acidity/Alkalinity	WM 97-68	ASTM D 1067-92
Anions by Ion Chromatography	WM 97-40	EPA 300.0-1
Cyanides Screen by Gas Detector Tube	VIC0789-2	N/A
Cyanide Screen by Cyantesmo Paper	SSP-D5049	ASTM D 5049-90
PCBs by Gas Chromatography	SW846-8080A	N/A
PCBs by Gas Chromatography	SSP-8080A	SW846-8080A
Determinative Chromatographic Separations	SSP-8000B	SW846-8000B
pH by Meter	WM 97-71	ASTM D 4980-89B
Radioactivity Test	WM 97-36	ASTM D 5928-96
Redox Potential	WM 97-66	ASTM D 1498-93
Separatory Funnel Liquid-Liquid Extraction	SSP-3510C	SW846, Method 3510C
Sulfur Cleanup	SSP-3660B	SW846, Method 3660B
Sulfuric Acid/Permangante Cleanup	SSP-3665A	SW846, Method 3665A
Solvents by Gas Chromatography	WM 97-02	ASTM D 5830-95
Sulfide Screen by Gas Detector Tube	VIC0789-3	N/A

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METHOD MODIFICATION
ASTM D 1067

DETERMINATION OF PERCENT ACIDITY AND ALKALINITY

IN BUFFERED OR UNBUFFERED

HAZARDOUS WASTE

BY

ELECTROMETRIC TITRATION

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1.0 SCOPE AND APPLICATION

1.1 This method is for determining the percent acidity or alkalinity of hazardous waste, by electrometric titration.

1.2 This method is applicable to determine the acidity or alkalinity of aqueous liquid, solid, and semisolid hazardous waste samples. It may be used for samples containing a significant amount of organic material.

1.3 The method is also applicable to determination of the alkalinity of buffered hazardous wastes.

1.3.1 Buffered hazardous waste includes those stabilized with reagents such as lime, kiln dust, calcium oxide, magnesium oxide and other cementaceous materials.

1.3.2 Many stabilization reagents also fall into this category.

1.3.3 Alkalinity of buffered waste is measured by back-titration procedure.

1.4 A hazardous waste should be approached as an unbuffered material unless site operations or operator knowledge directs otherwise.

1.5 The data is reported as percent acidity or alkalinity.

1.5.1 Unless otherwise specified, acidity data is reported as % H_2SO_4. The data can be reported in terms of other acids present in Section 8.3.

1.5.2 Unless otherwise specified, alkalinity data is reported as % NaOH. The data can be reported in terms of other alkalies presented in Section 8.3.

1.6 The data is applicable to the broad range of disposal decisions, regulatory issues, and process control situations encountered in the hazardous waste disposal area.

2.0 SUMMARY OF METHOD

2.1 For unbuffered samples, a weighed portion is titrated with standardized aqueous acid or alkali, to a defined electrometrically monitored endpoint.

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2.2 For buffered alkali samples, a known volume of standardized acid is mixed with a weighed portion of sample for ten minutes. the excess is acid back titrated with standardized alkali to a defined, electrometrically monitored endpoint.

3.0 INTERFERENCES

3.1 The presence of oils or precipitated solids may interfere with the operation of the pH electrode, requiring that the electrode be cleaned periodically before and during use.

3.2 Metals in their elemental states will react with hydrochloric acid titrant, and thereby contribute to the measured alkalinity. This effect is more pronounced with "back-titration" procedure in Paragraph 7.7, than with the procedure in Paragraph 7.5. The presence of elemental metals may also cause erratic results unless all analysts use uniform sample size, volume of hydrochloric acid titrant and stirring times.

3.3 In samples containing oxidizable or hydrolyzable species such as ferrous or ferric ion, iron, aluminum, and manganese, the reaction rates at room temperatures may be slow enough to cause drifting end points.

4.0 APPARATUS

4.1 pH Meter, guideline documentation presented in ASTM D1293.

4.2 Balance, readable to 0.001 g.

4.3 Magnetic stirplate and stirbar

4.4 Buret, 50 mL capacity

4.5 Beaker, 250 mL capacity

4.6 Titroprocessor, or other self calibrating, automated instrument, may be used in place of manual equipment.

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5.0 REAGENTS

5.1 Reagent Water, reagent water is defined as water in which an interference is not observed at or above the method detection limit (MDLs) of the analyte(s) of interest. Typically double deionized water, with electrical resistivity of > 1.0 mohms/cm at 25°C or electrical conductivity of < 1.0 microseimens/cm at 25°C, is used.

5.2 Hydrochloric acid, 1.0 N, prepare as directed in ASTM E200, or purchase certified reagent.

5.3 Sodium hydroxide, 1.0 N, prepare as directed in ASTM E200, or purchase certified reagent.

6.0 SAMPLE COLLECTION, PRESERVATION AND HANDLING

6.1 All samples must be collected using a sampling plan that addresses the considerations discussed in the sites's Waste Analysis Plan.

6.2 the samples should be analyzed as soon as possible.

7.0 PROCEDURE

All Materials

7.1 Mount the electrodes and calibrate the system as recommended by the manufacturer.

7.2 Weigh an appropriate sample into a tared 250 mL beaker, using one of the following guidelines.

7.2.1 The sample weight can fall between one and ten grams.

7.2.2 A sample weight can be selected, which is 100 times the milliequivalent weight of the acidic or alkali species presented in Section 8.3.

7.2.3 For samples which react slowly with hydrochloric acid titrant, individual laboratory may specify a uniform sample size in order to increase precision.

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7.3 Bring to a total volume of approximately 100 mL with reagent water. Add the stirbar and place onto the stirplate. Turn on the stirplate and establish an even stirring rate, while minimizing aeration or splattering of the sample mixture.

7.4 If the sample is alkali buffered as described in Section 1.3, go to Section 7.7.

Unbuffered Materials

7.5 Titrate with either acid or base to the appropriate endpoint. The endpoint pH should be stable to ± 0.2 pH units for ten seconds.

7.5.1 The recommended endpoint for the percent acidity measurement is 8.3.

7.5.2 The recommended endpoint for the percent alkalinity measurement is 4.5.

7.5.3 Titration to an endpoint (for example 7.0) between the recommended values is acceptable, if required by site or process requirements. The need for this change and the actual endpoint must be documented in a site specific practice.

7.6 Go to Section 8.1 to perform the calculations.

Buffered Materials

7.7 Add 50 mL of 1.0 N HCl to the beaker and stir for 10 minutes.

7.7.1 If the pH is greater than 3.7, restart the analysis at Section 7.2, using a smaller sample mass.

7.8 Refer to Section 7.5.2 and titrate the excess HCl with standard alkali to a pH 4.5 endpoint.

7.9 Go to Section 8.2 to perform the calculations.

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8.0 CALCULATIONS

8.1 Calculate the acidity or alkalinity of unbuffered samples using the following equation. Refer to Section 8.3 for the milliequivalent weight of the acid or alkali species.

$$\% \text{ (Acidity or Alkalinity)} = \frac{V \times N \times M \times 100}{G}$$

where:

V = volume of titrant, mL
N = normality of titrant, meq/mL
M = meq. wt. of species, g/meq, Sec. 8.3
G = sample mass, grams

8.2 Calculate the alkalinity of buffered samples using the following equation. Refer to Section 8.3 for the milliequivalent weight of the alkali species.

$$\% \text{ Alk} = \frac{[(V_{HCl} \times N_{HCl}) - (V_{NaOH} \times N_{NaOH})] \times M \times 100}{G}$$

where:

V_{HCl} = volume of HCl titrant used, mL
N_{HCl} = normality of HCl titrant, meq/mL
V_{NaOH} = volume of NaOH titrant used, mL
N_{NaOH} = normality of NaOH titrant, meq/mL
M = milliequivalent weight of species, g/meq (See Sec. 8.3)
G = sample mass, grams

8.3 The following lists the milliequivalent weights of some acids and bases.

Acid Species	Formula	Meq Wt. (g/meq)
Acetic acid	CH_3CO_2H	0.0601
Chromic acid	H_2CrO_4	0.0590
Fluoroboric acid	HBF_4	0.0880
Formic acid	HCO_2H	0.0460
Hydrochloric acid	HCl	0.0365
Nitric acid	HNO_3	0.0630
Phosphoric acid	H_3PO_4	0.0490
Sulfuric acid	H_2SO_4	0.0490

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Alkali Species	Formula	Meq. Wt (g/meq)
Ammonia	NH_3	0.0170
Ammonium hydroxide	NH_4OH	0.0350
Calcium carbonate	$CaCO_3$	0.0500
Calcium hydroxide	$Ca(OH)_2$	0.0370
Potassium hydroxide	KOH	0.0560
Sodium bicarbonte	$NaHCO_3$	0.0420
Sodium carbonate	$NaCO_3$	0.0530
Sodium hydroxide	NaOH	0.0400

9.0 QUALITY CONTROL

9.1 Follow current quality control policy and procedures.

10.0 REFERENCES

10.1 ASTM D1293, Standard Test Methods for pH of Water
10.2 ASTM E200, Standard Practice for Preparation, Standardization and Storage of Standard Solutions for Chemical Analysis.

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METHOD MODIFICATION

EPA Test Method 300.0

Test Method for the Determination of Inorganic Anions by Ion Chromatography

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1.0 SCOPE AND APPLICATION

1.2. The matrices applicable to each method are show below:

C. The method can also be used to determine the total anions in the collection solutions of bomb combustate samples.

4.0 INTERFERENCES

4.2 The water dip should not be observed in the combustate samples; the collecting solution is a concentrated eluent solution that will match the eluent strength when diluted to 100 mL with reagent water according to the bomb combustion procedure.

4.9 Interferences from compounds such as ClO_4^-, $Fe(CN)_6^{3-}$, other metal-cyanide complexes, aromatics, surfactants, and humic acids reduces the column capacity by occupying the available sites in the column resin. Some of these contaminants bind irreversibly. Also, high concentrations of Fe, Ni, CU, Zn, hydroxide ion, peroxides, and dissolved gases, have the potential to interfere with the analysis. Because these sources of contamination cause irreversible damage, prevention may be the best mode of avoiding the interference. Routine column clean-ups with 1N HCl can reduce the concentration of some metals and inorganic species retained by the columns.

4.10 Storage of diluted eluent can allow microbial growth and cause the column blockage. It is important to prepare fresh eluent frequently (at least every two weeks) to be used immediately. Frequent flushing and proper storage of the columns are also very important.

6.0 APPARATUS AND MATERIALS

6.2.1 Precolumn, a guard column placed before the separator column to protect the separator column from being fouled by particulates or certain organic constituents. Usually packed with a substrate the same as that in the separator column. Use Dionex AG4A guard column P/N 37042 or equivalent.

6.2.3 Suppressor column, a column that is capable of converting the eluent and separated anions to their respective acid forms. Use Dionex AMMC column P/N 38019 or equivalent.

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7.0 REAGENTS

7.2 Reagent water, reagent water is defined as water in which an interference is not observed at, or above, the method detection limits (MDLs) of the analyte(s) of interest. Typically, double deionized water with electrical resistivity of > 1.0 Mohms-cm at 25°C or electrical conductivity of ≤ 1.0 microsiemens/cm at 25°C is used. Column life may be extended by passing reagent water through a 0.22-um filter prior to use.

7.3 The optimal eluent concentration for separations is dependent on the column set to be used. Thus, recommendations from the manufacturer of the columns should be used as a guideline for eluent preparation. Commercially available concentrated eluent solution can also be used. For example, if Dionex AS4A separator column is used, then Dionex AS4A 1.7 mM sodium bicarbonate and 1.8 mM sodium carbonate eluant concentrate P/N 39513 is recommended.

7.5 Stability of Standards: Stock Standards are stable for at least one month when stored at 4°C. For stock solutions purchased commercially with an expiration date, the stock solutions can be used until the expiration date provided Section 10.7 and 10.12 are satisfied. Dilute working standards should be prepared weekly, except those that contain nitrite and phosphate should be prepared daily.

9.0 QUALITY CONTROL

Laboratories will follow all aspects of the method quality control process as described in Section 9, except as noted below.

9.3.2 Laboratory Fortified Blank (LFB)/Quality Control Sample (QCS) - The laboratory will analyzed one LFB each 20 samples. Accuracy as percent recovery (Sec. 9.4.2) is calculated. However, the analytical run will not be adjudged out of control based on LFB results if the analysis is for "total" anions.

9.3.2.1 If the analysis is being performed as a "free" anion (i.e. aqueous matrix), then the LFB method criteria are required, since the samples would not be digested via bomb calorimetry and the recovery of a spiked water blank would be an indication of the laboratory's ability to make accurate and precise measurements on an aqueous matrix.

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9.3.2.2 If the analysis is being performed as a "total" anion (i.e., from a non-aqueous matrix, e.g. total chlorides from a fuels blend of chlorinated solvents), then the LFB method criteria are not critical, since the "total" anion samples are not, by definition, aqueous. The "total" anions are first digested via bomb calorimetry prior to IC analysis. The QCS is more indicative of the entire analytical process and is used to monitor the precision and accuracy of the method.

9.3.3 The laboratory must use QCS analyses data to assess laboratory performance against the required control limits of the mean $\pm$ 3s from the statistical evaluation of at least thirty points. Until 30 points are available, the range of (true value $\pm$ 10%) shall be used as the acceptance limits.

11.0 PROCEDURE

11.5 If the response for the peak exceeds the working range of the system, dilute the sample with an appropriate amount of eluent solution instead of reagent water and reanalyze.

12.0 CALCULATION

12.3.1 Enter the calibration standard concentrations or peak heights from the integrator or recorder into a calculator with linear least squares capabilities.

12.3.2 Calculate the following parameters: slope (s), intercept (I), and correlation coefficient (r). the slope and intercept define a relationship between the concentration and instrument response of the form:

$$Y = sx + I$$

where:

Y = predicted instrument response
s = response slope
x = concentration of standard
I = intercept

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Rearranging the above equation yields the concentration of a sample corresponding to an instrumental measurement.

$$x = (Y-I)/s$$

where:

x = calculated concentration for the sample
Y = actual instrument response for the sample

14.0 REFERENCES

14.5 EPA SW846-9056; "Anion Chromatography Method, Sept. 1994

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Vickery Site Specific

Method for Screening of Cyanides

using

Gas Detector Tubes

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GAS DETECTOR TUBE METHOD FOR CYANIDE

1.0 SCOPE AND APPLICATION

1.1 This method is designed as a screening device to detect low level amounts of cyanide in a acidified atmosphere by the utilization of a gas detector tube as evolved hydrogen cyanide gas.

2.0 SUMMARY OF METHOD

2.1 A portion of the sample is acidified in an Erlenmeyer flask to release hydrogen cyanide gas. The gas is funneled through a gas detector tube creating a stain inside the tube in proportions to the concentration of cyanide gas in the vapor. A definite color change in the tube indicates the positive presence of cyanide.

3.0 TERMINOLOGY

3.1 Screening Method means a preliminary qualitative or semi-quantitative test developed from classical qualitative and quantitative techniques. The method is designed to efficiently give the user specific information about the waste which will aid in determining waste identification, process compatibility and safety in handling.

4.0 SAMPLE STORAGE AND PRESERVATION

4.1 Samples should be analyzed as soon as possible. All liquid samples should be preserved with 2.5N sodium hydroxide to adjust the pH range between 10 to 13, if pH is less than 10 and samples are to be stored.

5.0 APPARATUS

5.1 A 500 milliliter ground glass stoppered Erlenmeyer flask.

5.2 A gas detector pump.

5.3 An automatic dispensing pipetor.

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5.4 A 100 milliliter graduated cylinder.

5.5 pH meter.

6.0 REAGENTS

6.1 Gas detector tube with hydrogen cyanide indicator.

6.2 Concentrated hydrochloric or sulfuric acid, or acidic waste.

6.3 pH paper

7.0 PROCEDURE

7.1 Use between 1 and 100 ml of sample. Volume can be measured by using a graduated cylinder and/or an automatic dispensing pipetor.

7.2 Acidify this sample test portion to a pH of 2 or less with concentrated hydrochloric, sulfuric or waste acid. If waste is to be used, place the waste acid in the flask and add the sample test portion to a total volume of 100 ml. Gas vapor should now form.

7.3 Break both of the glass tip ends of the gas detector tube. Insert the tube into the gas detector pump. (Arrow towards pump)

7.4 Place the gas detector tube inside the mouth of the 500 milliliter Erlenmeyer flask. The end of the tube should reach halfway inside the flask. Actuate the pump the number of times directed in the manufacturers instructions and read the measurement of concentration by total length of discoloration.

7.5 If the detector tube reading is above the scale of the tube, alter the amount of sample used and/or the detector tube with an appropriate scale.. This will reduce the amount of cyanide released and will allow the vapor concentration to be on the scale of the detector tube.

8.0 CONCENTRATION CALCULATION

8.1 In order to screen the concentration of releasable cyanide in the liquid sample, the

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concentration of the gas must be converted to a concentration in liquid. This can be done by using the following calculation.

1 ppm HCN in gas = 1.13 mg HCN/m^3 in gas

X = ml of liquid sample
Y = ml vapor space in Erlenmeyer flask
Z = ppm HCN reading on tube

To determine the mass (mg) of HCN released from the liquid into the gas:

$$Z \text{ ppm HCN} \times \frac{1.13 \text{ mg HCN/m}^3}{\text{ppm HCN}} \times Y \text{ ml} \times \frac{1 \text{ cm}^3}{\text{ml}} \times \frac{1 \text{ m}^3}{(100 \text{ cm})^3} = 1.13 \times 10^{-6} YZ \text{ mg HCN}$$

To determine the concentration of HCN in the liquid sample:

$$1.13 \times 10^{-6} YZ \text{ mg HCN} \times \frac{1}{X \text{ ml}} \times \frac{1000 \text{ ml}}{1 \text{ L}} = \frac{1.13 \times 10^{-3} YZ \text{ mg}}{X \text{ L}}$$

Example: if you use 5 ml of liquid sample and acidify it into 95 ml of waste from T-1 or T-2, the Erlenmeyer flask has a vapor volume of 500 ml and you obtain a reading on the tube of 100 ppm, the total releasable cyanide is calculated as:

$$\frac{1.13 \times 10^{-3} YZ \text{ mg}}{X \text{ L}} = \frac{1.13 \times 10^{-3} \times 500 \times 100}{5} = 11.3 \text{ mg/l}$$

9.0 REMARKS

9.1 The gas detector tube can only be used once and must be disposedof after a negative or positive result. After a positive result, the discoloration may persist for a short period of time, so that evaluation should be carried out immediately after the measurement.

