



State of Ohio Environmental Protection Agency

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P.O. Box 1049
Columbus, OH 43216-1049

CERTIFIED MAIL

October 29, 2004

Re: Brush Wellman, Inc.
EPA ID No: OHD 004 212 999
Ohio ID No: 03-62-0042
Modified Hazardous Waste Permit

Ben Fogle
Brush Wellman, Inc.
14710 West Portage River South Road
Elmore, Ohio 43416

Dear Mr. Fogle:

On May 10, 2002, Ohio EPA received Brush Wellman, Inc.'s request to add a risk-based integrated groundwater monitoring program and outline the steps to be taken if this monitoring program reveals that the plume of contaminated groundwater is expanding. For this modification, Brush Wellman, Inc. submitted a Class 3 modification application¹. The Agency received written comments concerning this Class 3 modification application and these comments were addressed in the responsiveness summary. 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 Please note that the modified Permit remains in effect until it is renewed, withdrawn, suspended or revoked.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, 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 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.

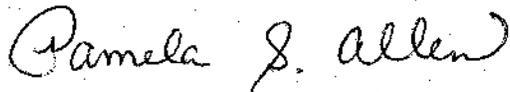
¹Ohio EPA assigned tracking # 020510-3A-1 to this modification application.

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

Ben Fogle
Brush Wellman, Inc.
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If you have any questions, please contact Amber Hicks of Ohio EPA's Northwest District Office at (419) 352-3130.

Sincerely,



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 Pasqualette, Amber Hicks, NWDO, DHWM
Larry Chako, Brush Wellman, Inc.
Carol Hester, Ohio EPA, PIC

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PUBLIC NOTICE

Ottawa County

OHIO EPA ISSUES FINAL MODIFIED HAZARDOUS WASTE PERMIT

On October 29, 2004, Ohio EPA issued a final Class 3 modified hazardous waste facility installation and operation permit (Hazardous Waste Permit) to Brush Wellman, Inc. for its facility at 14710 W. Portage River South Road, Elmore, Ohio. The EPA Identification Number for this facility is OHD004212999.

Why is Brush Wellman, Inc. modifying its permit?

Brush Wellman, Inc. manufactures and markets beryllium alloys, beryllium oxide and metallic beryllium. Brush Wellman, Inc. also generates hazardous wastes from the manufacturing process and stores these wastes in containers at the facility. Brush Wellman, Inc. proposes to add a risk-based integrated groundwater monitoring program and outlines the steps to be taken if this monitoring program reveals that the plume of contaminated groundwater is expanding. This final modified permit will allow Brush Wellman, Inc. to make the requested changes. To issue this final Permit Modification, Ohio EPA determined that the Hazardous Waste Permit 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 November 30, 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 Ohio Revised Code § 3745.04, with ERAC at the following address: **Environmental Review Appeals Commission**, 309 South 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 ENVIRONMENTAL PROTECTION AGENCY

**MODIFIED OHIO HAZARDOUS WASTE FACILITY
INSTALLATION AND OPERATION PERMIT**

Date of Issuance: October 29, 2004

Effective Date: October 29, 2004

U.S. EPA ID No.: OHD 004 212 999

Ohio Permit No.: 03-62-0042

Name of Permittee: Brush Wellman, Inc.

Mailing Address: 14710 W. Portage River South Rd.
Elmore, Ohio 43416

Facility Location: 14710 W. Portage River South Rd.
Near St. Rts. 105 & 590
Ottawa County, Elmore, Ohio 43416

Person to Contact: Larry Chako

ENTERED DIRECTOR'S JOURNAL

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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 June 14, 2001, is hereby incorporated by reference in its entirety, except as it may be modified herein.

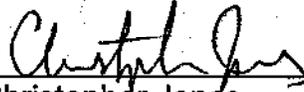
This modification of the permit shall remain in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended or revoked.

The Permittee shall comply with all requirements of the modified Part B permit application as amended or supplemented on May 10, 2002 and March 27, 2003 and last updated on April 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 including the risk-based integrated ground water monitoring program (IGWMP) 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
Ohio Hazardous Waste Facility Installation and Operation Permit of the Ohio
Environmental Protection Agency

[Signature] 10-29-04

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 June 14, 2001 renewal permit.



Christopher Jones
Director

OHIO EPA DHWM

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MODULE A - GENERAL PERMIT CONDITIONS

A.1. Effect of Permit

ORC Sections 3734.02 (E) and (F) and 3734.05
OAC Rule 3745-50-58(G)

- (a) The Permittee is authorized to store hazardous waste in containers in accordance with the terms and conditions of this permit, ORC Chapter 3734, all applicable Ohio hazardous waste rules, all applicable regulations promulgated under the Resource Conservation and Recovery Act (RCRA), as amended, and the approved hazardous waste facility installation and operation permit renewal application, as such application has been revised and supplemented and as such application may be modified pursuant to the hazardous waste rules. In the instance of inconsistent language or discrepancies between the above, the language of the more stringent provision shall govern.

Ground water monitoring for the Triangular Lagoon, Lagoon No. 3, and Lagoon No. 6 is integrated with the following waste managements units: Lagoon No. 2, Lagoon No. 4, Lagoon No. 5 and with a PCE release area (PCE AOC) at the facility. The Triangular Lagoon, Lagoon No.3, and Lagoon No. 6 are currently inactive and subject to post-closure and corrective action requirements. These units shall not be reactivated for management of hazardous waste. The approved Part B permit application as first submitted to Ohio EPA on September 30, 1996 and any subsequent amendment thereto, and last updated on January 11, 1999 is hereby incorporated into this permit.

- (b) Any management of hazardous waste not authorized by this permit is prohibited, unless otherwise expressly authorized or specifically exempted by law. 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, or invasion of other private rights. Compliance with the terms and conditions of this permit does not obviate Permittee's obligation to comply with other applicable provisions of law governing protection of public health or the environment including, but not limited to, the Community Right to Know law under ORC Chapter 3750.

A.2. Permit Actions

OAC Rule 3745-50-58(F)

This permit may be modified, revoked, suspended, or renewed as specified by Ohio law. The filing of a request for a permit modification, revocation, suspension, or renewal 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 term or condition.

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A.3. Permit Effective/Expiration Date
OAC Rule 3745-50-54

The effective date of this permit is the date the permit is entered into the Director's Journal. The permit expiration date is five years after the date of journalization of this permit.

A.4. Severability

The provisions of this permit are severable, and if any provision of this permit, or 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.

A.5. Duty to Comply
OAC Rule 3745-50-58(A)

The Permittee shall comply with all applicable provisions of ORC Chapter 3734, all applicable Ohio hazardous waste rules, and all terms and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by the laws of the State of Ohio. Any permit noncompliance, other than noncompliance authorized by the laws of the State of Ohio, constitutes a violation of ORC Chapter 3734 and the rules adopted thereunder and is grounds for enforcement action, suspension, revocation, modification, denial of a permit renewal application or other appropriate action.

A.6. Duty to Reapply and Permit Expiration
OAC Rules 3745-50-40(E); 3745-50-58(B); 3745-50-56 and ORC Section 3734.05(H)

- (a) If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must submit a completed application for a hazardous waste facility installation and operation permit renewal and any necessary accompanying general plans, detailed plans, specifications, and such information as the Director may require, to the Director no later than one hundred eighty (180) days before the expiration date of this permit or, upon approval of the director, a later date prior to the expiration date if the Permittee can demonstrate good cause for late submittal.
- (b) The Permittee may continue to operate in accordance with the terms and conditions of the expired permit until a renewal permit is issued or denied if:

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the payment of the Ohio Annual Permit Fee, the date of issuance is the date the permit was entered into the Journal of the Director of the Ohio Environmental Protection Agency.

A.26. Reserved

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A.27. Information to be Maintained at the Facility

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The Phase II Scope of Work (SOW) was submitted to U.S. EPA in September 1995. The primary focus of Phase II was to determine the extent of contamination and to collect data necessary to support a baseline risk assessment. U.S. EPA and Ohio EPA provided comments on the Interim RFI Report and the Phase II Scope of Work. The Permittee submitted the Phase II RFI Scope of Work Addendum on May 24, 1996. The Phase II field activities began in June 1996 and ended in December 1996. Over 200 soil, sediment, sludge, groundwater and surface water samples were collected and analyzed. Aquifer testing, sludge depth determination, ground water modeling, ecological reconnaissance inventory, and a baseline risk assessment were part of Phase II. The Permittee submitted the Final RFI Report on August 27, 1997. U.S. EPA and Ohio EPA provided comments and deficiencies on the report in letters dated November 21, 1997, June 25, 1998, October 9, 1998, and April 21, 1999. U.S. EPA conditionally approved the RFI report on June 25, 1998. U.S. EPA approved the Phase II Continuation Scope of Work on October 15, 1999. The results of the Ground Water Quality Assessment Report submitted on February 16, 2000, and subsequent amendments, have been included in a Revised RFI Report which was submitted by Brush Wellman on August 25, 2000.

On the effective date of this permit, Ohio EPA will assume corrective action oversight at the facility. The Permittee shall follow the work schedule in this permit and submit all required reports to Ohio EPA.

Brush Wellman has identified waste management units (WMU) not previously identified. These WMUs are listed in permit condition E.3(b). In accordance with permit condition E.10, information pertaining to these new WMUs has been submitted. Ohio EPA has also identified a WMU listed in permit condition E.3(c). Ohio EPA will review the information provided by Brush Wellman for the WMUs in Condition E.3, paragraphs (b) and (c). Based on the results of this review, a RCRA Facility Investigation (RFI) may be required for these new WMUs. In accordance with condition E.5 of this permit, Ohio EPA will notify Brush Wellman, in writing, of the need to submit a RFI workplan or additional information for the WMUs identified in condition E.3(b) or (c).

Summary of the Integrated Ground Water Monitoring Program

Upon issuance of the renewal permit on June 14, 2001, Permit Module F was comprised of an outline of a proposed Integrated Ground Water Monitoring Program (IGWMP) for certain WMUs at the facility. The permit also required Brush Wellman to establish the technical details and performance standards of this IGWMP via a Class 3 permit modification request.

The IGWMP combines the ground water monitoring requirements for three hazardous waste management units in post-closure with three RCRA waste management units and an area of concern. The WMUs included in the IGWMP are listed in Permit Condition

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E.3(d). Typically, the hazardous waste management units would be subject to post-closure ground water monitoring under OAC Rules 3745-54-90 through 3745-55-01 while the remaining units would be regulated under corrective action rules (OAC Rule 3745-55-011). However, for purposes of this IGWMP, all of the above units are combined because they are either contiguous or in close proximity of each other and may be contributing the above mentioned contaminants to the same plume of contaminated ground water.

Through a permit modification request (received on May 10, 2002 and subsequently revised on March 27, 2003, last updated on April 16, 2004), this permit has been modified to establish the technical details and performance standards for the IGWMP. These details are listed primarily in Module F of this document and Section E of the approved application. The permittee maintains that the plume of contaminated ground water associated with the above units has stabilized and is no longer "expanding". For the purposes of this modification, the plume is considered to be "expanding" if the contaminant levels at certain wells on Brush Wellman, Inc.'s property exceed calculated risk levels. The goal of the IGWMP is to monitor these wells for plume expansion and provide a framework for action if risk levels are exceeded. Consequently, the IGWMP includes the following:

- 1) A description of the wells in the monitoring network, their locations and relevance to the monitoring plan.
- 2) Details of the sampling plan, including but not limited to, sampling frequency and test methods.
- 3) The basis and procedures for calculating risk levels and, consequently, whether the plume is expanding.
- 4) The steps to be taken if the above monitoring program reveals that the plume of contaminated ground water is expanding.

There are other waste management units at the site that are not included in the IGWMP. These units are being handled separately under the site-wide RCRA Corrective Action Program.

CONDITIONS

E.1. Corrective Action at the Facility
OAC Rules 3745-50-10 & 3745-55-011

In accordance with OAC Rule 3745-50-10 "waste management unit" (WMU) means any discernible unit at which wastes have been placed at any time, irrespective of whether the unit was intended for the management of waste or hazardous waste. Such units include any area at a Facility at which wastes have been routinely and systematically released. As used in this permit the term "waste management unit"

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(WMU) shall be consistent with and equivalent to the term "solid waste management unit" as that term is used in Section 3004(u) of RCRA. For the purpose of corrective action, "facility" is defined as all contiguous property under the control of the owner or operator seeking a permit under Subtitle C of RCRA. The terms Interim Measure (IM), RCRA Facility Investigation (RFI), Corrective Measures Study (CMS) and Corrective Measure Implementation (CMI) are defined in Attachment 1, U.S. EPA's Corrective Action Plan (CAP) and Scope of Work (SOW).

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 waste management units (WMUs) at the Facility, regardless of the time at which waste was placed in such units.

E.2. Corrective Action Beyond the Facility Boundary
OAC Rules 3745-55-011

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 Ohio EPA 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 RFI, CMS, and CMI phases, as determined to be necessary on a case-by-case basis.

E.3 Identification of WMUs
OAC Rules 3745-50-44(d) & 3745-55-011

(a) U.S. EPA and the Permittee have identified the following WMUs (SWMUs) which have undergone investigation during the RFI:

1. North Tailings Lagoon No. 1
2. North Tailings Lagoon No. 3
3. North Tailings Lagoon No. 5/Landfill
4. Central Magnesium Fluoride Lagoon
5. South Landfill
6. Inactive Settling Lagoon No. 2 (Closed)
7. Copper Lagoon No. 3 (RCRA Closed)
8. Inactive Settling Lagoon No. 4 (Closed)
9. Active Settling Lagoon No. 5
10. Waste Lagoon No. 6 (RCRA Closed)
11. Lagoon No. 5 Storage Tank

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12. Triangular Lagoon (RCRA Closed)
13. South Hyde Run Ditch
14. Oil Separator Pond
15. Alloy Make-up Pond
16. North Hyde Run Ditch
17. Alloy Cooling Pond Sludge Fill Area
18. Fluoride Furnace Rebuild Storage Pad
19. Cast Shop Skimmer Pond
20. Beryllium-Compound Contaminated Waste Drum Storage Area
21. Metallic Beryllium Contaminated Waste Drum Storage Area
22. Old Decontamination Building Solids Settling Tank
23. PCE AOC

Table J-1, in Section J of the Permit Application, lists all the WMUs presently evaluated. Figure J-1, in Section J of the Permit Application, shows the locations of the WMUs. Exhibit B-5 is a topographical drawing which locates the WMUs. This figure can be found in Volume 5 of the Permit Application.