9.2 Test the gas detector pump by inserting a gas detector tube with glass tip ends still intact. Squeeze the pump once and the pump should maintain vacuum tightness.

9.3 All testing should be done in the fume hood.

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10.0 QUALITY CONTROL

10.1 A quality control check sample is performed on each lot of sample tubes.

10.2 Duplicates and spikes will be performed on every 20th sample analyzed.

10.3 Since this is a semi-quantitative screening method, if the calculated concentration is 125 mg/l or larger, the sample should be analyzed by another, quantitative method. This is 1/2 the concentration of our site limit of 250 mg/l reactive (releasable) cyanide.

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Vickery Site Specific Procedure

to

ASTM D5049 - 90

Standard Test Method

for

Screening of Cyanide in Waste

(Test Method C - Cyantesmo Paper)

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19.0 INTERFERENCES

19.2 CYANTESMO paper is very sensitive to cyanide solutions weakly acidified with sulfuric acid and does not react with alkaline solutions. Strongly acidic solutions destroy the Cyantesmo reagent. To circumvent interferences by volatile oxidizing or reducing agents hydrocyanic acid can be set free by sodium hydrogen carbonate.

20.0 REAGENTS AND MATERIALS

20.1 Sulfuric Acid (H_2SO_4). Dilute 1:1,(v/v) Sulfuric Acid (Reagent Grade or equivalent) with water.

21.0 PROCEDURE

21.2 Acidify the sample with Sulfuric Acid Solution(H_2SO_4). Gently shake the acidified solution.

21.3 After shaking, tear off the Cyantesmo test strip and position the strip so that the bottom of the paper is above the waste and the remainder of the strip extends up into the test tube. Then stopper the the test tube.

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METHOD 8080A

ORGANOCHLORINE PESTICIDES AND POLYCHLORINATED BIPHENYLS BY GAS CHROMATOGRAPHY

1.0 SCOPE AND APPLICATION

1.1 Method 8080 is used to determine the concentration of various organochlorine pesticides and polychlorinated biphenyls (PCBs). The following compounds can be determined by this method:

Compound Name	CAS No.[a]
Aldrin	309-00-2
α-BHC	319-84-6
β-BHC	319-85-7
δ-BHC	319-86-8
γ-BHC (Lindane)	58-89-9
Chlordane (technical)	12789-03-6
4,4′-DDD	72-54-8
4,4′-DDE	72-55-9
4,4′-DDT	50-29-3
Dieldrin	60-57-1
Endosulfan I	959-98-8
Endosulfan II	33212-65-9
Endosulfan sulfate	1031-07-8
Endrin	72-20-8
Endrin aldehyde	7421-93-4
Heptachlor	76-44-8
Heptachlor epoxide	1024-57-3
4,4′-Methoxychlor	72-43-5
Toxaphene	8001-35-2
Aroclor-1016	12674-11-2
Aroclor-1221	1104-28-2
Aroclor-1232	11141-16-5
Aroclor-1242	53469-21-9
Aroclor-1248	12672-29-6
Aroclor-1254	11097-69-1
Aroclor-1260	11096-82-5

a Chemical Abstract Services Registry Number.

1.2 Table 1 lists the method detection limit for each compound in organic-free reagent water. Table 2 lists the estimated quantitation limit (EQL) for other matrices.

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2.0 SUMMARY OF METHOD

2.1 Method 8080 provides gas chromatographic conditions for the detection of ppb concentrations of certain organochlorine pesticides and PCBs. Prior to the use of this method, appropriate sample extraction techniques must be used. Both neat and diluted organic liquids (Method 3580, Waste Dilution) may be analyzed by direct injection. A 2 to 5 µL sample is injected into a gas chromatograph (GC) using the solvent flush technique, and compounds in the GC effluent are detected by an electron capture detector (ECD) or an electrolytic conductivity detector (HECD).

2.2 The sensitivity of Method 8080 usually depends on the concentration of interferences rather than on instrumental limitations. If interferences prevent detection of the analytes, Method 8080 may also be performed on samples that have undergone cleanup. Method 3620, Florisil Column Cleanup, by itself or followed by Method 3660, Sulfur Cleanup, may be used to eliminate interferences in the analysis.

3.0 INTERFERENCES

3.1 Refer to Methods 3500, 3600, and 8000.

3.2 Interferences by phthalate esters can pose a major problem in pesticide determinations when using the electron capture detector. These compounds generally appear in the chromatogram as large late-eluting peaks, especially in the 15% and 50% fractions from the Florisil cleanup. Common flexible plastics contain varying amounts of phthalates. These phthalates are easily extracted or leached from such materials during laboratory operations. Cross contamination of clean glassware routinely occurs when plastics are handled during extraction steps, especially when solvent-wetted surfaces are handled. Interferences from phthalates can best be minimized by avoiding contact with any plastic materials. Exhaustive cleanup of reagents and glassware may be required to eliminate background phthalate contamination. The contamination from phthalate esters can be completely eliminated with a microcoulometric or electrolytic conductivity detector.

4.0 APPARATUS AND MATERIALS

4.1 Gas chromatograph

4.1.1 Gas Chromatograph: Analytical system complete with gas chromatograph suitable for on-column injections and all required accessories, including detectors, column supplies, recorder, gases, and syringes. A data system for measuring peak heights and/or peak areas is recommended.

4.1.2 Columns

4.1.2.1 Column 1: Supelcoport (100/120 mesh) coated with 1.5% SP-2250/1.95% SP-2401 packed in a 1.8 m x 4 mm ID glass column or equivalent.

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4.1.2.2 Column 2: Supelcoport (100/120 mesh) coated with 3% OV-1 in a 1.8 m x 4 mm ID glass column or equivalent.

4.1.3 Detectors: Electron capture (ECD) or electrolytic conductivity detector (HECD).

4.2 Kuderna-Danish (K-D) apparatus:

4.2.1 Concentrator tube: 10 mL, graduated (Kontes K-570050-1025 or equivalent). A ground-glass stopper is used to prevent evaporation of extracts.

4.2.2 Evaporation flask: 500 mL (Kontes K-570001-500 or equivalent). Attach to concentrator tube with springs, clamps, or equivalent.

4.2.3 Snyder column: Three ball macro (Kontes K-503000-0121 or equivalent).

4.2.4 Snyder column: Two ball micro (Kontes K-569001-0219 or equivalent).

4.2.5 Springs - 1/2 inch (Kontes K-662750 or equivalent).

4.3 Boiling chips: Solvent extracted, approximately 10/40 mesh (silicon carbide or equivalent).

4.4 Water bath: Heated, with concentric ring cover, capable of temperature control (±5°C). The bath should be used in a hood.

4.5 Volumetric flasks, Class A: sizes as appropriate with ground-glass stoppers.

4.6 Microsyringe: 10 µL.

4.7 Syringe: 5 mL.

4.8 Vials: Glass, 2, 10, and 20 mL capacity with Teflon-lined screw caps or crimp tops.

4.9 Balances: Analytical, 0.0001 g and Top loading, 0.01 g.

5.0 REAGENTS

5.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 Organic-free reagent water - All references to water in this method refer to organic-free reagent water, as defined in Chapter One.

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5.3 Solvents

5.3.1 Hexane, C_6H_{14} - Pesticide quality or equivalent.

5.3.2 Acetone, CH_3COCH_3 - Pesticide quality or equivalent.

5.3.3 Toluene, $C_6H_5CH_3$ - Pesticide quality or equivalent.

5.3.4 Isooctane, $(CH_3)_3CCH_2CH(CH_3)_2$ - Pesticide quality or equivalent.

5.4 Stock standard solutions:

5.4.1 Prepare stock standard solutions at a concentration of 1000 mg/L by dissolving 0.0100 g of assayed reference material in isooctane and diluting to volume in a 10 mL volumetric flask. A small volume of toluene may be necessary to put some pesticides in solution. Larger volumes can be used at the convenience of the analyst. When compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. Commercially prepared stock standards can be used at any concentration if they are certified by the manufacturer or by an independent source.

5.4.2 Transfer the stock standard solutions into vials with Teflon-lined screw caps or crimp tops. Store at 4°C and protect from light. Stock standards should be checked frequently for signs of degradation or evaporation, especially just prior to preparing calibration standards from them.

5.4.3 Stock standard solutions must be replaced after one year, or sooner if comparison with check standards indicates a problem.

5.5 Calibration standards: Calibration standards at a minimum of five concentrations for each parameter of interest are prepared through dilution of the stock standards with isooctane. One of the concentrations should be at a concentration near, but above, the method detection limit. The remaining concentrations should correspond to the expected range of concentrations found in real samples or should define the working range of the GC. Calibration solutions must be replaced after six months, or sooner, if comparison with check standards indicates a problem.

5.6 Internal standards (if internal standard calibration is used): To use this approach, the analyst must select one or more internal standards that are similar in analytical behavior to the compounds of interest. The analyst must further demonstrate that the measurement of the internal standard is not affected by method or matrix interferences. Because of these limitations, no internal standard can be suggested that is applicable to all samples.

5.6.1 Prepare calibration standards at a minimum of five concentrations for each analyte of interest as described in Section 5.5.

5.6.2 To each calibration standard, add a known constant amount of one or more internal standards, and dilute to volume with isooctane.

5.6.3 Analyze each calibration standard according to Section 7.0.

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5.7 Surrogate standards: The analyst should monitor the performance of the extraction, cleanup (when used), and analytical system and the effectiveness of the method in dealing with each sample matrix by spiking each sample, standard, and organic-free reagent water blank with pesticide surrogates. Because GC/ECD data are much more subject to interference than GC/MS, a secondary surrogate is to be used when sample interference is apparent. Two surrogate standards (tetrachloro-m-xylene (TCMX) and decachlorobiphenyl) are added to each sample; however, only one need be calculated for recovery. Proceed with corrective action when both surrogates are out of limits for a sample (Section 8.3). Method 3500 indicates the proper procedure for preparing these surrogates.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

6.1 See the introductory material to this chapter, Organic Analytes, Section 4.1. Extracts must be stored under refrigeration and analyzed within 40 days of extraction.

7.0 PROCEDURE

7.1 Extraction:

7.1.1 Refer to Chapter Two for guidance on choosing the appropriate extraction procedure. In general, water samples are extracted at a neutral, or as is, pH with methylene chloride, using either Method 3510 or 3520. Solid samples are extracted using Method 3540, 3541, or 3550.

7.1.2 Prior to gas chromatographic analysis, the extraction solvent must be exchanged to hexane. The exchange is performed during the K-D procedures listed in all of the extraction methods. The exchange is performed as follows:

7.1.2.1 Following K-D of the methylene chloride extract to 1 mL using the macro-Snyder column, allow the apparatus to cool and drain for at least 10 min.

7.1.2.2 Increase the temperature of the hot water bath to about 90°C. Momentarily remove the Snyder column, add 50 mL of hexane, a new boiling chip, and reattach the macro-Snyder column. Concentrate the extract using 1 mL of hexane to prewet the Snyder column. Place the K-D apparatus on the water bath so that the concentrator tube is partially immersed in the hot water. Adjust the vertical position of the apparatus and the water temperature, as required, to complete concentration in 5-10 min. At the proper rate of distillation the balls of the column will actively chatter, but the chambers will not flood. When the apparent volume of liquid reaches 1 mL, remove the K-D apparatus and allow it to drain and cool for at least 10 min.

7.1.2.3 Remove the Snyder column and rinse the flask and its lower joint into the concentrator tube with 1-2 mL of hexane. A 5 mL syringe is recommended for this operation. Adjust the extract volume to 10.0 mL. Stopper the concentrator tube and store

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refrigerated at 4°C, if further processing will not be performed immediately. If the extract will be stored longer than two days, it should be transferred to a vial with a Teflon-lined screw cap or crimp top. Proceed with gas chromatographic analysis if further cleanup is not required.

7.2 Gas chromatography conditions (Recommended):

7.2.1 Column 1:

Carrier gas (5% methane/95% argon) flow rate:	60 mL/min
Column temperature:	200°C isothermal

When analyzing for the low molecular weight PCBs (PCB 1221-PCB 1248), it is advisable to set the oven temperature to 160°C.

7.2.2 Column 2:

Carrier gas (5% methane/95% argon) flow rate:	60 mL/min
Column temperature:	200°C isothermal

When analyzing for the low molecular weight PCBs (PCB 1221-PCB 1248), it is advisable to set the oven temperature to 140°C.

7.2.3 When analyzing for most or all of the analytes in this method, adjust the oven temperature and column gas flow to provide sufficient resolution for accurate quantitation of the analytes. This will normally result in a retention time of 10 to 12 minutes for 4,4'-DDT, depending on the packed column used.

7.3 Calibration: Refer to Method 8000 for proper calibration techniques. Use Table 1 and especially Table 2 for guidance on selecting the lowest point on the calibration curve.

7.3.1 The procedure for internal or external calibration may be used. Refer to Method 8000 for a description of each of these procedures.

7.3.2 Because of the low concentration of pesticide standards injected on a GC/ECD, column adsorption may be a problem when the GC has not been used for a day. Therefore, the GC column should be primed or deactivated by injecting a PCB or pesticide standard mixture approximately 20 times more concentrated than the mid-concentration standard. Inject this prior to beginning initial or daily calibration.

7.4 Gas chromatographic analysis:

7.4.1 Refer to Method 8000. If the internal standard calibration technique is used, add 10 µL of internal standard to the sample prior to injection.

7.4.2 Method 8000 provides instructions on the analysis sequence, appropriate dilutions, establishing daily retention time windows, and identification criteria. Include a mid-concentration standard after each group of 10 samples in the analysis sequence.

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NOTE: A 72 hour sequence is not required with this method.

7.4.3 Examples of GC/ECD chromatograms for various pesticides and PCBs are shown in Figures 1 through 5.

7.4.4 Prime the column as per Section 7.3.2.

7.4.5 DDT and endrin are easily degraded in the injection port if the injection port or front of the column is dirty. This is the result of buildup of high boiling residue from sample injection. Check for degradation problems by injecting a mid-concentration standard containing only 4,4'-DDT and endrin. Look for the degradation products of 4,4'-DDT (4,4'-DDE and 4,4'-DDD) and endrin (endrin ketone and endrin aldehyde). If degradation of either DDT or endrin exceeds 20%, take corrective action before proceeding with calibration, by following the GC system maintenance outlined in of Method 8000. Calculate percent breakdown as follows:

$$\text{\% breakdown for 4,4'-DDT} = \frac{\text{Total DDT degradation peak area (DDE + DDD)}}{\text{Total DDT peak area (DDT + DDE + DDD)}} \times 100$$

$$\text{\% breakdown for Endrin} = \frac{\text{Total endrin degradation peak area (endrin aldehyde + endrin ketone)}}{\text{Total endrin peak area (endrin + endrin aldehyde + endrin ketone)}} \times 100$$

7.4.6 Record the sample volume injected and the resulting peak sizes (in area units or peak heights).

7.4.7 Using either the internal or external calibration procedure (Method 8000), determine the identity and quantity of each component peak in the sample chromatogram which corresponds to the compounds used for calibration purposes.

7.4.8 If peak detection and identification are prevented due to interferences, the hexane extract may need to undergo cleanup using Method 3620. The resultant extract(s) may be analyzed by GC directly or may undergo further cleanup to remove sulfur using Method 3660.

7.5 Cleanup:

7.5.1 Proceed with Method 3620, followed by, if necessary, Method 3660, using the 10 mL hexane extracts obtained from Section 7.1.2.3.

7.5.2 Following cleanup, the extracts should be analyzed by GC, as described in the previous sections and in Method 8000.

7.5.3 If only PCBs are to be measured in a sample, the sulfuric acid/permanganate cleanup (Method 3665), followed by Silica Cleanup (Method 3630) or Florisil Cleanup (Method 3620), is recommended.

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7.6 Calculations (excerpted from U.S. FDA, PAM):

7.6.1 Calculation of Certain Residues: Residues which are mixtures of two or more components present problems in measurement. When they are found together, e.g., toxaphene and DDT, the problem of quantitation becomes even more difficult. In the following sections suggestions are offered for handling toxaphene, chlordane, PCB, DDT, and BHC. A 10% DC-200 stationary phase column was used to obtain the chromatograms in Figures 6-9.

7.6.2 Toxaphene: Quantitative calculation of toxaphene or Strobane is difficult, but reasonable accuracy can be obtained. To calculate toxaphene on GC/ECD: (a) adjust sample size so that toxaphene major peaks are 10-30% full-scale deflection (FSD); (b) inject a toxaphene standard that is estimated to be within ±10 ng of the sample; (c) construct the baseline of standard toxaphene between its extremities; and (d) construct the baseline under the sample, using the distances of the peak troughs to baseline on the standard as a guide (Figures 7, 8, and 9). This procedure is made difficult by the fact that the relative heights and widths of the peaks in the sample will probably not be identical to the standard. A toxaphene standard that has been passed through a Florisil column will show a shorter retention time for peak X and an enlargement of peak Y.

7.6.3 Toxaphene and DDT: If DDT is present, it will superimpose itself on toxaphene peak V. To determine the approximate baseline of the DDT, draw a line connecting the trough of peaks U and V with the trough of peaks W and X and construct another line parallel to this line which will just cut the top of peak W (Figure 6l). This procedure was tested with ratios of standard toxaphene-DDT mixtures from 1:10 to 2:1 and the results of added and calculated DDT and toxaphene by the "parallel lines" method of baseline construction were within 10% of the actual values in all cases.

7.6.3.1 A series of toxaphene residues have been calculated using total peak area for comparison to the standard and also using area of the last four peaks only in both sample and standard. The agreement between the results obtained by the two methods justifies the use of the latter method for calculating toxaphene in a sample where the early eluting portion of the toxaphene chromatogram is interfered with by other substances.

7.6.3.2 The baseline for methoxychlor superimposed on toxaphene (Figure 8b) was constructed by overlaying the samples on a toxaphene standard of approximately the same concentration (Figure 8a) and viewing the charts against a lighted background.