(b) The Permittee has also identified the following WMUs, which may undergo investigation:

1. Hazardous Waste Container Storage Building
2. Former Storage Pad C
3. New Decontamination Building and Sump
4. Redruming in Oxide Area
5. Redruming in Whiting Area
6. Alloy By-Product Storage Pad
7. Waste Oil Drum Storage Area
8. Basins 7A, 7B, 7C
9. Basins 8A, 8B, 8C
10. Industrial Sewers
11. IWTP Sludge Staging Area
12. Trash Hopper
13. Used Graphite Storage Area
14. Used Fluorescent Bulb Satellite Accumulation Area
15. Landfill Office Septic Tank and Leach Field
16. Perchloroethylene Still Bottoms Satellite Accumulation Area at Scrap Reclamation

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17. Perchloroethylene-contaminated Groundwater Satellite Accumulation Area at Perchloroethylene Spill Area
18. MEK/Collodion Waste Satellite Accumulation Area South of Sintering Airlock
19. Laboratory Solvents Satellite Accumulation Area at Analytical Laboratory
20. By-Product Storage Area West of Whiting & Alloy Offices
21. By-Product Storage Area Between Casting & ICC
22. By-Product Storage Area East of Whiting & West of W. Administration
23. By-Product Storage Area Between Resource Recovery & Outside Services
24. By-Product Storage Area Southwest of Sintering
25. By-Product Storage Area West of W. Butler Building.

(c) Ohio EPA has identified the following WMUs, which may undergo investigation:

1. The Source Area for the Lead Waste Pile;

(d) The following WMUs are included in the IGWMP:

1. Inactive Settling Lagoon No. 2 (WMU #6) (Closed)
2. Copper Lagoon No. 3 (WMU #7) (RCRA Closed)
3. Inactive Settling Lagoon No. 4 (WMU #8) (Closed)
4. Active Settling Lagoon No. 5 (WMU #9)
5. Waste Lagoon No. 6 (WMU #10) (RCRA Closed)
6. Triangular Lagoon (WMU #17) (RCRA Closed)
7. PCE AOC (PCE Release Area)

E.4 Progress Reporting

Beginning the month after permit journalization, the Permittee shall submit a monthly progress report for all corrective action activities. The report shall be due by the 15th of the month following the reporting period.

E.5 RCRA Facility Investigation (RFI) OAC Rule 3745-55-011

The Permittee shall conduct an RFI to thoroughly evaluate the nature and extent of the release of hazardous waste(s) and hazardous constituent(s) from all applicable WMUs identified in the facility's RFA (RCRA Facility Assessment). The WMUs identified in condition E.3 Section A are part of the on-going RFI. The WMUs identified in Condition E.3., Section B and Section C above and Condition E.10 will be evaluated by Ohio EPA to determine if further investigation, including a release assessment and/or RFI, for those units is necessary. The major tasks and required submittal dates for the RFI are shown below. The scope of work for each of the tasks is found in Attachment 1 (U.S. EPA's CAP).

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E.9 Corrective Measure Implementation (CMI)

Based on the results of the CMS, the Permittee shall implement one or more of the Corrective Measures authorized by Ohio EPA. Ohio EPA shall authorize one or more of the Corrective Measures in the CMS, and shall notify the Permittee in writing of the decision. Ohio EPA will select a Corrective Measure for implementation based on the following factors: The Corrective Measure selected for implementation must: (1) be protective of human health and the environment; (2) attain media cleanup standards; (3) control the source(s) of releases so as to reduce or eliminate further releases of hazardous waste(s) (including hazardous constituent(s)); and (4) comply with all applicable standards for management of wastes.

If two or more of the Corrective Measures studied meet the threshold criteria set out above, Ohio EPA will authorize the Corrective Measures Implementation by considering remedy selection factors including: (1) long-term reliability and effectiveness; (2) the degree to which the Corrective Measure will reduce the toxicity, mobility or volume of contamination (3) the Corrective Measure's short-term effectiveness; (4) the Corrective Measure's implementability; and (5) the relative cost associated with the alternative.

In authorizing the proposed Corrective Measure(s), Ohio EPA may also consider such other factors as may be presented by site-specific conditions.

i) Permit Modification

Ohio EPA will initiate a permit modification, as provided by OAC Rule 3745-50-51 to require implementation of the corrective measure(s) authorized.

The Permittee shall not implement the corrective measure until the permit is modified pursuant to OAC Rule 3745-50-51.

ii) Financial Assurance OAC Rule 3745-55-011

As part of the modification of this permit to incorporate CMI, the Permittee shall provide financial assurance in the amount necessary to implement the corrective measure(s) as required by OAC Rule 3745-55-011 (b) and (c).

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MODULE F - INTEGRATED GROUND WATER MONITORING PROGRAM FOR THE TRIANGULAR LAGOON, EASTERN SETTLING LAGOON AOI, AND THE PCE AOC

F.1 Module Highlights

(a) (i) This module describes the ground water monitoring requirements for the following units (see figure in Attachment F-1):

1. Inactive Settling Lagoon No. 2 (WMU #6) (Closed)
2. Copper Lagoon No. 3 (WMU #7) (RCRA Closed)
3. Inactive Settling Lagoon No. 4 (WMU #8) (Closed)
4. Active Settling Lagoon No. 5 (WMU #9)
5. Waste Lagoon No. 6 (WMU #10) (RCRA Closed)
6. Triangular Lagoon (WMU #17) (RCRA Closed)
7. PCE Release Area (AOC)

There are other waste management units at the site that are not included in this module. Those units are being handled separately under the site-wide RCRA Corrective Action Program outlined in Module E.

(ii) Of the units listed above, three WMU's are regulated hazardous waste management units that have been closed as landfills under applicable rules and would typically be subject to post-closure ground water monitoring under OAC Rules 3745-54-90 through 55-01. They are:

2. Copper Lagoon No. 3 (WMU #7) (RCRA Closed)
5. Waste Lagoon No. 6 (WMU #10) (RCRA Closed)
6. Triangular Lagoon (WMU #17) (RCRA Closed)

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The four remaining units are subject to corrective action requirements in OAC Rule 3745-55-011 (but not post-closure ground water monitoring).

- (iii) Five of the seven units listed above are contiguous and are jointly referred to as the Eastern Settling Lagoons Area of Investigation (AOI). They are:
1. Inactive Settling Lagoon No. 2 (WMU #6) (Closed)
 2. Copper Lagoon No. 3 (WMU #7) (RCRA Closed)
 3. Inactive Settling Lagoon No. 4 (WMU #8) (Closed)
 4. Active Settling Lagoon No. 5 (WMU #9)
 5. Waste Lagoon No. 6 (WMU #10) (RCRA Closed)
- (iv) Tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, and arsenic have been reported in downgradient water monitoring wells associated with the units included in this module at concentrations exceeding concentration limits identified in Table 4-1 of the Integrated Ground Water Monitoring Program.
- (b) The seven units listed in Permit Condition F.1(a)(i) are either contiguous or in close proximity of each other and may be contributing the above mentioned contaminants to the same plume of contaminated ground water. Establishing standards for the three regulated hazardous waste management units under different rules from the remaining WMUs is duplicative and impractical. Therefore, through a permit modification request (received on May 10, 2002 and subsequently revised on March 27, 2003, last updated on April 16, 2004), this permit has been modified to describe an integrated ground water monitoring program for both sets of units. The detailed monitoring program is incorporated into this permit as Section E of the approved permit application and is, hereafter, referred to as the "Integrated Ground Water Monitoring Program" (IGWMP).
- (c) The IGWMP is based primarily on the elements in the December 11, 2001, "Ten Points of Agreement" letter from the Ohio EPA to the permittee (see Appendix F of the IGWMP). For the purposes of this monitoring program, the plume is considered to be "expanding" if the contaminant levels at the Point of Action (POA) wells (listed in Table F-1) exceed calculated residential

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risk levels. Consequently, the IGWMP includes the following:

- (i) A description of the wells in the monitoring network, their locations and relevance to the monitoring plan.
- (ii) Details of the sampling plan, such as, sampling frequency, test methods etc.
- (iii) The basis and procedures for calculating risk levels and, consequently, whether the plume is expanding.
- (iv) The steps to be taken if the monitoring program reveals that the plume of contaminated ground water is expanding.