7.6.4 Chlordane is a technical mixture of at least 11 major components and 30 or more minor ones. Gas chromatography-mass spectrometry and nuclear magnetic resonance analytical techniques have been applied to the elucidation of the chemical structures of the many chlordane constituents. Figure 9a is a chromatogram of standard chlordane. Peaks E and F are responses to trans- and cis-chlordane, respectively. These are the two major components of technical chlordane, but the exact percentage of each in the technical material is not completely

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defined and is not consistent from batch to batch. Other labelled peaks in Figure 9a are thought to represent: A, monochlorinated adduct of pentachlorocyclopentadiene with cyclopentadiene; B, coelution of heptachlor and α-chlordene; C, coelution of β-chlordene and γ-chlordene; D, a chlordane analog; G, coelution of cis-nonachlor and "Compound K," a chlordane isomer. The right "shoulder" of peak F is caused by trans-nonachlor.

7.6.4.1 The GC pattern of a chlordane residue may differ considerably from that of the technical standard. Depending on the sample substrate and its history, residues of chlordane can consist of almost any combination of constituents from the technical chlordane, plant and/or animal metabolites, and products of degradation caused by exposure to environmental factors such as water and sunlight. Only limited information is available on which residue GC patterns are likely to occur in which samples types, and even this information may not be applicable to a situation where the route of exposure is unusual. For example, fish exposed to a recent spill of technical chlordane will contain a residue drastically different from a fish whose chlordane residue was accumulated by ingestion of smaller fish or of vegetation, which in turn had accumulated residues because chlordane was in the water from agricultural runoff.

7.6.4.2 Because of this inability to predict a chlordane residue GC pattern, it is not possible to prescribe a single method for the quantitation of chlordane residues. The analyst must judge whether or not the residue's GC pattern is sufficiently similar to that of a technical chlordane reference material to use the latter as a reference standard for quantitation.

7.6.4.3 When the chlordane residue does not resemble technical chlordane, but instead consists primarily of individual, identifiable peaks, quantitate each peak separately against the appropriate reference materials and report the individual residues. (Reference materials are available for at least 11 chlordane constituents, metabolites or degradation products which may occur in the residue.)

7.6.4.4 When the GC pattern of the residue resembles that of technical chlordane, quantitate chlordane residues by comparing the total area of the chlordane chromatogram from peaks A through F (Figure 9a) in the sample versus the same part of the standard chromatogram. Peak G may be obscured in a sample by the presence of other pesticides. If G is not obscured, include it in the measurement for both standard and sample. If the heptachlor epoxide peak is relatively small, include it as part of the total chlordane area for calculation of the residue. If heptachlor and/or heptachlor epoxide are much out of proportion as in Figure 6j, calculate these separately and subtract their areas from total area to give a corrected chlordane area. (Note that octachlor epoxide, a metabolite of chlordane, can easily be mistaken for heptachlor epoxide on a nonpolar GC column.)

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7.6.4.5 To measure the total area of the chlordane chromatogram, proceed as in Section 7.6.2 on toxaphene. Inject an amount of technical chlordane standard which will produce a chromatogram in which peaks E and F are approximately the same size as those in the sample chromatograms. Construct the baseline beneath the standard from the beginning of peak A to the end of peak F as shown in Figure 9a. Use the distance from the trough between peaks E and F to the baseline in the chromatogram of the standard to construct the baseline in the chromatogram of the sample. Figure 9b shows how the presence of toxaphene causes the baseline under chlordane to take an upward angle. When the size of peaks E and F in standard and sample chromatograms are the same, the distance from the trough of the peaks to the baselines should be the same. Measurement of chlordane area should be done by total peak area if possible.

NOTE: A comparison has been made of the total peak area integration method and the addition of peak heights method for several samples containing chlordane. The peak heights A, B, C, D, E, and F were measured in millimeters from peak maximum of each to the baseline constructed under the total chlordane area and were then added together. These results obtained by the two techniques are too close to ignore this method of "peak height addition" as a means of calculating chlordane. The technique has inherent difficulties because not all the peaks are symmetrical and not all are present in the same ratio in standard and in sample. This method does offer a means of calculating results if no means of measuring total area is practical.

7.6.5 Polychlorinated biphenyls (PCBs): Quantitation of residues of PCB involves problems similar to those encountered in the quantitation of toxaphene, Strobane, and chlordane. In each case, the chemical is made up of numerous compounds. So the chromatograms are multi-peak. Also in each case, the chromatogram of the residue may not match that of the standard.

7.6.5.1 Mixtures of PCBs of various chlorine contents were sold for many years in the U.S. by the Monsanto Co. under the tradename Aroclor (1200 series and 1016). Though these Aroclors are no longer marketed, the PCBs remain in the environment and are sometimes found as residues in foods, especially fish.

7.6.5.2 PCB residues are quantitated by comparison to one or more of the Aroclor materials, depending on the chromatographic pattern of the residue. A choice must be made as to which Aroclor or mixture of Aroclors will produce a chromatogram most similar to that of the residue. This may also involve a judgment about what proportion of the different Aroclors to combine to produce the appropriate reference material.

7.6.5.3 Quantitate PCB residues by comparing total area or height of residue peaks to total area of height of peaks from appropriate Aroclor(s) reference materials. Measure total area or

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height response from common baseline under all peaks: Use only those peaks from the sample that can be attributed to chlorobiphenyls. These peaks must also be present in the chromatogram of the reference materials. Mixtures of Aroclors may be required to provide the best match of GC patterns of sample and reference.

7.6.6 DDT: DDT found in samples often consists of both o,p'- and p,p'-DDT. Residues of DDE and DDD are also frequently present. Each isomer of DDT and its metabolites should be quantitated using the pure standard of that compound and reported as such.

7.6.7 Hexachlorocyclohexane (BHC, from the former name, benzene hexachloride): Technical grade BHC is a cream-colored amorphous solid with a very characteristic musty odor; it consists of a mixture of six chemically distinct isomers and one or more heptachloro-cyclohexanes and octachloro-cyclohexanes.

7.6.7.1 Commercial BHC preparations may show a wide variance in the percentage of individual isomers present. The elimination rate of the isomers fed to rats was 3 weeks for the α-, γ-, and δ-isomers and 14 weeks for the β-isomer. Thus it may be possible to have any combination of the various isomers in different food commodities. BHC found in dairy products usually has a large percentage of β-isomer.

7.6.7.2 Individual isomers (α, β, γ, and δ) were injected into gas chromatographs equipped with flame ionization, microcoulometric, and electron capture detectors. Response for the four isomers is very nearly the same whether flame ionization or microcoulometric GLC is used. The α-, γ-, and δ-isomers show equal electron affinity. β-BHC shows a much weaker electron affinity compared to the other isomers.

7.6.7.3 Quantitate each isomer (α, β, γ, and δ) separately against a standard of the respective pure isomer, using a GC column which separates all the isomers from one another.

8.0 QUALITY CONTROL

8.1 Refer to Chapter One for specific quality control procedures. Quality control to validate sample extraction is covered in Method 3500 and in the extraction method utilized. If extract cleanup was performed, follow the QC in Method 3600 and in the specific cleanup method.

8.2 Quality control required to evaluate the GC system operation is found in Method 8000.

8.2.1 The quality control check sample concentrate (Method 8000) should contain each single-component parameter of interest at the following concentrations in acetone or other water miscible solvent: 4,4'-DDD, 10 mg/L; 4,4'-DDT, 10 mg/L; endosulfan II, 10 mg/L; endosulfan sulfate, 10 mg/L; endrin, 10 mg/L; and any other single-component

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pesticide, 2 mg/L. If this method is only to be used to analyze for PCBs, chlordane, or toxaphene, the QC check sample concentrate should contain the most representative multi-component parameter at a concentration of 50 mg/L in acetone.

8.2.2 Table 3 indicates the calibration and QC acceptance criteria for this method. Table 4 gives method accuracy and precision as functions of concentration for the analytes of interest. The contents of both Tables should be used to evaluate a laboratory's ability to perform and generate acceptable data by this method.

8.3 Calculate surrogate standard recovery on all samples, blanks, and spikes. Determine if the recovery is within limits (limits established by performing QC procedures outlined in Method 8000).

8.3.1 If recovery is not within limits, the following is required.

- Check to be sure there are no errors in calculations, surrogate solutions and internal standards. Also, check instrument performance.
- Recalculate the data and/or reanalyze the extract if any of the above checks reveal a problem.
- Reextract and reanalyze the sample if none of the above are a problem or flag the data as "estimated concentration".

8.4 GC/MS confirmation: Any compounds confirmed by two columns may also be confirmed by GC/MS if the concentration is sufficient for detection by GC/MS as determined by the laboratory generated detection limits.

8.4.1 The GC/MS would normally require a minimum concentration of 10 ng/μL in the final extract, for each single-component compound.

8.4.2 The pesticide extract and associated blank should be analyzed by GC/MS as per Section 7.0 of Method 8270.

8.4.3 The confirmation may be from the GC/MS analysis of the base/neutral-acid extractables extracts (sample and blank). However, if the compounds are not detected in the base/neutral-acid extract even though the concentration is high enough, a GC/MS analysis of the pesticide extract should be performed.

8.4.4 A reference standard of the compound must also be analyzed by GC/MS. The concentration of the reference standard must be at a level that would demonstrate the ability to confirm the pesticides/PCBs identified by GC/ECD.

9.0 METHOD PERFORMANCE

9.1 The method was tested by 20 laboratories using organic-free reagent water, drinking water, surface water, and three industrial wastewaters spiked at

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six concentrations. Concentrations used in the study ranged from 0.5 to 30 µg/L for single-component pesticides and from 8.5 to 400 µg/L for multi-component parameters. Single operator precision, overall precision, and method accuracy were found to be directly related to the concentration of the parameter and essentially independent of the sample matrix. Linear equations to describe these relationships for an electron capture detector are presented in Table 4.

9.2 The accuracy and precision obtained will be determined by the sample matrix, sample-preparation technique, optional cleanup techniques, and calibration procedures used.

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9. U.S. EPA 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; Final Rule and Interim Final Rule and Proposed Rule," October 26, 1984.

11. U.S. Food and Drug Administration, Pesticide Analytical Manual, Vol. 1, June 1979.

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13. Stewart, J. "EPA Verification Experiment for Validation of the SOXTEC® PCB Extraction Procedure"; Oak Ridge National Laboratory, Oak Ridge, TN, 37831-6138; October 1988.

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TABLE 1.
GAS CHROMATOGRAPHY OF PESTICIDES AND PCBs[a]

Analyte	Retention time (min) Col. 1	Col. 2	Method Detection limit (µg/L)
Aldrin	2.40	4.10	0.004
α-BHC	1.35	1.82	0.003
β-BHC	1.90	1.97	0.006
δ-BHC	2.15	2.20	0.009
γ-BHC (Lindane)	1.70	2.13	0.004
Chlordane (technical)	e	e	0.014
4,4'-DDD	7.83	9.08	0.011
4,4'-DDE	5.13	7.15	0.004
4,4'-DDT	9.40	11.75	0.012
Dieldrin	5.45	7.23	0.002
Endosulfan I	4.50	6.20	0.014
Endosulfan II	8.00	8.28	0.004
Endosulfan sulfate	14.22	10.70	0.066
Endrin	6.55	8.10	0.006
Endrin aldehyde	11.82	9.30	0.023
Heptachlor	2.00	3.35	0.003
Heptachlor epoxide	3.50	5.00	0.083
Methoxychlor	18.20	26.60	0.176
Toxaphene	e	e	0.24
PCB-1016	e	e	nd
PCB-1221	e	e	nd
PCB-1232	e	e	nd
PCB-1242	e	e	0.065
PCB-1248	e	e	nd
PCB-1254	e	e	nd
PCB-1260	e	e	nd

[a]U.S. EPA. Method 617. Organochlorine Pesticides and PCBs. Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

e = Multiple peak response.

nd = not determined.

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TABLE 2.
DETERMINATION OF ESTIMATED QUANTITATION LIMITS (EQLs) FOR VARIOUS MATRICES[a]

Matrix	Factor[b]
Ground water	10
Low-concentration soil by sonication with GPC cleanup	670
High-concentration soil and sludges by sonication	10,000
Non-water miscible waste	100,000

a Sample EQLs are highly matrix-dependent. The EQLs listed herein are provided for guidance and may not always be achievable.

b EQL = [Method detection limit (Table 1)] X [Factor (Table 2)]. For non-aqueous samples, the factor is on a wet-weight basis.

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TABLE 3.
QC ACCEPTANCE CRITERIA[a].

Analyte	Test conc. (µg/L)	Limit for s (µg/L)	Range for $\bar{x}$ (µg/L)	Range P, P_s (%)
Aldrin	2.0	0.42	1.08-2.24	42-122
α-BHC	2.0	0.48	0.98-2.44	37-134
β-BHC	2.0	0.64	0.78-2.60	17-147
δ-BHC	2.0	0.72	1.01-2.37	19-140
γ-BHC	2.0	0.46	0.86-2.32	32-127
Chlordane	50	10.0	27.6-54.3	45-119
4,4'-DDD	10	2.8	4.8-12.6	31-141
4,4'-DDE	2.0	0.55	1.08-2.60	30-145
4,4'-DDT	10	3.6	4.6-13.7	25-160
Dieldrin	2.0	0.76	1.15-2.49	36-146
Endosulfan I	2.0	0.49	1.14-2.82	45-153
Endosulfan II	10	6.1	2.2-17.1	D-202
Endosulfan Sulfate	10	2.7	3.8-13.2	26-144
Endrin	10	3.7	5.1-12.6	30-147
Heptachlor	2.0	0.40	0.86-2.00	34-111
Heptachlor epoxide	2.0	0.41	1.13-2.63	37-142
Toxaphene	50	12.7	27.8-55.6	41-126
PCB-1016	50	10.0	30.5-51.5	50-114
PCB-1221	50	24.4	22.1-75.2	15-178
PCB-1232	50	17.9	14.0-98.5	10-215
PCB-1242	50	12.2	24.8-69.6	39-150
PCB-1248	50	15.9	29.0-70.2	38-158
PCB-1254	50	13.8	22.2-57.9	29-131
PCB-1260	50	10.4	18.7-54.9	8-127

s = Standard deviation of four recovery measurements, in µg/L.

$\bar{x}$ = Average recovery for four recovery measurements, in µg/L.

P, P_s = Percent recovery measured.

D = Detected; result must be greater than zero.

[a]Criteria from 40 CFR Part 136 for Method 608. These criteria are based directly upon the method performance data in Table 4. Where necessary, the limits for recovery have been broadened to assure applicability of the limits to concentrations below those used to develop Table 4.

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TABLE 4.
METHOD ACCURACY AND PRECISION AS FUNCTIONS OF CONCENTRATION[a]

Analyte	Accuracy, as recovery, x′ (μg/L)	Single analyst precision, s_r' (μg/L)	Overall precision, S′ (μg/L)
Aldrin	0.81C+0.04	0.16$\bar{x}$-0.04	0.20$\bar{x}$-0.01
α-BHC	0.84C+0.03	0.13$\bar{x}$+0.04	0.23$\bar{x}$-0.00
β-BHC	0.81C+0.07	0.22$\bar{x}$+0.02	0.33$\bar{x}$-0.95
δ-BHC	0.81C+0.07	0.18$\bar{x}$+0.09	0.25$\bar{x}$+0.03
γ-BHC	0.82C-0.05	0.12$\bar{x}$+0.06	0.22$\bar{x}$+0.04
Chlordane	0.82C-0.04	0.13$\bar{x}$+0.13	0.18$\bar{x}$+0.18
4,4′-DDD	0.84C+0.30	0.20$\bar{x}$-0.18	0.27$\bar{x}$-0.14
4,4′-DDE	0.85C+0.14	0.13$\bar{x}$+0.06	0.28$\bar{x}$-0.09
4,4′-DDT	0.93C-0.13	0.17$\bar{x}$+0.39	0.31$\bar{x}$-0.21
Dieldrin	0.90C+0.02	0.12$\bar{x}$+0.19	0.16$\bar{x}$+0.16
Endosulfan I	0.97C+0.04	0.10$\bar{x}$+0.07	0.18$\bar{x}$+0.08
Endosulfan II	0.93C+0.34	0.41$\bar{x}$-0.65	0.47$\bar{x}$-0.20
Endosulfan Sulfate	0.89C-0.37	0.13$\bar{x}$+0.33	0.24$\bar{x}$+0.35
Endrin	0.89C-0.04	0.20$\bar{x}$+0.25	0.24$\bar{x}$+0.25
Heptachlor	0.69C+0.04	0.06$\bar{x}$+0.13	0.16$\bar{x}$+0.08
Heptachlor epoxide	0.89C+0.10	0.18$\bar{x}$-0.11	0.25$\bar{x}$-0.08
Toxaphene	0.80C+1.74	0.09$\bar{x}$+3.20	0.20$\bar{x}$+0.22
PCB-1016	0.81C+0.50	0.13$\bar{x}$+0.15	0.15$\bar{x}$+0.45
PCB-1221	0.96C+0.65	0.29$\bar{x}$-0.76	0.35$\bar{x}$-0.62
PCB-1232	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50
PCB-1242	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50
PCB-1248	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50
PCB-1254	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50
PCB-1260	0.91C+10.79	0.21$\bar{x}$-1.93	0.31$\bar{x}$+3.50

x′ = Expected recovery for one or more measurements of a sample containing concentration C, in μg/L.

s_r' = Expected single analyst standard deviation of measurements at an average concentration of $\bar{x}$, in μg/L.

S′ = Expected interlaboratory standard deviation of measurements at an average concentration found of $\bar{x}$, in μg/L.

C = True value for the concentration, in μg/L.

$\bar{x}$ = Average recovery found for measurements of samples containing a concentration of C, in μg/L.

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Figure 1
Gas Chromatogram of Pesticides

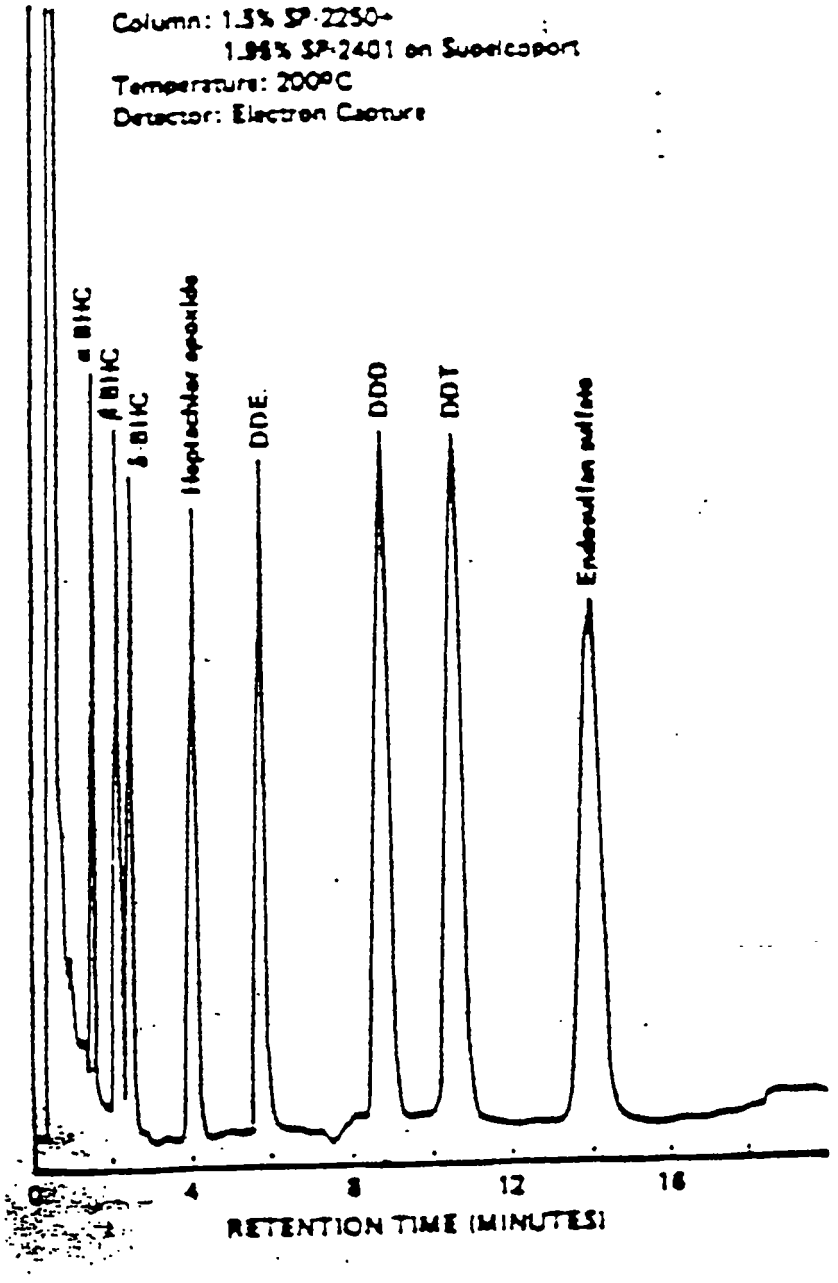

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Figure 2
Gas Chromatogram of Chlordane

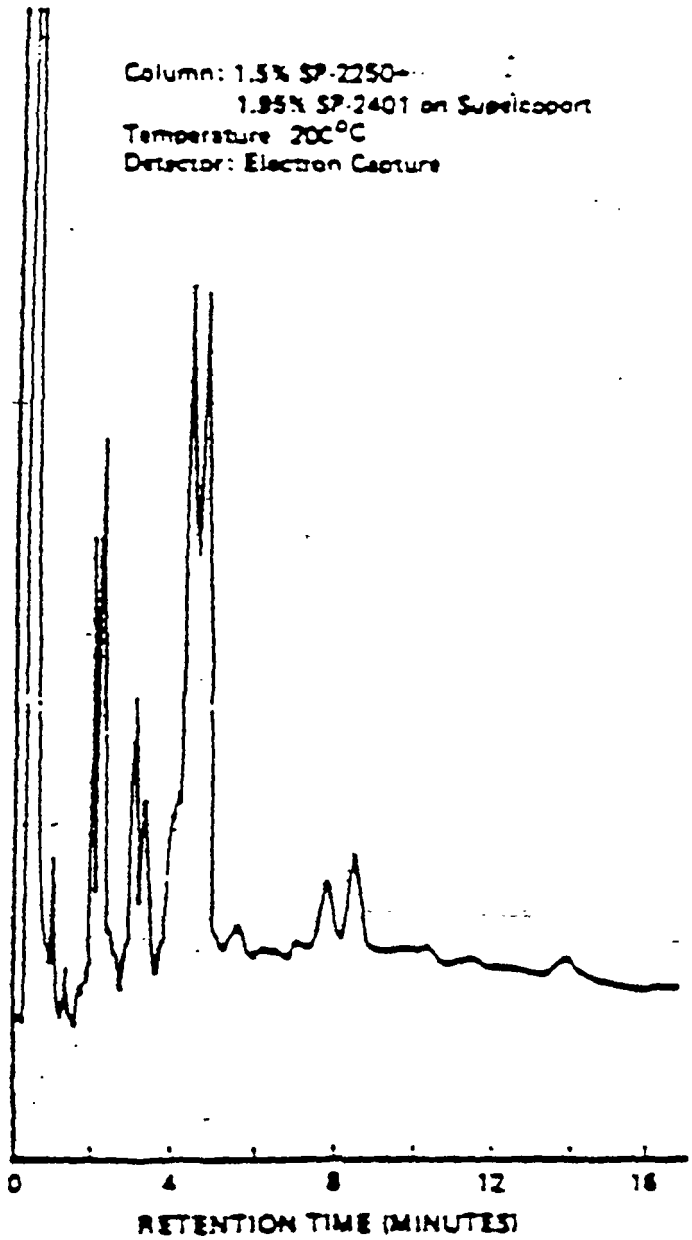

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Figure 3
Gas Chromatogram of Toxaphene

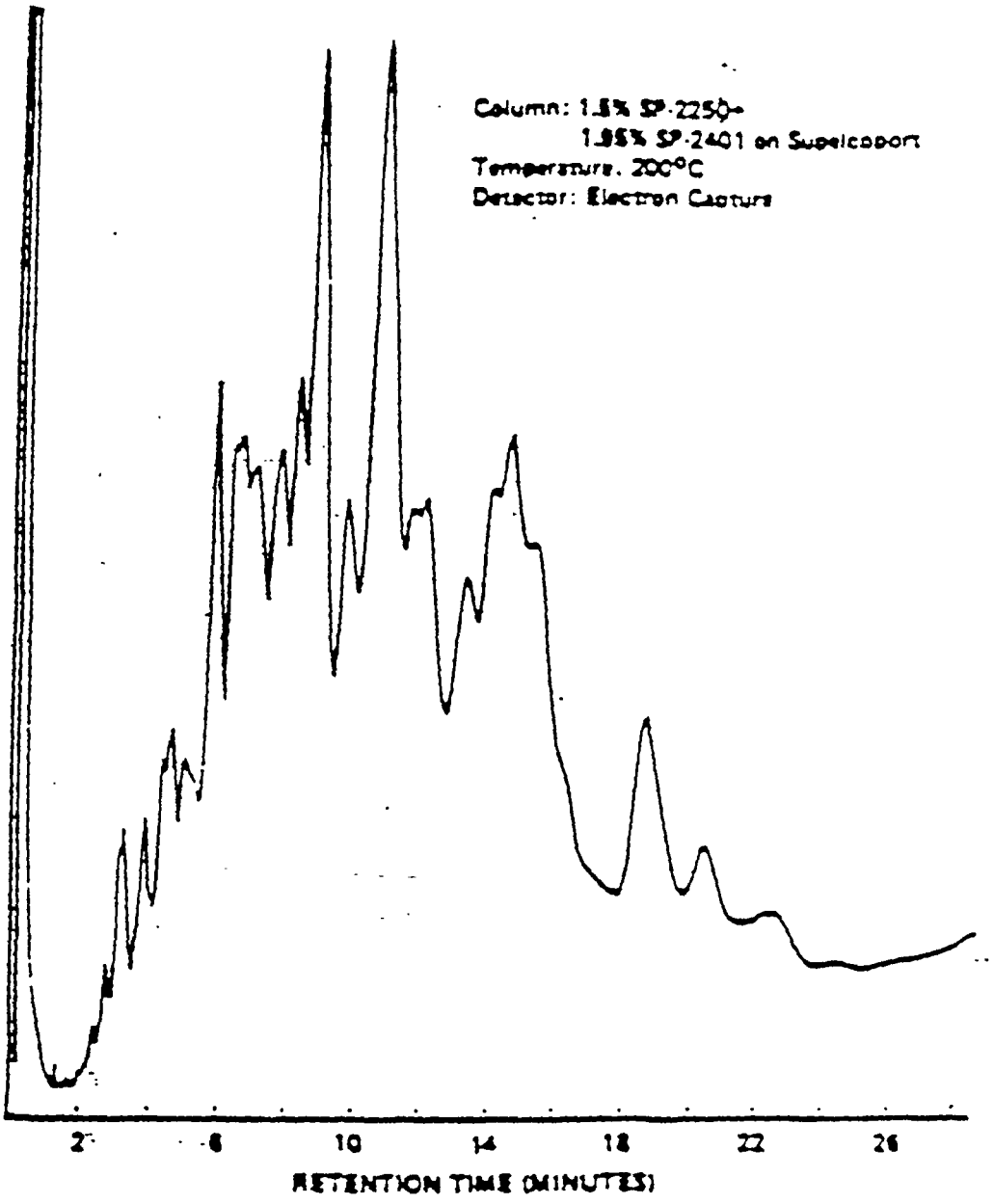

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Figure 4
Gas Chromatogram of Aroclor 1254

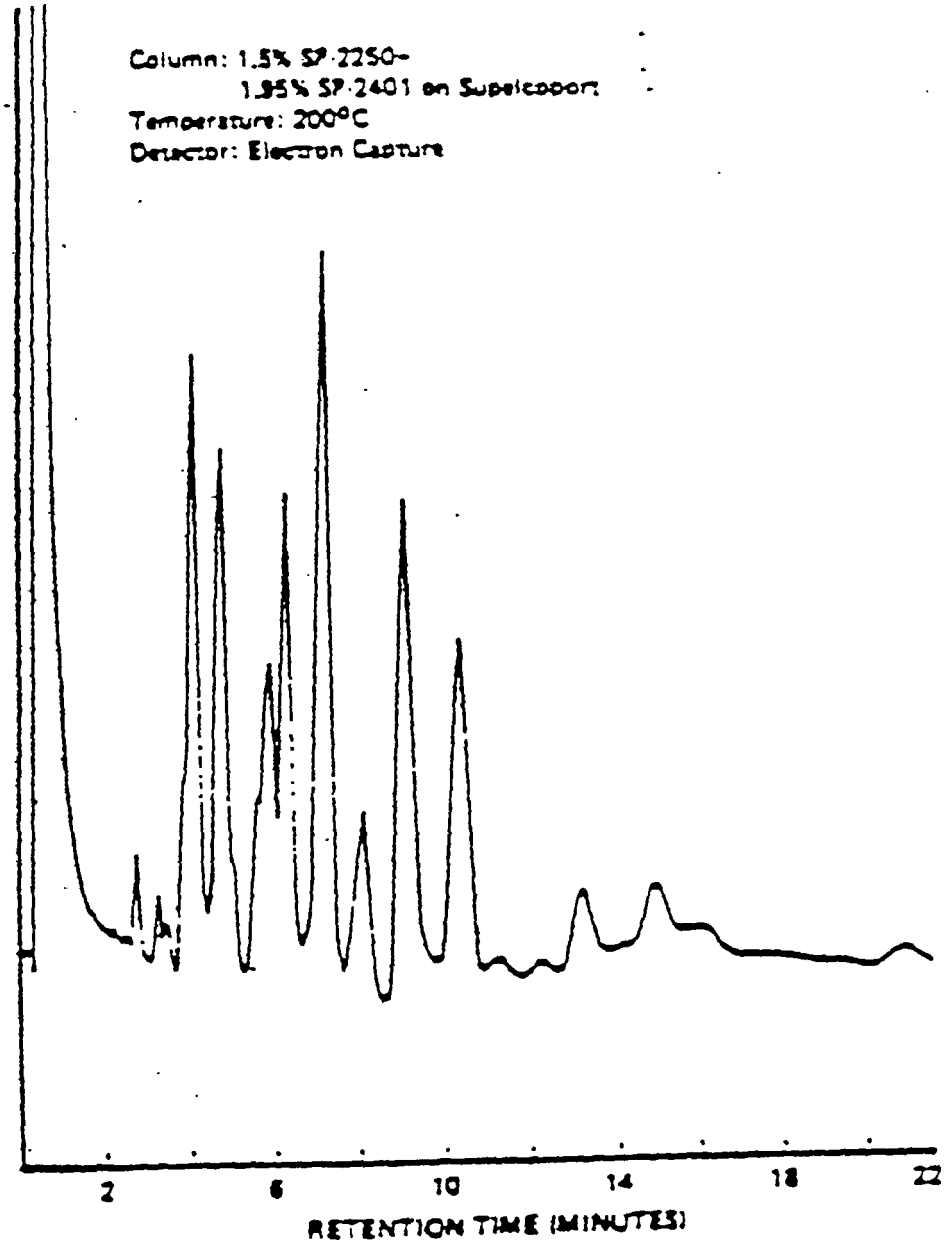

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Figure 5
Gas Chromatogram of Aroclor 1260

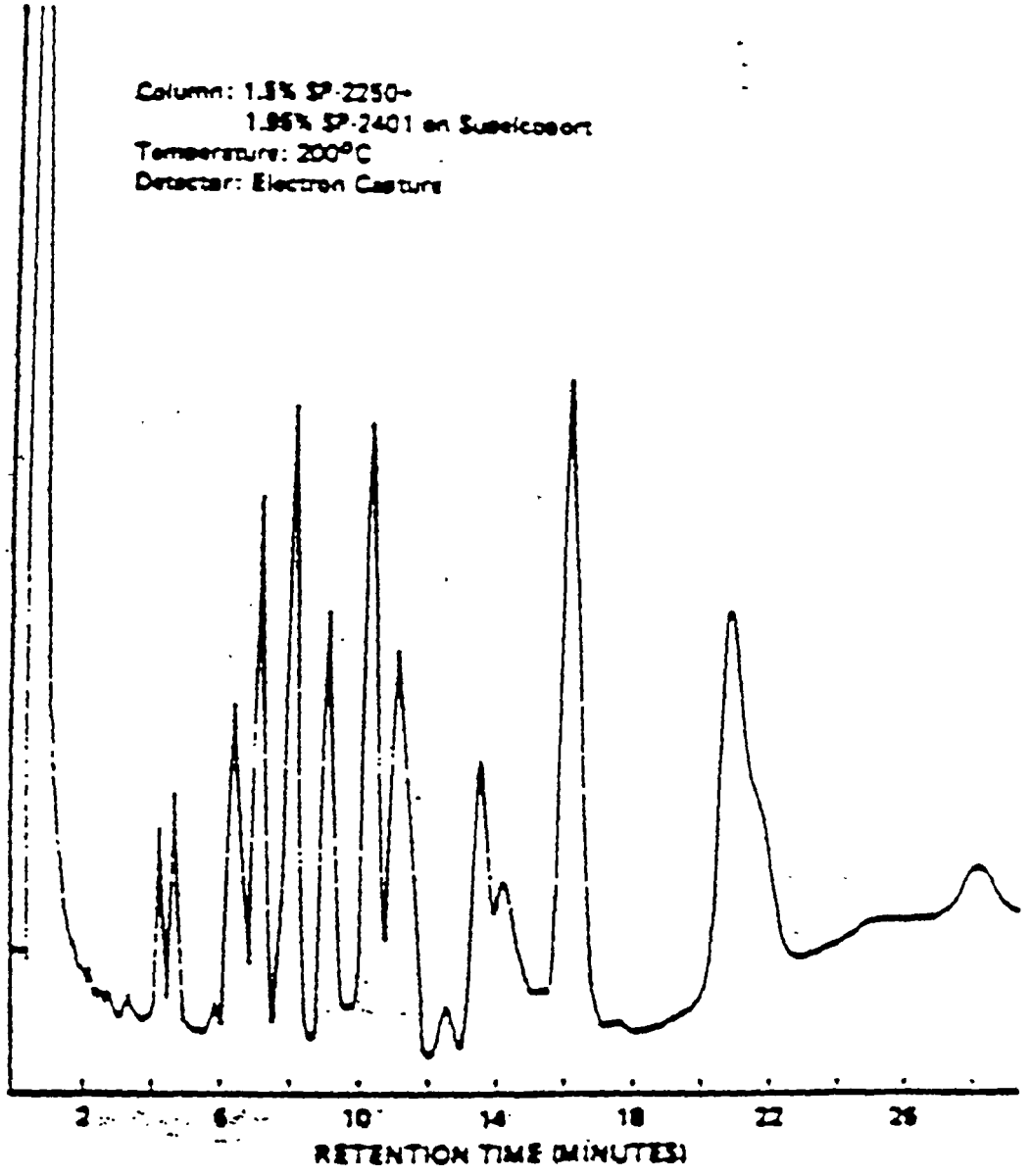

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Figure 6

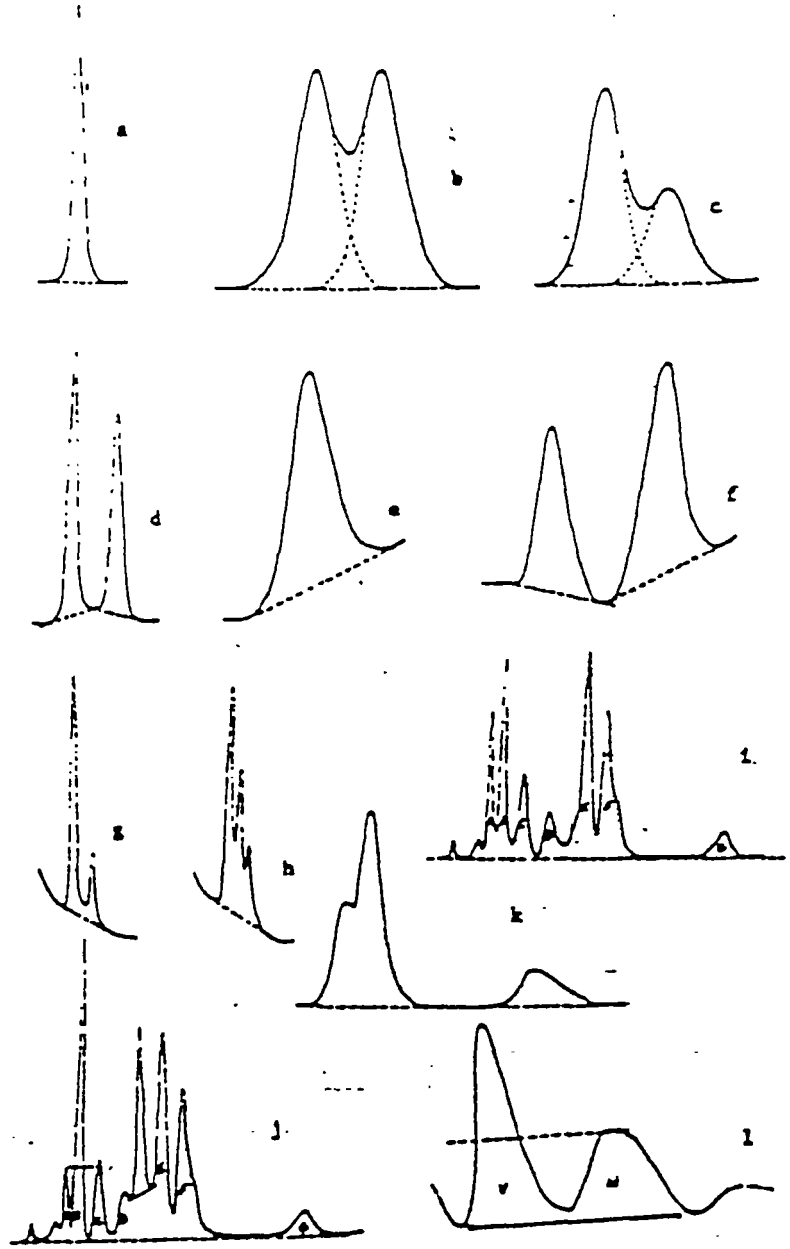

Fig. 6—Baseline construction for some typical gas chromatographic peaks. a, symmetrical separated flat baseline; b and c, overlapping flat baseline; d, separated (pen does not return to baseline between peaks); e, separated sloping baseline; f, separated (pen goes below baseline between peaks); g, α- and γ-BHC sloping baseline; h, α-, β-, and γ-BHC sloping baseline; i, chlordane flat baseline; j, heptachlor and heptachlor epoxide superimposed on chlordane; k, chair-shaped peaks, unsymmetrical peak; l, p,p'-DDT superimposed on toxaphene.