F.2 Well Location, Installation, and Construction

The Permittee shall maintain the ground water monitoring system in compliance with the requirements specified below:

- (a) The Permittee shall maintain a ground water monitoring network consisting of the wells listed in Table F-1 in this condition and shown on the figure in Attachment F-1 of this Module. For the purposes of this Module the term "Network" is defined as those wells listed in Table F-1 and shown on the figure in Attachment F-1.
- (b) The Permittee shall conduct any additional monitoring well drilling, installation, and surveying activities in accordance with the procedures outlined in Appendix K of the IGWMP.
- (c) The Permittee shall maintain all wells in the monitoring well Network in accordance with Permit Condition G.5 and the plans and specifications presented in Section 5.2 of the IGWMP.
- (d) The Permittee may not remove or replace any monitoring well in the Network unless a permit modification request is submitted and approved in accordance with OAC Rule 3745-50-51. The modification request should include a revised summary table (Table F-1) and map (Attachment F-1 of this Module and Figure 1-2 of the IGWMP).

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- (e) All wells in the Network that are removed or replaced shall be plugged and abandoned in accordance with the *State of Ohio Technical Guidance for Sealing Unused Wells* (State Coordinating Committee on Ground Water, 1996).
- (f) Whenever a Point of Action, Within the Plume, Plume Growth, or Background Well is replaced or any Point of Action, Within the Plume, Plume Growth, or Background Well is added to the monitoring well Network, the Permittee must:
 - (i) Within one year from the date of installation, sample the well for the applicable constituent groups of Appendix to OAC Rule 3745-54-98 (Appendix IX) at that well identified in Table F-1;
 - (ii) Within one year of the date of installation, collect from that well all ground water samples necessary to perform any statistical analysis of data to determine if the replacement well has met its intended objective;
 - (iii) For replacement wells, perform a statistical comparison of the water quality at the replacement well with that of the original well;
 - (iv) Submit a report to Ohio EPA detailing the results of activities described in Permit Condition F.2.(f)(i), (ii), and (iii). This report is due along with the sampling report for the event immediately following the end of the first year after the installation of the new well. The schedule for sampling reports is in Permit Condition F.9(b). The Permittee shall enter the Appendix to OAC Rule 3745-54-98 ground water data generated pursuant to Permit Condition F.2(f)(i) into the Operating Record. The Operating Record is described in Permit Condition F.9(a);
 - (v) If the comparison of ground water quality pursuant to Permit Condition F.2(f)(iii) shows a difference between that of the original well and the replacement well, then the report described in Permit Condition F.2(f)(iv) must also evaluate whether this difference has an effect on the ground water monitoring program, including the assessment of risk for the ground water medium;
 - (vi) If, as the result of the evaluation conducted pursuant to Permit Condition F.2(f)(v), any changes to the ground water monitoring program are necessary, the Permittee shall submit a request for a permit modification in accordance with OAC Rule 3745-50-51 and Permit Condition F.10.

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Table F-1

Well ID	Semi-annual Sampling Event			Annual Sampling Event					Water Level
	Hazardous Constituents*	Possible Degradation Products*	Other VOCs*	APP IX VOCs plus cis-1,2-DCE and TICS	Appendix IX Metals plus fluoride	Cyanide	App IX PCBs	App IX SVOCs	
MW-40	•	•	•	•	•	•			•
MW-41	•	•	•	•	•	•			•
MW-43	•	•	•	•	•	•			•
MW-36**	•	•	•	•	•	•		•	•
MW-37				•	•	•			•
MW-20	•	•	•	•	•	•			•
MW-44	•	•	•	•	•	•			•
MW-45	•	•	•	•	•	•			•
Pitoma Group Wells									
MW-39				•	•	•			•
MW-16				•	•	•			•
MWRW-18				•	•	•			•
Within Plume Wells									
MW-27				•	•	•			•
MW-42				•	•	•			•
MW-32				•	•	•			•
MW-33				•	•	•			•
MW-26				•	•	•		•	•
MW-35**				•	•	•		•	•
Background Wells									
MB-02				•	•	•			•
MW-34				•	•	•			•
MW-21				•	•	•			•
MW-22				•	•	•			•
Water Level Collection Only									
MW-17									•
MW-29									•
MW-30									•
MW-31									•
MW-38									•
MW-48									•
MW-50									•
MB-01									•
MW-9D									•
MW-10D									•
MW-11D									•
MW-12D									•
MW-23D									•
MW-24D									•
MW-25D									•
MW-51D									•
P-03									•
P-04									•
P-05									•
P-06									•

* Hazardous Constituents - tetrachloroethane (PCE), trichloroethene (TCE), dis 1,2-dichloroethylene (Cis 1,2-DCE) and Arsenic
 * Possible Degradation Products - trans 1,2-dichloroethylene (Trans 1,2-DCE), 1,1-dichloroethane (1,1-DCE), 1,1-dichloroethane (1,1-DCE), 1,1-dichloroethane (1,1-DCE), 1,1-dichloroethane (1,1-DCE)
 * TICS - Tentatively Identified Compounds
 ** Annual Sampling of MW-35 and MW-36 for Appendix IX SVOCs and PCBs will occur for three years and every other year following the third year.

F.3 Constituent List

- (a) The Permittee shall semiannually (i.e., October or November) monitor POA wells for the site-specific constituents listed in Table F-1. The required practical quantitation limits (PQLs) for the constituents are identified in Table 5-1 of the IGWMP.
- (b) The Permittee shall annually (i.e., April or May) monitor POA, Plume Growth, Within the Plume, and Background wells for the constituents listed in Table F-1. The required PQLs for the constituents are identified in Tables 5-2, 5-3, 5-4, and 5-5 of the IGWMP.

F.4 Compliance Period

The compliance period for monitoring under the IGWMP is thirty (30) years beginning on July 30, 1994.

F.5 Sampling and Analysis Procedures

The Permittee shall use the following techniques and procedures when obtaining and analyzing samples from the ground water monitoring wells in the Network.

- (a) The Permittee shall collect samples using the techniques described in Section 5.0 of the IGWMP.
- (b) Samples shall be preserved and shipped in accordance with the procedures specified in Section 5.10 of the IGWMP.
- (c) Samples shall be analyzed according to the procedures specified in Section 6.0 of the IGWMP.
- (d) Samples shall be tracked and controlled using the Chain-of-Custody procedures specified in Sections 5.10 and 6.1 of the IGWMP.
- (e) Field and analytical data shall be validated in accordance with the procedures specified in Section 7.0 of the IGWMP.