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Figure 7

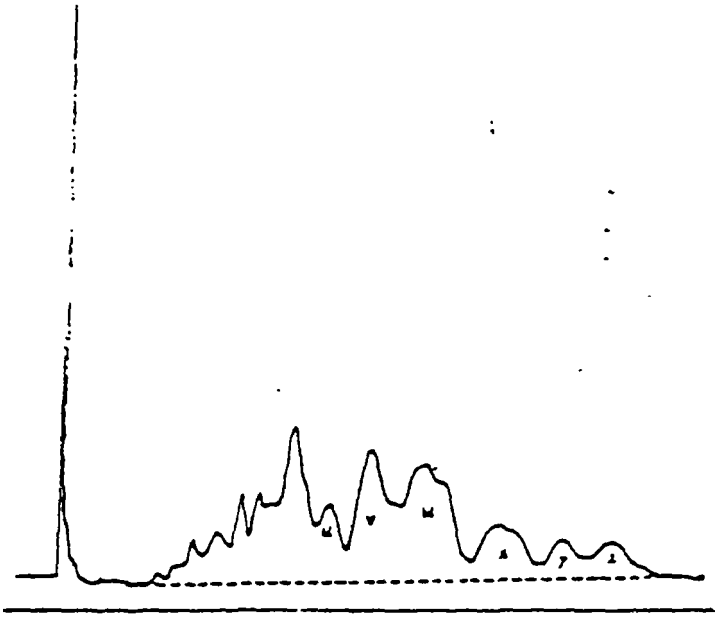

Fig. 7a—Baseline construction for multiple residues with standard toxaphene.

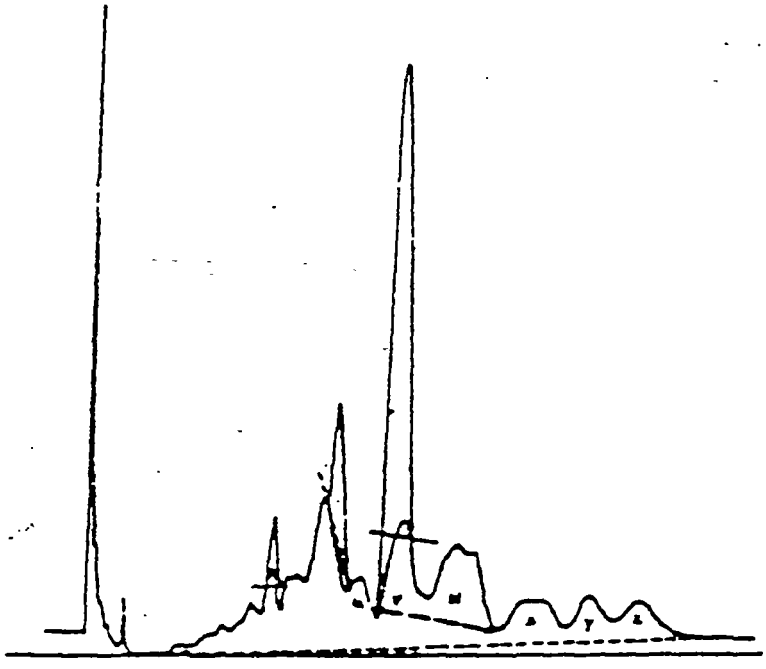

Fig. 7b—Baseline construction for multiple residues with toxaphene, DDE and o,p'-, and p,p'-DDT.

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Figure 8

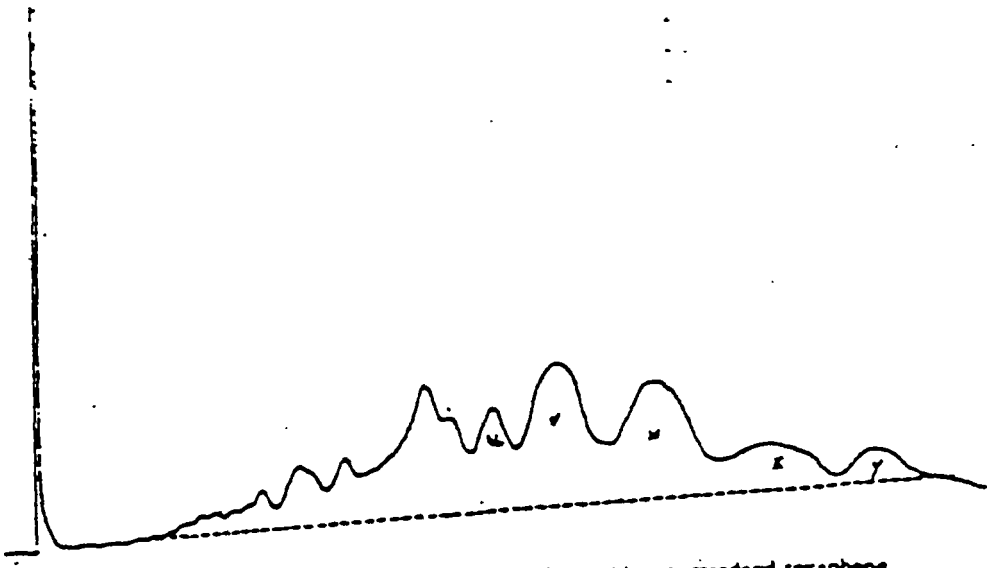

Fig. 8a—Baseline construction for multiple residues: standard toxaphene.

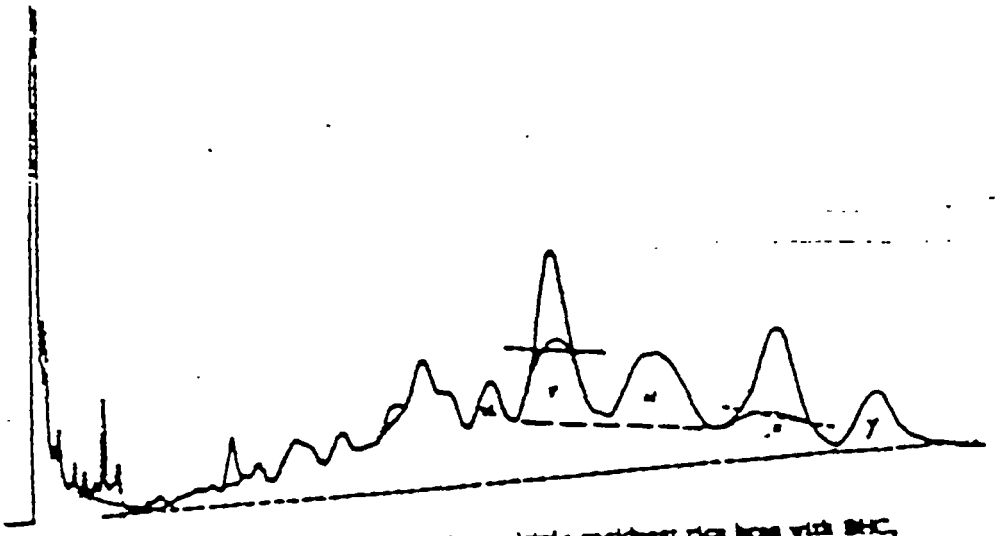

Fig. 8b—Baseline construction for multiple residues: rice bran with BHC, toxaphene, DDT, and methoxychlor.

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Figure 9

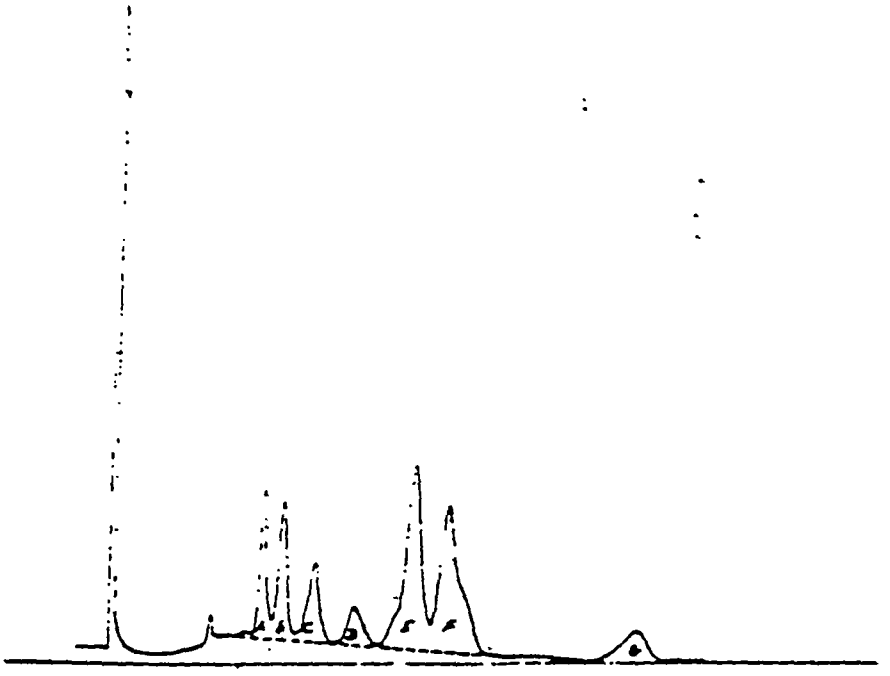

Fig. 9a—Baseline construction for multiple residues: standard chlordane.

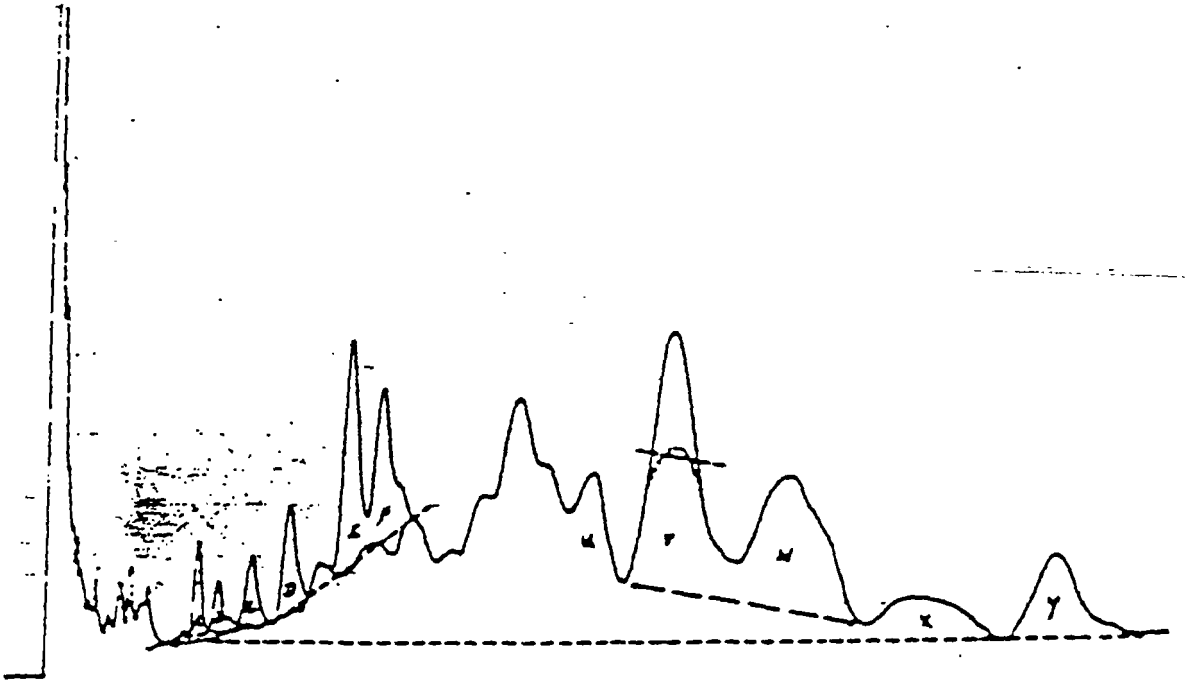

Fig. 9b—Baseline construction for multiple residues: rice bran with chlordane, toxaphene, and DDT.

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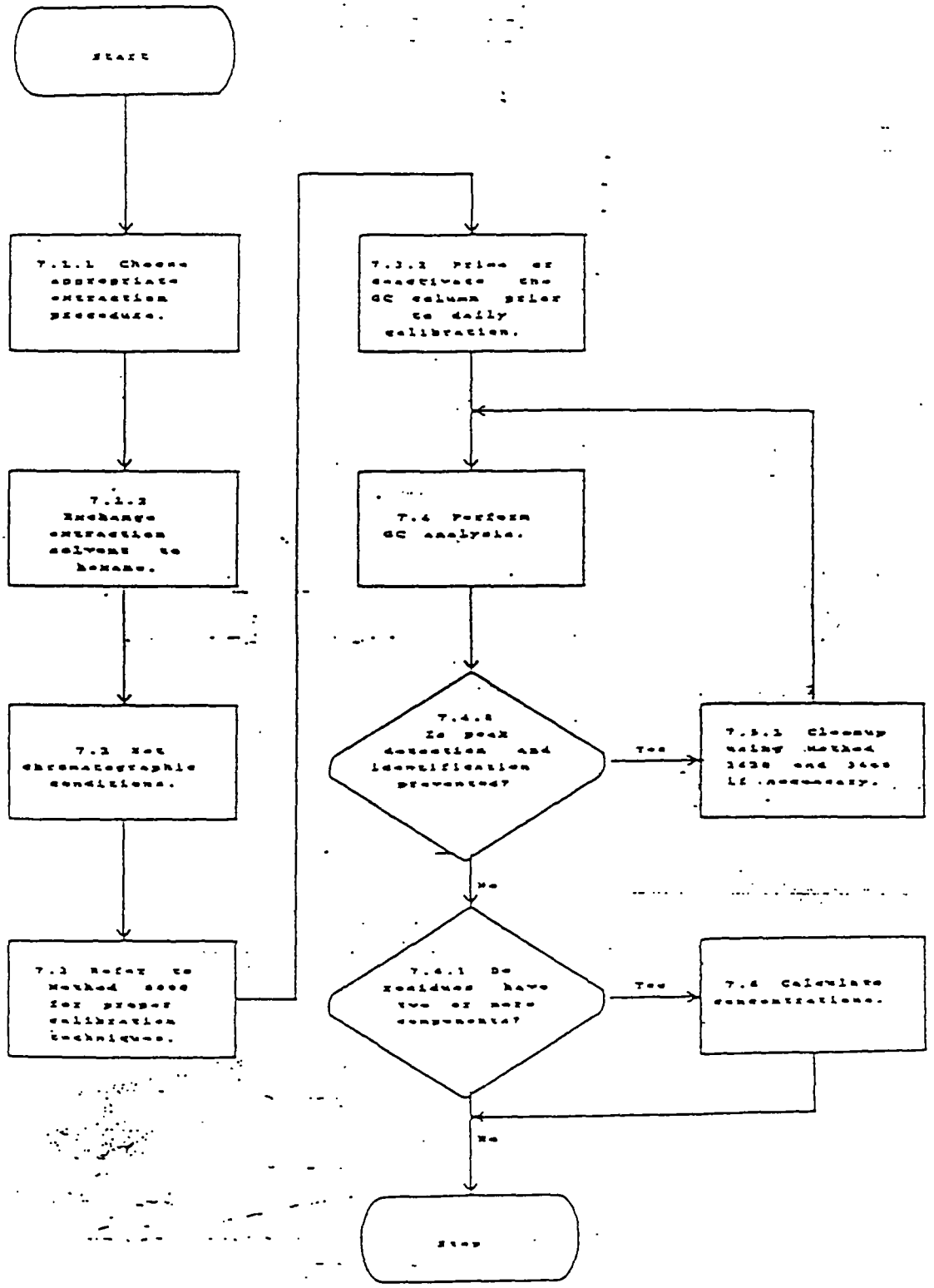
METHOD 8080A
ORGANOCHLORINE PESTICIDES AND POLYCHLORINATED BIPHENYLS
BY GAS CHROMATOGRAPHY



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Vickery Site Specific

Procedure

SW846, Method 8080A

Polychlorinated Biphenyls (PCBs)

by

Gas Chromatography

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7.0 PROCEDURE

7.1.1 Refer to Chapter Two for guidance on choosing the appropriate extraction procedure. In general, water samples are extracted at the pH the sample is received with methylene chloride, using either Method 3510C, with Vickery Site Specific Procedure of SW846-3510C, or other appropriate procedure. Solid samples are extracted using Method 3540C or 3550C.