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F.6 Ground Water Surface Elevation

- (a) The Permittee shall determine the ground water surface elevation at each well identified in Table F-1 during sampling required under Permit Condition F.3. This requirement also applies to any specific well(s) being sampled or resampled.
- (b) Within 45 days of the date of installation of monitoring wells pursuant to Permit Condition F.2(b), the Permittee shall report in writing to Ohio EPA Northwest District Office, the surveyed measuring point elevation (top of casings), ground surface elevation, and area map location (x and y coordinates).

F.7 Statistical Procedures

The numbers and kinds of ground water samples collected to establish background must be appropriate for the form of any statistical test to be employed as part of the IGWMP, following generally accepted statistical principles. The minimum sample size for establishing background must be sufficient to yield results that are both statistically and hydrogeologically valid. Statistical background limits for fluoride and the metals in Appendix to OAC Rule 3745-54-98 are identified in Table 4-1 of the IGWMP.

F.8 Monitoring Program and Data Evaluation

Ground water monitoring under the integrated ground water monitoring program is intended to be as protective as the program for ground water monitoring under OAC Rule 3745-54-90 through OAC Rule 3745-54-99. The Permittee shall determine ground water quality as follows:

- (a) The Permittee shall collect, preserve, and analyze samples in accordance with Permit Condition F.5.
- (b) The Permittee shall determine the concentrations of the hazardous constituents specified in Permit Condition F.3, throughout the compliance period specified in Permit Condition F.4, and report the concentrations, including all estimated values above the method detection limit, to Ohio EPA per Permit Condition F.9.

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- (c) The Permittee shall determine the ground water flow rate and direction in the uppermost aquifer at least annually, as outlined in Section 4.1 of the IGWMP, and report the ground water flow rate and direction to Ohio EPA per Permit Condition F.9(c).
- (d) The Permittee shall determine the ground water flow direction in the intermediate/deep aquifer during the annual (i.e., April or May) and semiannual (i.e., October or November) sampling events, and report the ground water flow direction to Ohio EPA per Permit Condition F.9.
- (e) The Permittee shall compare the results of the analysis of samples collected in compliance with Permit Condition F.3(b) to determine if constituents other than those identified as Hazardous Constituents, Possible Degradation Products or Other VOCs on Table F-1 ("Additional Hazardous Constituents") are present in the samples.
 - (i) If the Permittee determines that Additional Hazardous Constituents that are organic are present at any level or Additional Hazardous Constituents that are inorganic are present at levels exceeding the background limits specified in Table 4-1 of the IGWMP in the POA or Plume Growth Wells, the Permittee may resample the wells in question for the Additional Hazardous Constituent(s) within 30 days of completing data validation.
 - (ii) If the resampling does not confirm the presence of the organic Additional Hazardous Constituent or the background exceedance of the inorganic Additional Hazardous Constituent, then those constituents will not be included as site-specific hazardous constituents identified in Table F-1 and, consequently, will not be included in the risk assessment calculations (outlined in Permit Condition F.8(f)).
 - (iii) If the analysis of the second sample confirms the presence of the organic Additional Hazardous Constituents or the background exceedance of the inorganic Additional Hazardous Constituent or if the Permittee chooses not to resample within 30 days of completing data validation, the Permittee must:
 - (1) Report both the initial and confirmation concentrations of these Additional Hazardous Constituents to the director as part of the

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- sampling reports in accordance with Permit Condition F.9(b).
- (2) Submit a permit modification in accordance with OAC Rule 3745-50-51 to add the Additional Hazardous Constituent(s) to Table F-1, and Tables 5-1 and E-1 in the IGWMP.
 - (3) Include the new Additional Hazardous Constituent(s) in the risk assessment calculations outlined in Permit Condition F.8(f).
 - (iv) The Permittee shall begin analyzing samples for the Additional Hazardous Constituents at the next sampling event required by Permit Condition F.3(a) following the event in which they were confirmed present or in exceedance of background limits, as applicable.
- (f) Following both the semi-annual (i.e, October or November) and annual (i.e., April or May) sampling events in Permit Condition F.3, the Permittee will conduct the forward risk calculation described in Appendix G of the IGWMP to determine if the plume is expanding.
- (i) Residential risk calculations will be used to determine if the additive concentrations of the site-specific constituents in the POA and Plume Growth wells exceed an Excess Lifetime Cancer Risk (ELCR) of 10^{-5} or a Hazard Index of 1.0.
 - (ii) If additive concentrations are found to exceed the levels as specified in Permit Condition F.8(f)(i) at these wells, all wells with the exceedance may be immediately resampled and the risk calculation repeated.
 - (iii) If additive concentrations do not exceed the risk levels at the resampled well(s), it will be considered that the plume is not expanding. If, however, the additive concentrations do exceed risk levels in the resample, or if the Permittee chooses not to resample, then the Permittee must notify the Director in writing within 7 days of determining the exceedance, and implement either the contingencies in Permit Condition F.8(g) or (h).
 - (iv) The Permittee will compare the analytical results from the Plume Growth Wells listed in Table F-1 to the most current EPA Region V Ecological Data Quality Levels (EDQLs) (also known as Ecological

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Screening Levels (ESLs)) for the constituents evaluated as part of the forward human health risk calculations in Permit Condition F.8(f)(i). If the EDQLs are exceeded, the Permittee may resample the wells in question within 30 days of completing data validation. If the resampling does not confirm the exceedance, no further action will be taken. If, however, the resample confirms the exceedance of the EDQL, or if the Permittee chooses not to resample within 30 days of completing data validation, then the Permittee must notify the Director in writing within 7 days of such confirmation and either submit a report to Ohio EPA for review and approval within 45 days after such confirmation outlining the actions which the Permittee shall conduct for further investigation or implement the contingencies in Permit Condition F.8(h).

- (g) Within 180 days of notifying the Director of a risk level exceedance, the Permittee must submit to the Director, an application for a permit modification in accordance with OAC Rule 3745-50-51 to establish a remedial action program. The application will, at a minimum, include the following information:
- (i) A detailed description of the remedial actions that will remove or treat in place any hazardous constituents that exceed their respective risk-based limits, as defined in Permit Condition F.8(f), between the POA wells and the down-gradient facility property boundary. To the extent practicable, this remedial action shall be integrated with corrective action activities under Module E of this permit.
 - (ii) A plan for a ground water monitoring program that will demonstrate the effectiveness of the remedial action.
- (h) If the Permittee determines, pursuant to Permit Condition F.8(f)(iii) or (iv), that the concentrations at the POA or Plume Growth wells have exceeded a risk level or EDQL, as applicable, the Permittee may demonstrate that a source other than the units covered by the IGWMP caused the exceedance or that the exceedance is an artifact caused by an error in sampling, analysis, statistical evaluation, or natural variation in ground water. In making such a demonstration, the Permittee shall:
- (i) Within 7 days of determining a POA or Plume Growth Well exceeds calculated risk levels or EDQLs are exceeded at Plume Growth Wells,

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notify the director in writing of the intent to make an alternate source demonstration in accordance with OAC Rule 3745-54-99(I).

- (ii) Within 90 days of determining a POA or Plume Growth Well exceeds calculated risk levels or EDQLs are exceeded at Plume Growth Wells, submit a report to the director which demonstrates that a source other than a unit under the IGWMP caused the exceedance or that the exceedance resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water. If the exceedance is demonstrated to be an error in sampling, analysis, or statistical evaluation, the Permittee shall make appropriate changes to the present IGWMP at the facility.
- (iii) Upon determining that a source other than a unit under the IGWMP caused the exceedance, in addition to submitting the above report, the Permittee will comply with Permit Conditions E.10 and E.11 if applicable to the alternate source.
- (iv) Within 180 days of determining that a POA or Plume Growth Well exceeds a risk level or within 45 days of determining that a Plume Growth Well exceeds an EDQL, and it cannot be demonstrated that the source is other than a unit covered by the IGWMP or that the exceedance is due to an error in sampling, analysis, statistical evaluation or natural variation in ground water, the Permittee shall either:
 - (a) If the exceedance is a risk level exceedance, submit to the director an application for a permit modification according to OAC Rule 3745-50-51 to establish a remedial action program meeting the requirements of OAC Rule 3745-55-01 as described in Permit Condition F.8(g); or
 - (b) If the exceedance is an EDQL, submit a report to Ohio EPA for review and approval outlining the actions which the Permittee shall conduct for further investigation.
- (v) The Permittee shall continue to monitor ground water in accordance with the IGWMP established at the facility.

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F.9 Recordkeeping and Reporting

(a) Operating Record

In addition to any other information required in Permit Condition F.8(b), the Permittee shall enter all of the following information in the operating record:

- (i) The laboratory results from each of the well samples, duplicates, blanks, and their associated qualifiers, including laboratory sheets for every sampling event (including laboratory method numbers, method detection limits, laboratory practical quantitation limits (PQLs), and units of measurement);
- (ii) The date each well was sampled;
- (iii) The date, time, and identification of all blanks and duplicates;
- (iv) Any field log or laboratory report documentation of deviation from the procedures in the IGWMP, including documentation of parameter omissions during the sampling event;
- (v) The values of the field parameters;
- (vi) The date the Permittee received the results from the laboratory;
- (vii) The date of completion of the data validation;
- (viii) A validation summary that includes qualifiers on the data, definitions for all qualifiers used, a listing of all relative percent differences greater than or equal to 20% for all field duplicate pairs, a signed statement of validity, technical holding time review, dilutions, blank data, spikes, spike recovery percentage, surrogate recovery, and an explanation of any rejected results and an overall assessment of the data;
- (ix) The date of completion of any statistical evaluation;
- (x) Chain-of-Custody documents;
- (xi) The Sample Receipt Form including the sample temperatures upon receipt by the laboratory;

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- (xii) Ground water elevation data as specified in Permit Condition F.6(a);
- (xiii) Potentiometric surface maps based on the ground water elevation data;
- (xiv) Data and results of the semiannual and annual determination of the ground water flow rate and direction as specified in Permit Condition F.8(c) & (d);
- (xv) Data and results from the resampling and risk calculations in Permit Conditions F.8(e) & (f), and
- (xvi) The results of the last three years of all inspections required under OAC Rule 3745-54-15(D) related to ground water monitoring and equipment, as required under OAC Rule 3745-54-73(B)(5).

(b) Sampling Reports

The Permittee shall report in writing the results of the sampling events required under Permit Condition F.3.

The Permittee shall submit the information required by Permit Conditions F.2(f)(iv) and (v), F.6(a), F.8 (b), (d), (e) and (f), and the information contained in Permit Condition F.9(a)(i) through (xv) to the director to the attention of the Central Office, Regulatory and Information Services Section of the Division of Hazardous Waste Management with a copy to the Northwest District Office. The Permittee must submit the Sampling Reports for the scheduled sampling events within 90 days of the completion of the original sampling event.

(c) Annual Reports

The Permittee must submit an annual report to the director by March 1st or the first business day thereafter if March 1st falls on a weekend. For the purposes of the IGWMP, the Permittee shall use the Supplementary Annual Report Form for Part B Permitted Status Facilities. The annual reports must reference the titles and dates of the sampling reports and any updates to those reports (for example, due to confirmation sampling, comments by Ohio EPA, etc.), but generally do not need to include duplicates of hard copies previously submitted. The annual reports must include, at a minimum, the analytical results required by Permit Conditions F.3, F.8(b), the ground water elevation data required by Permit Condition F.6(a) and F.8(c) and (d), any statistical

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analyses required by Permit Conditions F.2 and F.7, and the results of the evaluations required by Permit Conditions F.8(e) and (f). In addition, a copy on disk of all ground water and blank data must be submitted electronically in the format supplied by Ohio EPA. A hard copy of well-specific information [location (latitude and longitude), depth, construction, etc.] for any new/replacement wells, and any other information specified in the instructions for the annual report not addressed in this Permit Condition, must be submitted in accordance with the schedule stated in Permit Condition F.9(b).

(d) Other Reports

The Permittee shall comply with any reporting requirements that become necessary under Permit Condition F.6(b) or F.8(e) through (h). If any of these dates falls on a weekend, the reports will be due no later than the next business day. Resampling reports must include the same types of information as the initial reports pertaining only to the resampled well(s).

(e) Laboratory Reports

Ohio EPA may require a copy of the full laboratory QA/QC report described below for a particular event if circumstances warrant, but in general QA/QC data will not be required except as specified in Permit Condition F.9(a). At a minimum, the full laboratory QA/QC report should include the following:

- (i) Laboratory case narrative;
- (ii) Quality assurance/quality control program elements;
- (iii) Analytical sample summary;
- (iv) Analytical method summary;
- (v) Gas chromatography/mass spectrometry volatiles data, including:
 - (1) Quality control summary data;
 - (2) Sample data;
 - (3) Standards data;
 - (4) Raw quality control data; and

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- (5) Instrument log sheets;
- (vi) Inorganics/metals data;
 - (1) Quality control summary data;
 - (2) Sample data;
 - (3) Calibration data;
 - (4) Instrument printouts; and
 - (5) Preparation logs;
- (vii) Cooler receipt forms;
- (viii) Internal Chain-of-Custody; and
- (ix) Chain-of-Custody documents.

F.10 Request for Permit Modification

If the Permittee or the director determines that the IGWMP established by this Permit no longer satisfies the regulatory requirements, then the Permittee must submit an application for a permit modification within 90 days of this determination to make any appropriate changes to the program.

F.11 Compliance Schedule

The Permittee shall, within ninety (90) days after permit modification journalization, complete the following:

- (a) Begin ground water sampling and analysis in accordance with the IGWMP and follow the schedule outlined in Permit Condition F.3.
- (b) (i) Reserved.
- (ii) Collect a ground water sample at MW-50 in accordance with the procedures outlined in Section 5.0 for the constituents listed in Table 5-2 of the IGWMP.