8.0 QUALITY CONTROL

8.3.1 If recovery is not within in-house surrogate limits, refer to Section 8.6.2, Method 8000B of SW846, Revision 2, December 1996 with Vickery Site Specific Procedure, SSP-8000B.

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Vickery Site Specific

Procedure

SW846, Method 8000B

Determinative Chromatographic Separations

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8.0 QUALITY CONTROL

8.6.2.4 If no instrument problem is found, QC and spike samples are within in-house limits, and no low or high trend in surrogate recoveries is apparent, then no further action is required.

8.6.2.5 If a trend is apparent, further investigation is needed to determine if it is related to the sample matrix, to a dilution error, or to an analyst error,

8.6.2.5.1 If consistent within the matrix, problem should be noted and no further action is needed.

8.6.2.5.2 If a dilution error, the sample should be re-extracted and re-analyzed.

8.6.2.5.3 If analyst error, analyst should be retrained.

8.6.2.6 If upon re-analysis, the recovery is again not within limits, report the data as an "estimated concentration." If the recovery is within the limits in the re-analysis, provide the results of original and the re-analyzed in the data.

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WASTE MANAGEMENT, INC.	Method No. 97-71	Date 12/29/97
2100 Cleanwater Drive	Supersedes 92-71	Page 1 of 2
Geneva, IL 60134	Approval Barbara White	Date 12-29-97

METHOD MODIFICATION

ASTM METHOD D 4980-89

SCREENING OF pH IN WASTE

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1.0 SCOPE AND APPLICATION

1.6 This method modification is only applicable to waste samples, solids, sludges and non-aqueous liquids. The standard ASTM test method must be used for aqueous samples and discharge waters.

21.0 PROCEDURE

21.2 Thoroughly rinse and gently wipe the electrodes prior to measuring pH of each sample.Immerse the electrodes into the sample beaker or sample stream and gently stir at a constant rate to provide homogeneity and suspension of solids. Note and record sample pH and temperature. Wait for a least 15 seconds. If the sample pH value drifts by more than 0.5 pH unit, repeat the measurement on additional aliquots of sample until a constant pH is obtained.

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Method Modification

ASTM D 5928

Standard Test Method

for

Screening of Waste for Radioactivity

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4.0 Summary of Test Method

4.1 A sample is held 1 inch from the detector window of a radiation survey meter, and the visible or audible reaction of the meter, or both is noted. The result of the meter's reaction is noted as either "negative" or "positive."

9.0 Sample

9.1 Liquid samples exhibiting stratification will be thoroughly mixed in the original, closed container prior to testing. Solid samples of a heterogeneous nature may be subsampled to assure a representative portion. The test portion is spread out onto a watch glass prior to screening to increase the surface area being scanned and enhance the ability of the meter to detect any radiation being emitted.

10.0 Calibration and Standardization

10.2 Check the survey meter's performance at least daily using the Cs 137 source.

10.2.1 Set selector switch to X1 setting.

10.2.2 Place the cesium source at approximately one inch, three inches and nine inches from the detector. Record the responses.

10.3 The survey meter should be factory calibrated whenever detector readings from daily Cs check do not exhibit expected results. Counts should decrease in proportion to the distance from the source.

Example: If the detector yields 10,000 counts at 3 inches, then it should yield approximately 100 counts at 9 inches.

OR

Approximate counts at specified distances are not repeatable and no other assignable cause can be found. A survey meter should be sent to the manufacturer for recalibration every 3 to 5 years even if no faulty behaviors have been noted.

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10.4 Assess the level of ambient background radiation annually. Data should be collected over multiple days to ensure randomness of background levels.

10.6 The criteria used to report "negative" or "positive" test results are as follows:

10.6.1 Negative is defined as equal to the background reading. The result may be expressed as "negative," "neg," "= background," or "= bkg."

10.6.2 Positive is defined as greater than background reading. The result may be expressed as "positive," "pos," "> background," or "> bkg."

10.6.2.1 Any positive result must be reported to supervisory personnel immediately.

10.6.2.2 Instrument performance will be checked, possible interferences will be investigated and repeat testing will be undertaken to ensure the result.

11.0 Procedure

11.3 Place the end-window of the survey meter at approximately 1 inch from the sample. Depending on the physical characteristics of the sample container (for example, the container is such that the sample is > one inch from the opening), it may be necessary to withdraw a representative portion of the sample to an alternate container, watch glass, or other appropriate vessel to allow the end-window to be placed at approximately one inch from the sample. Do not allow the survey meter to come in direct contact with the sample. This may contaminate the meter and may damage the end-window.

11.4 Note the counts for at least 5 seconds, record results as per the definitions of "negative" and "positive."

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ACID WASTE REACTIVITY BY

POTENTIOMETRIC TITRATION

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1.0 SCOPE AND APPLICATION

1.1 This method is used to address a specific acid waste reactivity problem related to potential nitrogen oxide evolution during deep well process operations.

1.2 The method determines the critical blend ratio of process wastes.

1.2.1 The critical blend ratio is defined as the ratio of the volume of received waste to the volume of blend tank waste.

1.2.2 The test is oriented for situations where the received load is an oxidizing acid and the waste tank blend is a reducing acid.

1.3 The method is applicable to acids including spent pickle liquors, plating and process residues received by deep well disposal sites.

1.3.1 Reducing wastes are usually hydrochloric acid based and may contain some organic reductants or sulfuric acid.

1.3.2 Oxidizing wastes are usually nitric acid based, but may also contain perchloric acid.

1.4 The method generates guideline data. Other information including tank volumes, prior received loads and site specific operational practices must be taken into consideration when interpreting the critical ratio data.

1.5 This method is a subset of, not a substitute for, the compatibility screen, ASTM D-5058-90, which must be performed first.

2.0 SUMMARY OF METHOD

2.1 A sample of the current waste tank blend is titrated with an acid sample from the received load, using a platinum-silver chloride electrode set, to a potentiometric endpoint of 610 mv or to a 1:1 volumetric ratio.

3.0 INTERFERENCES

3.1 Samples which contain oil may coat the electrodes and prevent the electrode pair from reaching equilibrium.

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4.0 APPARATUS AND MATERIALS

4.1 Potentiometer, covering the voltage range of ±2000 millivolts. Corning Model 7, or equivalent.

4.2 Electrode, indicator, Orion platinum probe.

4.3 Electrode replating kit, Orion Co.

4.4 Electrode, reference, Orion silver/silver chloride.

4.5 Beaker, glass, 400 mL.

4.6 Pipet, automatic 10 mL volume.

4.7 Magnetic Stirrer and stirring bar.

4.8 Flask, Volumetric, 1L.

4.9 Graduated Cylinder, 100 mL.

5.0 REAGENTS

5.1 Reagent Water - Reagent water is defined as water in which an interference is not observed at, or above, the method detection limits (MDLs) of the analyte(s) of interest. Typically, double deionized water with electrical resistivity of > 1.0 Mohms-cm at 25°C or electrical conductivity of < 1.0 microsiemens/cm at 25°C is used.

5.2 Reference Solution - ASTM D-1498 Section 7.8. Dissolving 39.21 g of ferrous ammonium sulfate, 48.22 g of ferric ammonium sulfate and 56.2 mL of sulfuric acid in water and dilute to 1L.

6.0 SAMPLE PREPARATION, HANDLING AND STORAGE

6.1 Each sample must be analyzed immediately upon receipt in the laboratory.

6.2 If the sample remains in the laboratory for more than 15 minutes the data may be inaccurate.

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7.0 PROCEDURE

7.1 Obtain a current sample of the appropriate waste tank blend.

7.2 Place the indicating and reference electrodes into the sample jar containing the waste. Measure and record the electrode potential in millivolts.

7.2.1 If this voltage is less than 610 millivolts, the test is considered positive and the waste can be processed in the appropriate manner.

7.2.2 If this voltage is greater than 610 millivolts, proceed with the method.

7.3 Transfer 100 mL of the received waste to a 400 mL beaker. Add the stirring bar, place on the stirring plate, begin stirring.

7.4 Place the electrodes into the solution. Measure and record the electrode potential.

7.5 Add 10 mL aliquots of the waste tank blend and record the electromotive potential.

7.6 Continue adding aliquots until the electrode potential exceeds 610 millivolts or 100 mL of the waste tank blend has been added. Record the number of aliquots added to the beaker.

7.7 Wash the electrodes carefully with reagent water. If there is any oily residue on the electrodes rinse with an appropriate solvent such as xylene, hexane isopropanol etc. to remove the oil.

7.8 When not in use keep the electrodes immersed in reagent water.

8.0 CALCULATIONS

8.1 Calculate the critical blending ratio using the following equation:

$$C = 100/(10A)$$

Where:

A = The number of 10 mL aliquots added to the beaker.
C = The critical blending ratio
10 = The volume of the aliquot of waste tank blend, mL.
100 = The volume of received waste, mL.

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9.0 QUALITY ASSURANCE

9.1 Each morning measure the electrode potential using reagent water.

9.2 Each morning, or any time the electrodes are disconnected from the instrument, measure the electrode potential of the hydrochloric acid reference solution. The reading should be about +365 mV.

9.3 ASTM D-1498 Section 10.2. Verify the sensitivity of the electrodes by noting the change in mv reading when the pH is altered. The Oxidation-Reduction Potential will increase when the pH decreases and decrease when the pH increases.

9.4 If there is a significant deviation from + or - response performance, replatinize the platinum electrode according to the manufacturer's instructions.

9.5 Perform a duplicate analysis on every twentieth sample analyzed.

9.6 The precision of the test should be within ±10%.

10.0 REFERENCES

10.1 ASTM Method 1498-93, Standard Practice for Oxidation-Reduction Potential of Water, Annual Book of Standards, Vol. 11.01, 1993.

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WASTE MANAGEMENT℠, INC.

2100 Cleanwater Drive

Geneva, IL 60134

Method No. 97 - 02 Date 12/11/97

Supersedes 95-02 Page 1 of 5

Approval Barbara Dill Date 12-11-1997

Method Modification
ASTM D 5830

Standard Test Method

for

Solvents Analysis in Hazardous Waste

Using Gas Chromatography

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8.0 Standard Preparation

8.1 Stock Standard Solutions

8.1.1 Stock standards are prepared from pure standard materials.

8.1.2 It is recommended that each component is 5 to 10% by weight.

8.1.2.1 For volatile components, such as ether and freons, it is recommended that a new stock standard be prepared daily or as needed.

8.1.3 The standard compounds must correspond to the compound list specified in the site specific practice (SSP).

8.3 Calibration Check Standard

8.3.1 A calibration check standard should be prepared from at least ten compounds.

8.3.2 The compounds should cover the major compound types, i.e., alcohols, aromatics, ketones, halogenates, etc.

8.3.3 The calibration check standard must include the following five compounds:

1,1,1-Trichloroethane	Ethylbenzene
Chloroform	p-Xylene

Methyl Isobutyl Ketone

8.3.4 The actual calibration check standard must be specified in an SSP and must cover the range of compound types analyzed.

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10.0 Procedure

10.1 Sample Preparation

10.1.1 Carbon disulfide or M-Pyrol Preparation

10.1.1.1 For carbon disulfide preparation, weigh 3 grams of the waste sample in a 15-mL glass vial. Add 3 grams of carbon disulfide to the vial and vortex the mixture vigorously. After allowing the solids to settle, inject the CS_2 extract into the GC.

10.1.1.2 For M-Pyrol preparation, weigh 1.0 grams of the waste sample in a 15-mL glass vial. Add 4.0 grams of M-Pyrol to the vial and vortex the mixture vigorously. After allowing the solids to settle, inject the M-Pyrol extract into the GC.

10.2 Recommended GC Operating Conditions

10.2.5 Additional Columns and Conditions

10.2.5.1 <u>For capillary DB-1701 with FID</u>

Column flow rate	1.0 - 1.5 mL/min
Make-up gas flow rate	30 - 50 mL/min
Split flow	60 cc/min
Injector Temp	250°C
Detector Temp	250°C
Air flow for FID	Approx.300 mL/min
Hydrogen flow for FID	Approx. 30 mL/min
Initial oven temp	35°C
Initial Time	6.0 min
Level 1 rate	6.0°C/min
Level 1 Final Value	180°C
Level 2 Rate	10°C/min
Level 2 Final Value	230°C
Run Time	40 min
Threshold	4 units
Peak Width	0.04 min

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10.2.5.2 For capillary DB-624 with FID

Column flow rate	3.5mL/min
Make-up gas flow	29mL/min
Air flow for FID	Approx. 300mL/min
Hydrogen flow for FID	Approx. 30mL/min
Injector temp.	275°C
Detector temp.	275°C
Initial oven temp	35°C
Initial time	5 min
Level 1 rate	5°C/min
Level 1 final value	150°C
Level 1 hold time	4 min
Level 2 rate	20°C/min
Level 2 final value	225°C
Run Time	45 min

10.2.5.3 For packed SP-1000 with FID

Column flow rate	40mL/min
Air pressure for FID	300kPa
H_2 pressure for FID	130kPa
Injector temperature	250°C
Detector temperature	250°C
Initial oven temp.	90°C
Initial time	6 min
Level 1 rate	3°C/min
Level 1 final value	120°C
Level 2 rate	5°C/min
Level 2 final value	180°C
Level 3 rate	10°C/min
Level 3 final value	230°C
Run time	46 min

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10.2.5.4 For packed SP-2100 with FID

Carrier Gas flow	30mL/min
Injector temp	250°C
Detector temp	300°C
Air flow rate(FID)	Approx. 300mL/min
H_2 flow rate(FID)appx.	30 mL/min
Initial oven temp	45°C
Initial hold time	3 min
Level 1 rate	15°C/min
Level 1 final value	90°C
Level 2 rate	10°C/min
Level 2 final value	195°C
Run time	16.5 min

10.2.6 The column used, operating conditions and detector must be specified in a site specific practice (SSP).

10.3 Linear Range Determination - The linearity and linear range for each compound must be established on any GC system used for quantitation. This must be done when an instrument is first set up or after any major maintenance or alteration of the system configuration, e.g., detector or injection port replacement. To demonstrate linearity, standards are analyzed at 3 - 5 concentration levels and a response factor calculated for each compound at each concentration. If the % RSD of the response factors is less than 20% over the working range, linearity through the origin can be assumed, and the average calibration factor can be used for quantitation. Final quantitation for each compound must be done within the linear range of that compound.

10.4 Calibration (External Standard Procedure):

10.4.1 A single point initial calibration of all compounds must be performed on an annual basis. Inject 0.5 - 2 uL of the stock standards which were prepared as per sec. 8.1. Tabulate peak area against concentration and express response factors (RF) for each component. For ease of calculation, it is recommended that the response factors be expressed as area counts per % by weight.

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Vickery Site Specific

Method for Screening of Sulfides

using

Gas Detector Tubes

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GAS DETECTOR TUBE METHOD FOR SULFIDE

1.0 SCOPE AND APPLICATION

1.1 This method is designed as a screening device to detect low level amounts of sulfide in a acidified atmosphere by the utilization of a gas detector tube as evolved hydrogen sulfide gas.

2.0 SUMMARY OF METHOD

2.1 A portion of the sample is acidified in an Erlenmeyer flask to release hydrogen sulfide gas. The gas is funneled through a gas detector tube creating a stain inside the tube in proportions to the concentration of sulfide gas in the vapor. A definite color change in the tube indicates the positive presence of sulfide.

3.0 TERMINOLOGY

3.1 Screening Method means a preliminary qualitative or semi-quantitative test developed from classical qualitative and quantitative techniques. The method is designed to efficiently give the user specific information about the waste which will aid in determining waste identification, process compatibility and safety in handling.

4.0 SAMPLE STORAGE AND PRESERVATION

4.1 Samples should be analyzed as soon as possible. All liquid sample should be preserved with 2.5N sodium hydroxide to adjust the pH range between 10 to 13, if pH is less than 10 and samples are to be stored.

5.0 APPARATUS

5.1 A 500 milliliter ground glass stoppered Erlenmeyer flask.

5.2 A gas detector pump.

5.3 An automatic dispensing pipetor.

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5.4 A 100 milliliter graduated cylinder.

5.5 pH meter.

6.0 REAGENTS

6.1 Gas detector tube with hydrogen sulfide indicator.

6.2 Concentrated hydrochloric or sulfuric acid, or acidic waste.

6.3 pH paper

7.0 PROCEDURE

7.1 Use between 1 and 100 ml of sample. Volume can be measured by using a graduated cylinder and/or an automatic dispensing pipetor.

7.2 Acidify this sample test portion to a pH of 2 or less with concentrated hydrochloric, sulfuric or waste acid. If waste is to be used, place the waste acid in the flask and add the sample test portion to a total volume of 100 ml. Gas vapor should now form.

7.3 Break both of the glass tip ends of the gas detector tube. Insert the tube into the gas detector pump. (Arrow towards pump)

7.4 Place the gas detector tube inside the mouth of the 500 milliliter Erlenmeyer flask. The end of the tube should reach halfway inside the flask. Actuate the pump the number of times directed in the manufacturers instructions and read the measurement of concentration by total length of discoloration.

7.5 If the detector tube reading is above the scale of the tube, alter the amount of sample used and/or the detector tube with an appropriate scale. This will reduce the amount of sulfide released and will allow the vapor concentration to be on the scale of the detector tube.

8.0 CONCENTRATION CALCULATION

8.1 In order to screen the concentration of releasable sulfide in the liquid sample, the

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concentration of the gas must be converted to a concentration in liquid. This can be done by using the following calculation.

$$1 \text{ ppm } H_2S \text{ in gas} = 1.42 \text{ mg } H_2S/m^3 \text{ in gas}$$

X = ml of liquid sample
Y = ml vapor space in Erlenmeyer flask
Z = ppm H_2S reading on tube

To determine the mass (mg) of H_2S released from the liquid into the gas:

$$Z \text{ ppm } H_2S \times \frac{1.42 \text{ mg } H_2S/m^3}{\text{ppm } H_2S} \times Y \text{ ml} \times \frac{1 \text{ cm}^3}{\text{ml}} \times \frac{1 \text{ m}^3}{(100 \text{ cm})^3} = 1.42 \times 10^{-6} YZ \text{ mg } H_2S$$

To determine the concentration of H_2S in the liquid sample:

$$1.42 \times 10^{-6} YZ \text{ mg } H_2S \times \frac{1}{X \text{ ml}} \times \frac{1000 \text{ ml}}{1 \text{ L}} = \frac{1.42 \times 10^{-3} YZ \text{ mg}}{X \text{ L}}$$

Example: if you use 5 ml of liquid sample and acidify it into 95 ml of waste from T-1 or T-2, the Erlenmeyer flask has a vapor volume of 500 ml and you obtain a reading on the tube of 100 ppm, the total releasable sulfide is calculated as:

$$\frac{1.42 \times 10^{-3} YZ \text{ mg}}{X \text{ L}} = \frac{1.42 \times 10^{-3} \times 500 \times 100}{5} = 14.2 \text{ mg/l}$$

9.0 REMARKS

9.1 The gas detector tube can only be used once and must be disposed of after a negative or positive result. After a positive result, the discoloration may persist for a short period of time, so that evaluation should be carried out immediately after the measurement.

9.2 Test the gas detector pump by inserting a gas detector tube with glass tip ends still intact. Actuate the pump once and the pump should maintain vacuum tightness.

9.3 All testing should be done in the fume hood.

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10.0 QUALITY CONTROL

10.1 A quality control check sample is performed on each lot of sample tubes.

10.2 Duplicates and spikes will be performed on every 20th sample analyzed.

10.3 Since this is a semi-quantitative screening method, if the calculated concentration is 250 mg/l or larger, the sample should be analyzed by another, quantitative method. This is 1/2 the concentration of our site limit of 500 mg/l reactive (releasable) sulfide.

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Vickery Site Specific Procedure

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SW846, Method 3510C

Separatory Funnel Liquid-Liquid Extraction

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2.0 SUMMARY OF METHOD

2.1 A measured volume of sample, usually 100 ml, at the pH that the sample is received, is serially extracted with Methylene Chloride using a separatory funnel. It is extremely difficult to adjust the high pH and low pH samples due to the nature of the matrices involved.

4.0 APPARATUS AND MATERIALS

4.1 Separatory funnel - 0.5-2 liter, with polytetrafluoroethylene (PTFE)stopcock.

7.0 PROCEDURE

7.1 Using a 100 ml graduated cylinder, measure 100 ml(nominal) of sample. Quantitatively transfer the sample to a separatory funnel.

7.2 Measure a minimum of 100 microliter of the 25 ppm surrogate spiking solution into the sample and mix well. (See Method 3500B and the determinative method to be used for details on the surrogate standard solution and matrix spiking solution).

7.2.1 For the sample in each batch (see Chapter One) selected for use as a matrix spike sample, add an appropriate amount of the matrix spiking standard.

7.3 It is extremely difficult to adjust the high pH and low pH samples due to the nature of the matrices involved.

7.4 Use 20 ml of methylene chloride to rinse the cylinder and transfer this rinse solvent to the separatory funnel.

7.6 Allow the organic layer to separate from the sample phase. If the emulsion interface between layers is more than one-third the size of the solvent layer, the analyst must employ mechanical techniques to complete the phase separation. The optimum technique depends upon the sample and may include stirring, filtration of the emulsion through

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glass wool, centrifugation or physical methods. Collect the solvent extract in a K-D Flask after filtering through Sodium Sulfate. If the emulsion cannot be broken (recovery <80% of the methylene chloride, corrected for the water solubility of methylene chloride), transfer the sample, solvent, and emulsion into the extraction chamber of a continuous extractor and proceed as described in Method 3520, Continuous Liquid-Liquid Extraction.

7.8 Serially extract three times with 20 ml of methylene chloride as outlined in Sec. 7.2-Sec. 7.5. Collect and combine the extracts and label the combined extract appropriately.

7.11 K-D Technique

7.11.4 Attach a three-ball Snyder column. Place the K-D apparatus on a hot water bath so that the concentrator tube is partially immersed in the hot water and the entire lower rounded surface of the flask is bathed with hot vapor. At the proper rate of distillation the balls of the column will actively chatter, but the chambers will not flood. When the apparent volume of liquid reached usually less than 10 mL, remove the K-D apparatus from the water bath and allow it to drain and cool.

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Vickery Site Specific Procedure

to

SW846, Method 3660B

Sulfur Cleanup

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2.0 SUMMARY OF METHOD

2.1 The sample to undergo cleanup is mixed with either Copper, Mercury, or Tetrabutylammonuim (TBA) sulfite. The mixture is shaken and the extract is removed from the sulfur cleanup reagent.

5.0 REAGENTS

5.7 Mercury, triple distilled.

7.0 PROCEDURE

7.3 Removal of sulfur using mercury
NOTE: Mercury is a highly toxic metal. All operations involving mercury should be performed in a hood. Prior to using mercury, it is recommended that the analyst become acquainted with proper handling and cleanup techniques associated with this metal.

7.3.1 Concentrate the sample extract to below 10 ml and adjust to a final volume to 10 ml or higher depending on the desired dilution. Perform concentration using the K-D technique (Method 3510C, Sections 7.11.1 through 7.11.6).
CAUTION: When the volume of solvent is reduced below 1 ml, semi-volatile analytes may be lost.

7.3.2 Pipet approximately 5.0 ml of the extract into a clean concentrator tube or Teflon-sealed vial.

7.3.3 Add one to three drops of mercury to the vial and seal. Agitate the contents of the vial for 15-30 sec. Prolonged shaking (2 hrs) may be required. If so, use a mechanical shaker.

7.3.4 Separate the sample from the mercury by drawing off the extract with a disposable pipet and transfer to a clean vial.

7.4 Analyze the cleaned up extracts by gas chromatography (see determinative methods, Sec. 4.3 of this chapter).

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SW846, Method 3665A

Sulfuric Acid/Permanganate Cleanup

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5.0 REAGENTS

5.3 Concentrated Sulfuric Acid (H_2SO_4).

7.0 PROCEDURE

7.1 Sulfuric acid cleanup

7.1.1 Pipet approximately 5.0 ml of the hexane extract to a vial and, in a fume hood, carefully add approximately 2.0 ml of concentrated sulfuric acid.

7.1.11 Remove any remaining Sulfuric Acid from the hexane extract with a Florisil wash before injecting.

7.2 Permanganate cleanup

7.2.1 Add approximately 1-2 ml of the 5 percent aqueous potassium permanganate solution to the combined hexane from 7.1.11.

7.3 Final Preparation

7.3.2 Remove any remaining Permanganate with a Silica Gel wash before injecting.

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APPENDIX WAP-B

FIGURES

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FIGURE 2-1

SAMPLING METHODS AND EQUIPMENT

MATERIAL	METHOD*	EQUIPMENT
Extremely viscous liquid	ASTM D140 ASTM E300	Tubing, trier or coliwasa
Crushed or powdered material	ASTM D346 ASTM E300	Tubing, trier, scoop, or shovel
Soil or rock-like material	ASTM D420 ASTM E300	Tubing, trier, auger, scoop, or shovel
Soil-like material	ASTM D1452 ASTM E300	Tubing, trier, auger, scoop, or shovel
Fly ash-like material	ASTM D2234 ASTM E300	Tubing, trier, auger, scoop, or shovel
Containerized liquids	SW-846 ASTM E300	Coliwasa or tubing
Liquids in impoundments	SW-846	Bomb sampler, tubing, weighted bottle, and/or dipper sampler

*ASTM refers to *Annual Book of ASTM Standards*, American Society for Testing Materials, Philadelphia, PA, 1994 or most recent edition. SW-846 refers to *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846, Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC, September 1986, as amended by Final Update I, July 1992, and Updates II and IIA, September 1994, or more recent edition or update.

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FIGURE 3-1

USE OF MANDATORY ANALYSES

Test	Identification	
	Pre-Acceptance	Incoming
Physical Description	+	+
pH Screen	+	+
Specific Gravity	+	+
Liquid Waste Compatibility Test	+	+
Flammability Potential Screen	+	+
Cyanides Screen *	+	+
Sulfides Screen *	+	+
(VOC) Solvent Screen *	+	+
PCBs **	+	+
Radioactivity Screen	+	+

\+ Test must be addressed.

* As required by Section (3.1).

** As required by section (3.1.1).

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FIGURE 3-2

USE OF SUPPLEMENTAL ANALYSES

Test	(Identification) Acceptance	(Identification) Incoming	(Process Applicability) Storage	(Process Applicability) Filtration	(Deepwell) Disposal
Timed Filtration	+	+		*	*
Process Blend Testing	+	+	*	*	*
pH Spectrum	+	+		*	*
Solvent Screen	+	+		*	*
Process Testing or Core Testing	+	+		*	*

\+ At the discretion of the Vickery General and/or Laboratory Managers.

* Test provides waste information which may be useful for these processes as described in Section 6.0.

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FIGURE 3-2 (CONTINUED)
USE OF SUPPLEMENTAL ANALYSES

Test	Pre-Acceptance	Incoming	Storage	Filtration	Disposal
Heavy Metals	+	+		*	*
Miscellaneous Metals	+	+		*	*
pH	+	+	*	*	*
Sulfates	+	+		*	*
Specific Conductance	+	+	*		*
Chlorides	+	+		*	*
Nitrates	+	+			*
Fluorides	+	+	*		
Amenable Cyanides	+	+	*		*
Total Cyanide	+	+	*		*
Total Sulfide	+	+	*	*	*
Total Phenolics	+	+			*
Total Solids	+	+		*	*
TCLP	+	+	*		*
Suspended Solids	+	+		*	*
GC Scan	+	+			*
Flashpoint	+	+	*		
Viscosity	+	+		*	
Acidity	+	+	*		
Alkalinity	+	+	*		
Oil & Grease					*
Total Organic Carbon	+	+	*		*
Dissolved Solids	+	+		*	*

\+ At the direction of the Vickery General and/or Laboratory Managers.
* Test provides waste information which may be useful for these processes as described in Section 6.0.

FIGURE 4-1

OVERVIEW OF THE PRE-ACCEPTANCE PROCESS

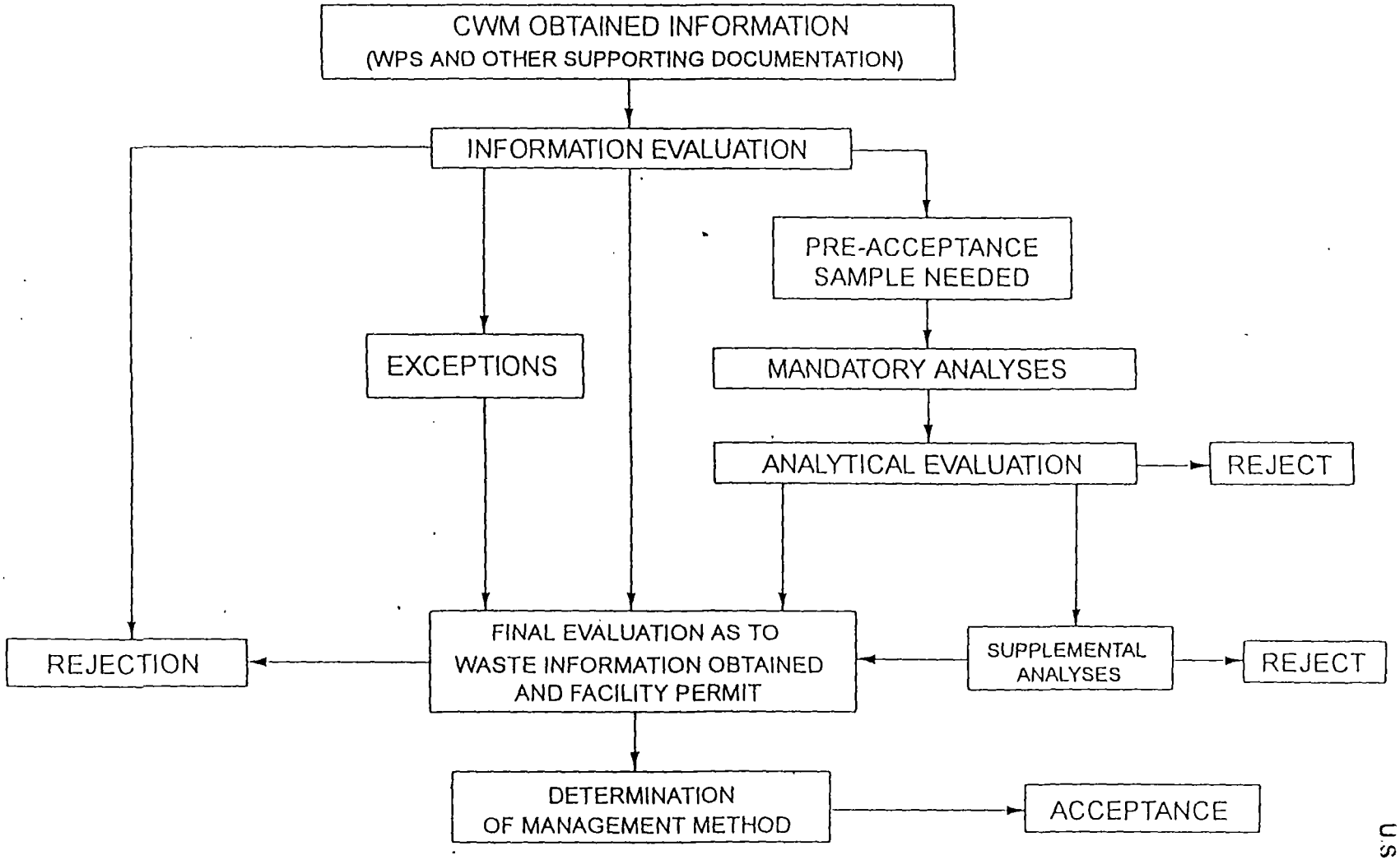

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FIGURE 5-1
OVERVIEW OF THE INCOMING WASTE SHIPMENT IDENTIFICATION PROCESS