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- (iii) Submit a report to Ohio EPA in writing detailing the results due to Permit Condition F.11(b)(ii). The Permittee shall enter the Appendix to OAC Rule 3745-54-98 data generated pursuant to Permit Condition F.11(b)(ii) into the operating record in the manner described in Permit Condition F.9(a).
- (iv) If hazardous constituents associated with the plume are confirmed at MW-50 pursuant to Permit Condition F.11(b)(ii), submit to the director an application for a permit modification in accordance with OAC Rule 3745-50-51 to make any appropriate changes to the IGWMP at the facility based upon Permit Condition F.11(b)(iii) in accordance with the schedule in Permit Condition F.10.
- (c) Reserved.
- (d) Install and develop a Plume Growth monitoring well downgradient of MW-44 in accordance with procedures outlined in Appendix K of the IGWMP. This monitoring well shall be screened in the shallow bedrock aquifer.
- (e) Reserved.
- (f) Submit to Ohio EPA a revised Table E-2 "Summary of Well Construction and Survey Data of Wells Sampled and Used for Water Levels, Brush Wellman Inc., Elmore, Ohio" and well construction and lithology logs information for MW-50, MW-51D, MWRW-19 and Permit Condition F.11(d).
- (g) Submit to Ohio EPA a revised Table E-1 "Summary of Compliance Monitoring Program, Brush Wellman Inc., Elmore, Ohio" for Permit Condition F.11(d).
- (h) Submit to Ohio EPA a revised page 7-1 of the IGWMP to remove the reference to Attachment F-4 of the June 14, 2001 permit in the first sentence of the third paragraph of Section 7.1, as this attachment will no longer be included once the permit has been modified.
- (i) Submit to Ohio EPA a revised page 7-4 of the IGWMP to describe the procedures for handling rejected ground water data. Section 7.1(h)(i) of the IGWMP should be revised to include that if a rejected constituent is a site-specific hazardous constituent listed on Table E-1 in a Plume Growth Well or an Appendix IX constituent in a POA Well, then the Permittee shall notify Ohio

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EPA within one week of validation. Within 30 days of validation, the Permittee shall resample the well(s) in question for the constituents of interest. The Permittee shall submit the data to Ohio EPA within 45 days of sampling or as part of the report to be submitted pursuant to Permit Condition F.9(b), whichever is longer. If the constituent is rejected due to a low bias of acrolein, acetonitrile, 1,4-dioxane, isobutanol (also known as isobutyl alcohol), propionitrile, or is a constituent listed as a U.S. EPA poor performer in the National Functional Guideline for Organic Data Review, then the Permittee is not required to resample the well(s) in question for any of these constituents, but is required to provide Ohio EPA with a detailed discussion with supporting laboratory documentation identifying why the constituent(s) was rejected. These resampling requirements do not apply to Within the Plume Wells, Background Wells, or laboratory or field QA/QC samples. Ohio EPA may, on a case by case basis, request the Permittee resample a field QA/QC sample due to poor laboratory QA/QC.

- (j) Submit to Ohio EPA a revised page 4-2 of the IGWMP to add that if an organic Additional Hazardous Constituent is detected "above its respective method detection limit (MDL)" in the annual (i.e., April or May) sampling event pursuant to Permit Condition F.3(b), the well(s) will be resampled (i.e., within 30 days of data validation) for the constituent(s) for which the detection occurred.
- (k) Submit to Ohio EPA revised pages 3 and 4 of Appendix G of the IGWMP to describe the procedure for handling estimated data at POA and Plume Growth Wells. Permittee may either include estimated values or half the PQL for estimated values in the ground water risk calculations for all POA and Plume Growth Wells.
- (l) Submit to Ohio EPA a revised Attachment F-1 with a larger font size for the well designations.
- (m) Submit to Ohio EPA a revised Table 5-1 to include arsenic as a site-specific Hazardous Constituent.
- (n) Submit to Ohio EPA a revised Table 4-1 and Appendix H of the IGWMP to include a background limit for cyanide.

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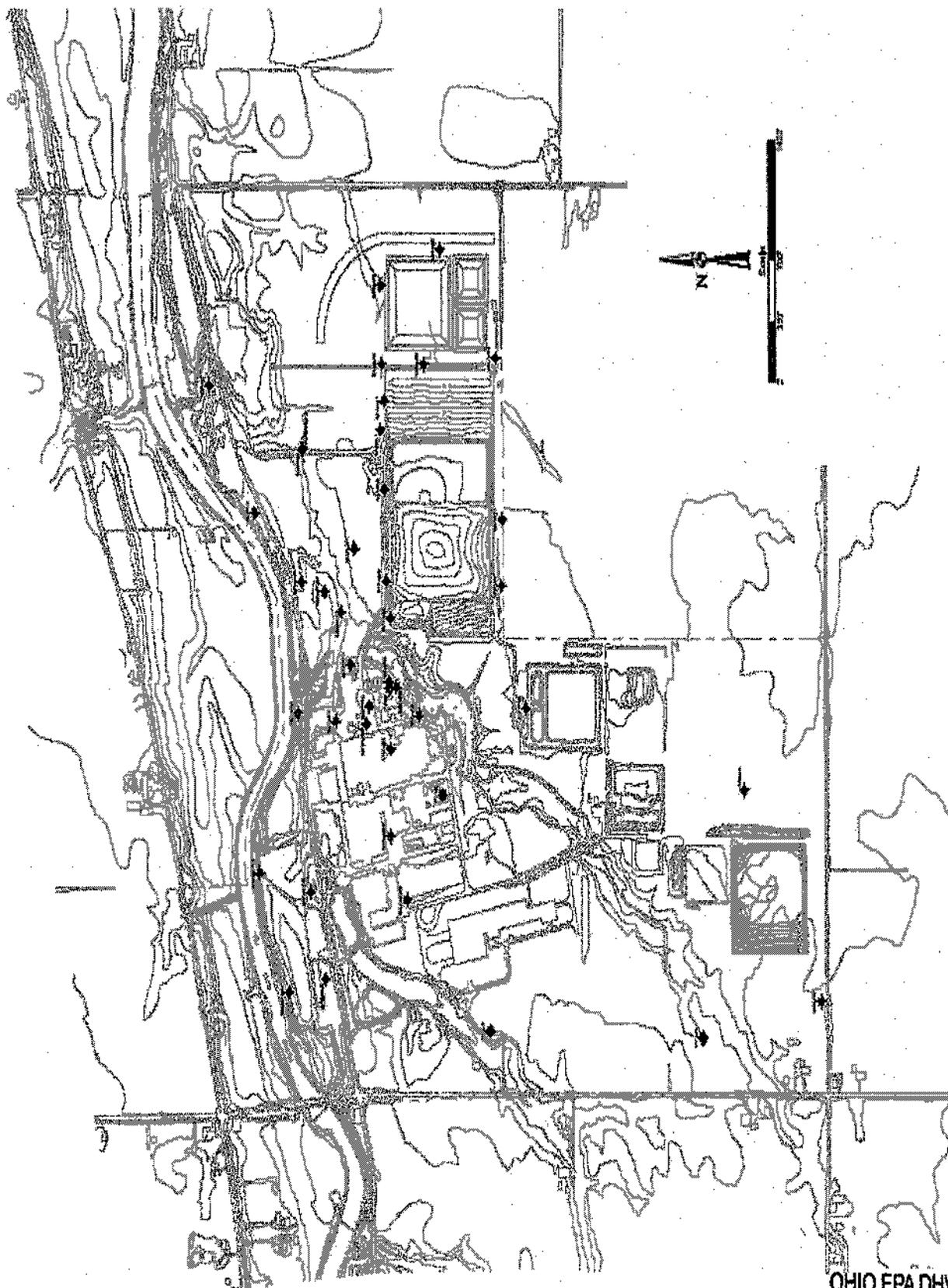
F.12 Property Use Restrictions