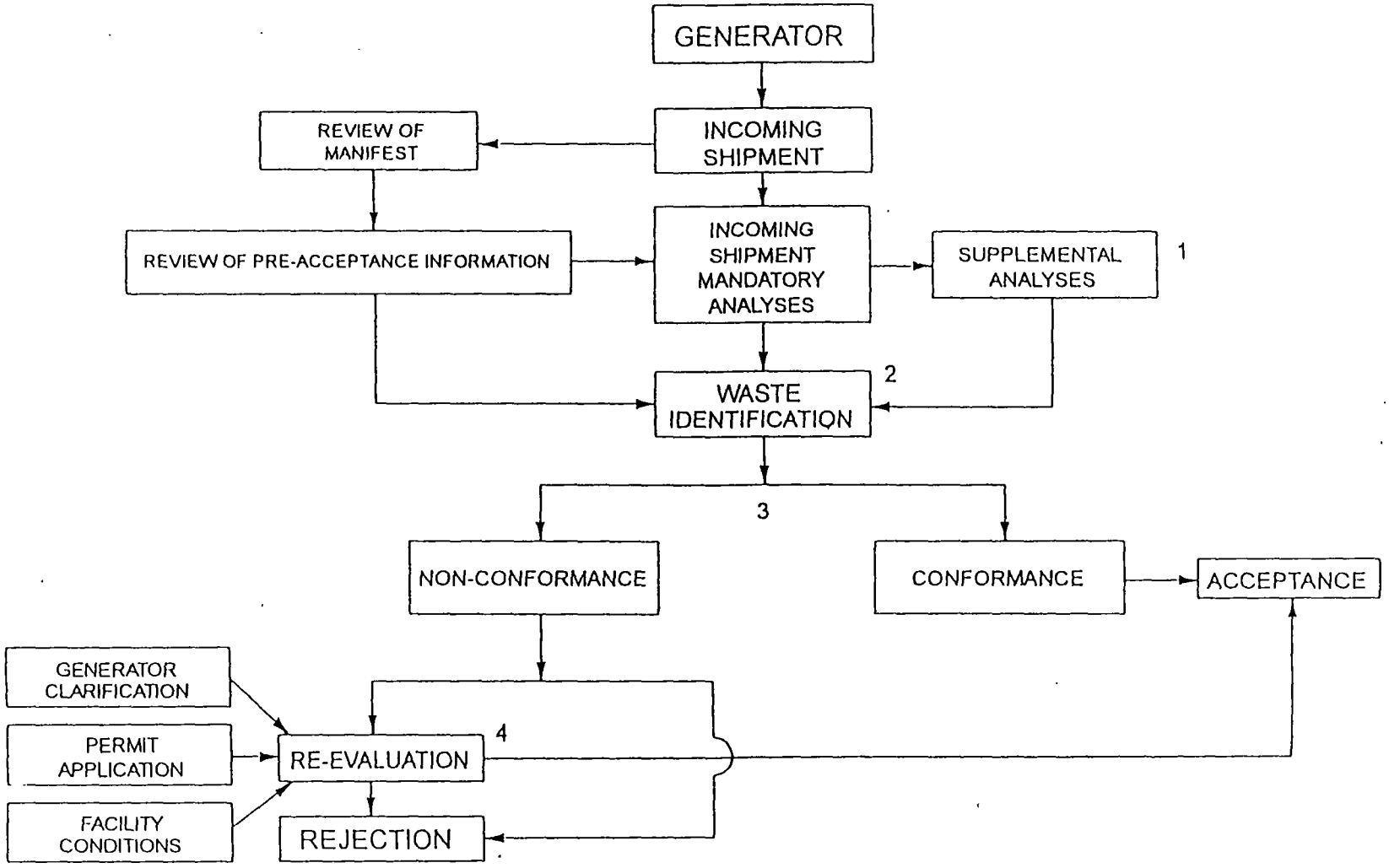

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FIGURE 6-1

STORAGE

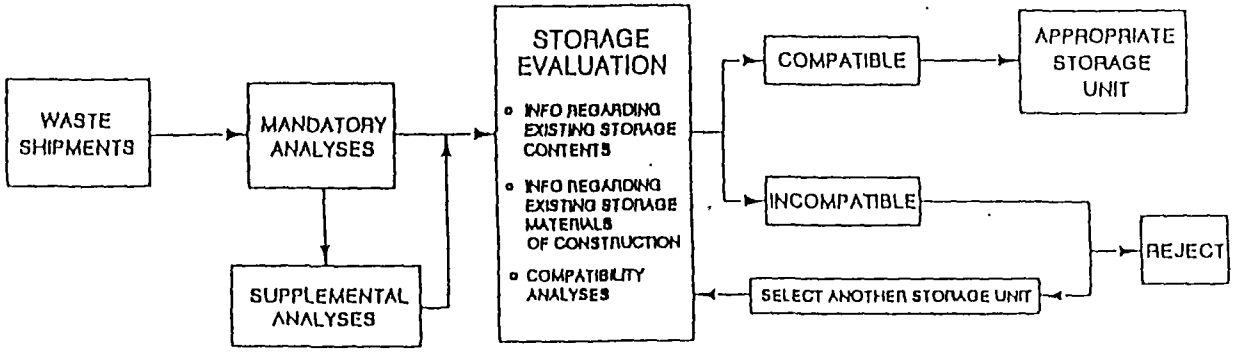

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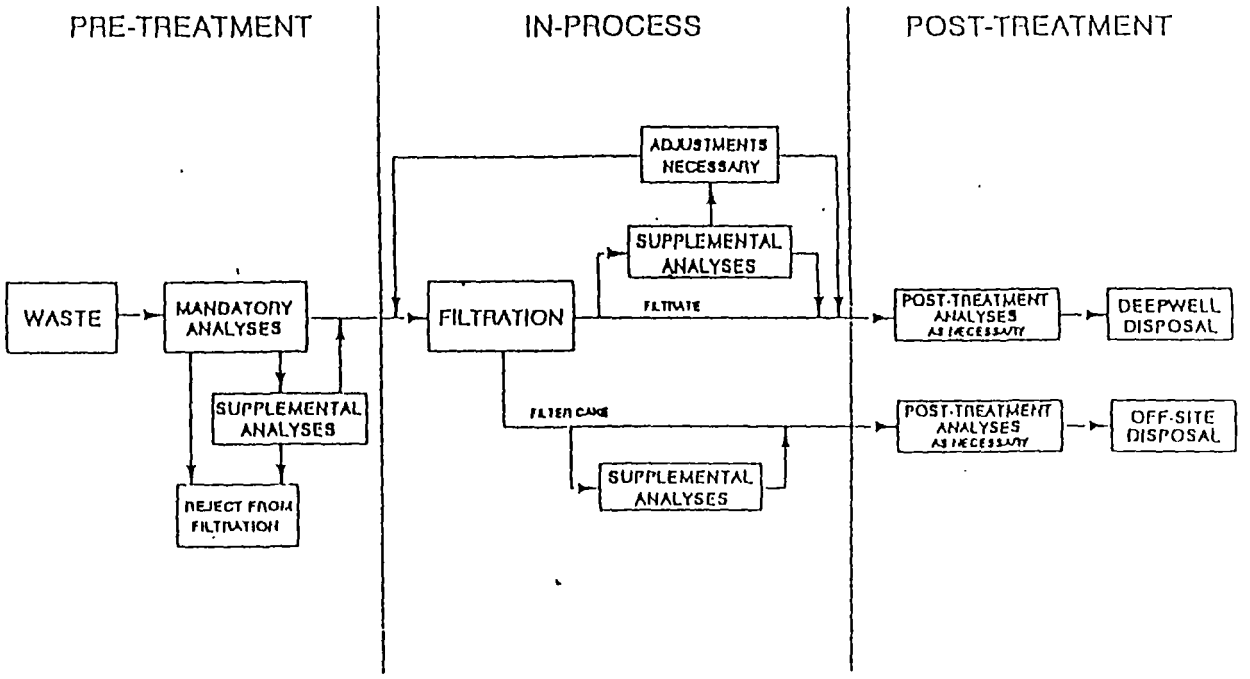
FIGURE 6-2

FILTRATION



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APPENDIX WAP-C

FACILITY WASTE ACCEPTANCE CONDITIONS

The following are the current acceptance limitations for wastes at the CWM-Vickery Facility for deepwell injection:

1. Limited to 5% or less by volume oil, using standard BS&W test and corrected for tank shape if necessary. (Centrifuge Tube Acceptable)

2. Limited to less than 25 ppm detectable PCBs.

3. Closed cup flash point must exceed 140 °F.

4. Must be a pumpable liquid or semi-solid, not a paste or solid. (It may contain solids.)

5. Reactive cyanide (as Releasable) must be less than 250 ppm.

6. Reactive sulfide (as Releasable) must be less than 500 ppm.

7. VOC (Solvent Screen) must not exceed 5% by weight.

8. Waste must be compatible with existing materials of construction of the surface facilities and the injection wells.

9. Acceptable injectability must be indicated from previous CWM experience or from supplementary analytical results.

10. Radiation level must not exceed background.

This list will be revised when applicable to meet changing regulations.

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APPENDIX WAP-D

DESCRIPTION OF SAMPLING EQUIPMENT

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COMPOSITE LIQUID WASTE SAMPLER
(Coliwasa)

Description

The Coliwasa is a device used to sample free-flowing liquids and slurries contained in drums, shallow open-top tanks, pits, and similar containers. It is especially useful for sampling wastes that consist of several immiscible liquid phases. It consists of a glass, plastic, or metal tube equipped with an end closure which can be opened and closed while the tube is submerged in the material to be sampled. The Coliwasa is available commercially or can be fabricated to conform to desired specifications.

Procedures for Use or see ASTM D5495):

1. Clean Coliwasa.

2. Adjust sampler's locking mechanism to ensure that the stopper provides tight closure. Open sampler by placing stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

3. Slowly lower the sampler into the waste at a rate that permits the level of liquid inside and outside the sampler to remain the same.

4. When the sampler hits the bottom of the waste container, push the sampler tube down to close and lock the stopper by turning the T-handle until it is upright and one end rests on the locking block.

5. Withdraw Coliwasa from waste and wipe the outside with a disposable cloth or rag.

General Comments and Precautions:

1. Do not use a plastic Coliwasa, unless it is constructed of fluorocarbons (e.g., Teflon), to sample wastes containing organic materials.

2. Do not use a glass Coliwasa to sample liquids that contain hydrofluoric acid.

3. If significant amounts of solid materials are present within 2 inches of the bottom of the container to be sampled, special procedures may be necessary to obtain a representative sample of this solid phase.

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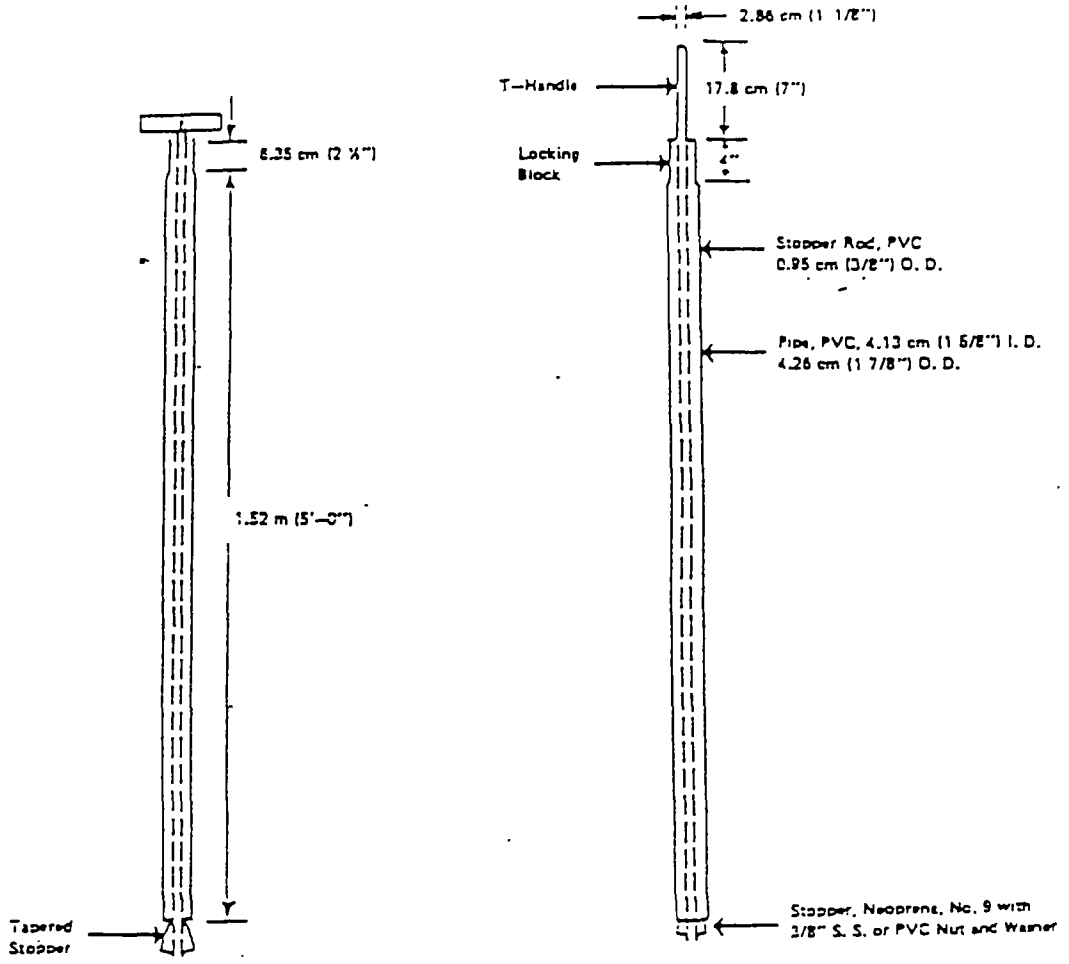
COLIWASA SAMPLER



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EPA METHOD FOR THE USE OF THE OPEN TUBE TUBING SAMPLER[1]

Description:

The open glass tube is the most versatile of hazardous liquid samplers because of its wide range of application, relatively low cost, and ease of operation. It is a hollow glass or plastic tube, usually 4 feet long, with an internal diameter of 0.25 to 0.50 inch, depending on the viscosity of the sample. Open tubes made specifically for sampling (i.e., drum samplers) can be purchased. The only difference between these and laboratory glass tubes is that the former have a constricted orifice at the top in order to facilitate plugging the opening to maintain a vacuum in the tube.

Procedure for Use:

Slowly lower the tube into the liquid to the desired depth. It may be desirable not to mix the contents of the containers so that a more representative sample can be collected.

When the sampler is inserted to the desired depth, stopper the tube with a rubber stopper, thumb, or by creasing a piece of flexible tubing attached to the open end of the sample tube. This is done to establish a vacuum in the tube, thereby enabling withdrawal of the sample from the container.

Slowly withdraw the tube from the vessel and expel the sample into the sample container. Avoid handling the portion of the sampler that was placed into the liquid. The tube can be disposed by placing it back into the container that was sampled.

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[1] 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.

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THIEF SAMPLER

Description:

A thief sampler consists of two slotted concentric tubes, usually constructed of stainless steel or brass. The outer tube has a conical pointed tip which permits the sampler to penetrate the material being sampled. The inner tube is rotated to pen and close the sampler. A thief is used to sample dry granules or powdered wastes whose particle diameter is less than one-third the width of the slots.

Procedures for Use:

1. Clean sampler.

2. Insert closed thief into waste material. Rotate inner tube to open thief. Wiggle the unit to encourage material to flow into thief. Close thief and withdraw. Place sampler thief in a horizontal position with the slots facing upward. Remove inner tube from thief and transfer sample to a container.

Comments and Precautions:

1. Before sampling, ensure that the waste will not corrode the thief.

2. If necessary, the thief may be painted with a 2-part epoxy or other chemical resistant paint when the thief must be used on a corrosive waste.

Ref: Footnote 1 on page A-13, section 1.2.1.4 and 3 on page A-14, Method E300.

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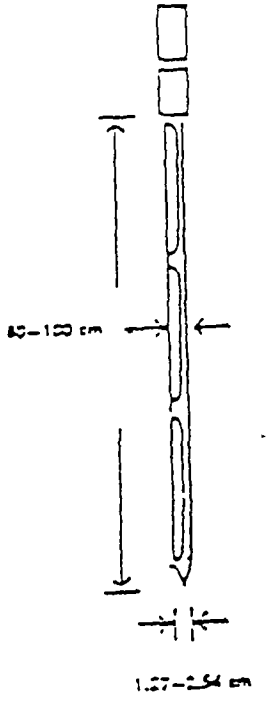

Thief Sampler

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WEIGHTED BOTTLE SAMPLER/BOMB SAMPLER

Description:

The weighted bottle consists of a glass or plastic bottle, sinker, stopper, and a line which is used to lower, raise, and open the bottle. Bomb samplers can be obtained through a commercial source. The weighted bottle samples liquid and free-flowing slurries.

Procedures for Use:

1. Clean bottle/sampler.

2. Assemble weighted bottle sampler/bomb sampler.

3. Lower the sampler to desired depth and pull out the bottle stopper or open bomb by jerking the line.

4. Allow bottle/sampler to fill completely as evidenced by cessation of air bubbles. Close bomb prior to raising.

5. Raise bomb/sampler, cap bottle, and wipe off with a disposable cloth. The bottle can serve as a sample container. Transfer bomb contents to an appropriate container.

General Comments and Precautions:

1. Do not use a nonfluorocarbon plastic bottle to sample wastes containing organic materials.

2. Do not use a glass bottle to sample wastes that contain hydrofluoric acid.

3. Before sampling, ensure that the waste will not corrode the sinker, bottle holder, or line.

Ref: Footnote 1 on page A-13, section 1.2.1.2 and 3 on page A-14, Method E300.

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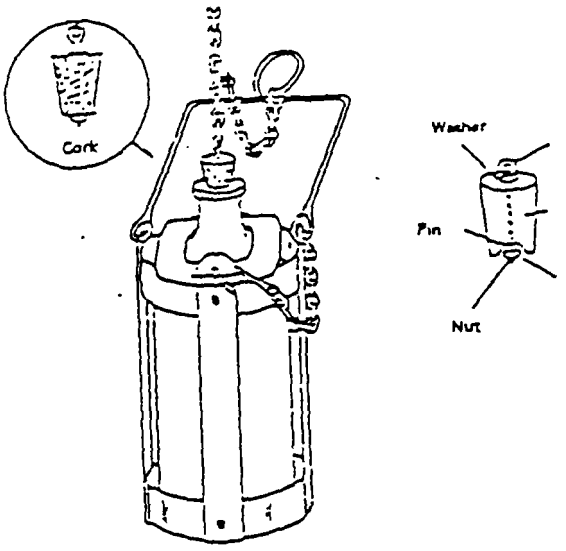
WEIGHTED BOTTLE SAMPLER



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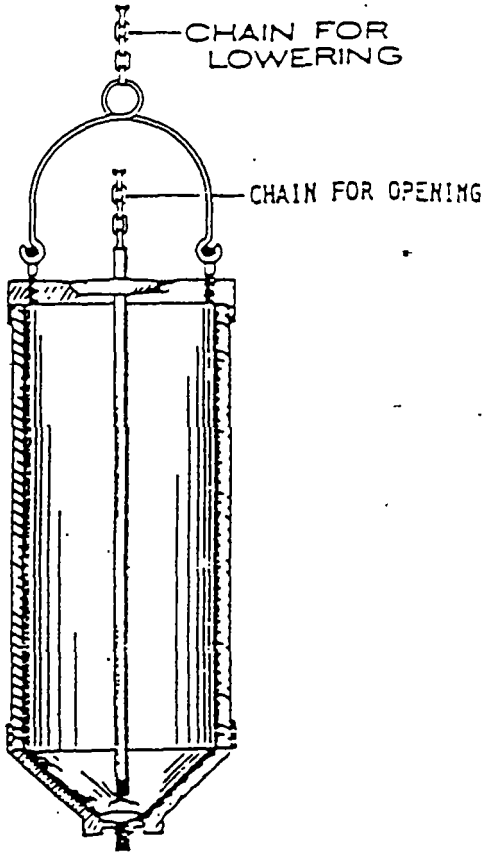
TYPICAL BOMB SAMPLER



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TRIER

Scope and Application

A trier consists of a tube cut in half lengthwise with a sharpened tip that allows the sampler to cut into sticky solids and loosen soil. A trier samples moist or sticky solids with a particle diameter less than one-half the diameter of the trier.

Apparatus:

1. Triers 61 to 100 cm long and 1.27 to 2.54 cm in diameter are available at laboratory supply stores.

2. A large trier can be fabricated to conform to the specifications in Figure 5. A metal or polyvinyl chloride pipe, 1.52 m (5 ft.) long x 3.2 cm (1.4 in.) I.D., with a 0.32 cm (0.14 in.) wall thickness, is needed. The pipe should be sawed lengthwise, about 60-40 split, to form a trough stretching from one end to 10 cm away from the other end. The edges of the slot and the tip of the pipe are sharpened to permit the sampler to cut into the waste material being sampled. The unsplit length of the pipe serves as the handle.

Procedure (or see ASTM D5491)

1. Clean trier

2. Insert trier into waste material 0 to 45° from horizontal. Rotate trier to cut a core of the waste. Remove trier with concave side up and transfer sample to container.

Ref: Footnote 1 on page A-13, Section 1.2.1.5.

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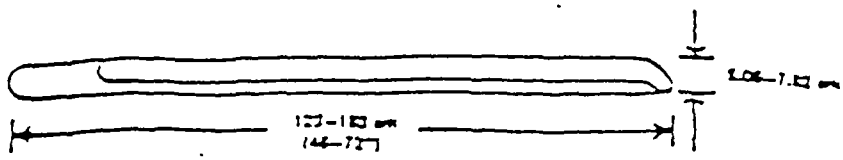
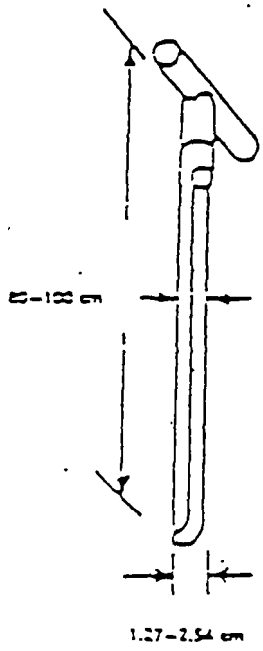
SAMPLING TRIERS





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AUGER

Scope and Application:

An auger consists of sharpened spiral blades attached to a hard metal central shaft. An auger samples hard or packed solids wastes or soil.

Procedure

1. Clean sampler.

2. Bore a hole through the middle of an aluminum pie pan large enough to allow the blade of the auger to pass through. The pan will be used to catch the sample brought to the surface by the auger.

3. Place pan against the sampling point. Auger through the hole in the pan until the desired sampling depth is reached. Back off the auger and transfer the sample in the pan and adhering to the auger to a container. Spoon out rest of the loosened sample with a sample trier.

Ref: Footnote 1 on page A-13, section 1.2.1.6 and 3 on page A-14, Method E300.