- (a) No Use of Ground Water: The Permittee shall not extract or use ground water underlying or within the zone of influence of the property or any portion of the property at the following approximate coordinates: 41.4870 degrees North latitude (southern boundary of the Eastern Settling Lagoons AOI) north to the property boundary (Portage River) and 83.2142 degrees West longitude (west of the PCE AOC) east to the property boundary for any purpose, potable or otherwise, except for monitoring or remediation of the ground water. For the purpose of this permit, remediation includes the pumping of Production Wells to maintain hydraulic capture.
- (b) No Construction of Buildings: The Permittee shall not construct a building or structure of any kind on the property at the following approximate coordinates: 41.4870 degrees North latitude (southern boundary of the Eastern Settling Lagoons AOI) north to the property boundary (Portage River) and 83.2142 degrees West longitude (west of the PCE AOC) east to the property boundary for any purpose due to the potential of vapor intrusion from contaminated ground water volatilizing into an overlying structure causing an inhalation human health exposure pathway. Construction MAY BE allowed in this area under two circumstances:
- (i) If a valid vapor intrusion exposure ground water model approved by the Ohio EPA indicates that the vapor intrusion pathway is within acceptable risk and/or human health standards or
- (ii) An engineering control such as a vapor intrusion barrier has been approved by Ohio EPA and constructed and implemented at the site of construction. An engineering control must be used in conjunction with an operations and maintenance plan and only as a temporary measure until a final remedy decreases ground water concentrations to levels protective of the human health inhalation exposure pathway via vapor intrusion.

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ATTACHMENT F-1
Existing Well Locations



Ground water will be monitored, according to the Part B application and Module F of this permit, for the thirty (30) year post-closure care period. The Permittee is also investigating these units under the corrective action process. See the application, referenced documents, and Module E of this permit for more information about corrective action at this facility.

G.2. Unit Identification

The Permittee shall provide post-closure care for the following hazardous waste management units, subject to the terms and conditions of this permit, and as described as follows:

<i>Type of Waste Unit</i>	<i>Unit No. or Other Designation</i>	<i>Maximum Waste Inventory</i>	<i>Description of Wastes Contained</i>	<i>Hazardous Waste No.</i>
Surface Impoundment	Tri-Lagoon	1,087 yd ³	Sludge from electroplating operation	F006
Surface Impoundment	Lagoon No. 3	9,746 yd ³	Sludge from electroplating operation	F006
Surface Impoundment	Lagoon No. 6	4,626 yd ³	Sludge from electroplating operation	F006

G.3. Post-Closure Procedures and Use of Property

- (a) The Permittee shall conduct post-closure care for each hazardous waste management unit listed in Permit Condition G.2. above, to begin after July 30, 1994 and continue for 30 years after that date, except that the 30-year post-closure care period may be shortened upon application and demonstration approved by EPA that the facility is secure, or may be extended by EPA if the Director finds this is necessary to protect human health and the environment. [OAC 3745-55-17(A)]

The Director may extend the post-closure care period if he finds that this is necessary to protect human health or the environment. A basis for this determination could be leachate or groundwater monitoring results that

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**Responsiveness Summary for Comments Received on Brush Wellman, Inc.
Draft Modified Ohio Hazardous Waste Facility Installation and Operation Permit
Ohio Permit Number 03-62-0042**

The Ohio Environmental Protection Agency (Ohio EPA) received written comments from Brush Wellman, Inc. (BWI) officials as a result of the public comment period, which extended from May 28, 2004 to July 12, 2004. BWI's comments and corresponding responses of Ohio EPA are provided below.

1. **Comment received on the Cover Sheet (also known as the Modified Permit Page):** As a preliminary matter, BWI notes that the contact person to be identified on the Cover Sheet of the Permit should be changed from Michael Kent to Larry Chako.

BWI believes that the third sentence of the fourth paragraph of the Cover Sheet should be deleted. This sentence essentially is duplicative of the first two sentences of that paragraph or contains references (e.g., processes, equipment, containment devices, safety devices) that are not applicable to the matters covered in the Permit.

Ohio EPA's Response: Ohio EPA has changed the facility contact person from Michael Kent to Larry Chako.

Ohio EPA has developed boilerplate language for the Cover Sheet to maintain consistency for permitted facilities across the State. The third sentence of the fourth paragraph does not place any further burden on BWI and therefore will remain in the Cover Sheet.

2. **Comment received on Condition A.26:** This condition should be deleted in its entirety and replaced with a notion of "[Reserved]." All of the requirements previously listed in this condition have been completed, and there is no longer any reason to include them in the Permit.

Ohio EPA's Response: Ohio EPA agrees that the requirements previously listed in this condition have been completed. Therefore Condition A.26 has been revised to be "Reserved."

3. **Comment received on Module E – Corrective Action Requirements (Corrective Action Summary):** The third sentence of the last paragraph of this condition needs to be revised by deleting the clause "except for the topographic map . . ." This map was submitted to Ohio EPA on April 15, 2003.

Ohio EPA's Response: Ohio EPA agrees that the topographic map was submitted. Therefore the phrase will be removed from the third sentence of the last paragraph, even though it is not directly related to this permit modification.

4. **Comment received on Summary of the Integrated Ground Water Monitoring Program and Condition F.1(d):** The third paragraph of this condition contains the statement "It is envisioned that, for the units involved, plume containment or stabilization will serve as the final corrective action remedy for the ground water medium." A similar statement appears at Condition F.1(d). These statements should be deleted from the Permit. It is premature

for the Permit to be making any statement, particularly one consisting purely of conjecture, with respect to any ground water remedy at the Facility. This sentence is also unnecessary since it does not impose any requirement on BWI.

Ohio EPA's Response: Ohio EPA agrees with BWI. Therefore the statement has been removed from the Summary of the Integrated Ground Water Monitoring Program in Module E and Condition F.1(d) has been removed from the permit.

5. **Comment received on Conditions E.3(a) and (d) and F.1(a)(i), (ii) and (iii):** For accuracy, clarity and to more fully describe their current status, the listing of certain of the WMUs as they appear in Conditions E.3(a) and (d) and F.1(a)(i), (ii) and (iii) should be modified to add the underscored information as listed below:

Inactive Settling Lagoon No. 2 (WMU #6) (Closed)
Copper Lagoon No. 3 (WMU #7) (RCRA Closed)
Inactive Settling Lagoon No. 4 (WMU #8) (Closed)
Active Settling Lagoon No. 5 (WMU #9)
Waste Lagoon No. 6 (WMU #10) (RCRA Closed)
Triangular Lagoon (WMU #17) (RCRA Closed)

Ohio EPA's Response: Ohio EPA agrees with BWI. Therefore, Conditions E.3(a) and (d) and F.1(a)(i), (ii), and (iii) have been changed accordingly.

6. **Comment received on Condition F.1(a)(iv):** The reference to OAC Rule 3745-54-94(A)(1) should be replaced with a reference to Table 4-1 of the IGWMP. The cited rule does not identify background concentration limits. Rather, such limits are listed in the cited Table which provides a ready reference with the applicable concentration limits.

Ohio EPA's Response: Ohio EPA agrees with BWI. Therefore, the reference to "OAC Rule 3745-54-94(A)(1)" has been replaced with "Table 4-1 of the Integrated Ground Water Monitoring Program" in Condition F.1(a)(iv).

7. **Comment received on Condition F.1(b):** As currently written, the first sentence of this condition suggests that each of the seven units within the integrated program are contributing contaminants to a ground water plume. BWI is not aware of any information indicating that WMUs 7, 8, 9 or 10 have contributed contaminants to ground water. BWI suggests replacing the first sentence of F.1.(b) with the following:

The seven units listed in Permit Condition F.1(a)(i) are either contiguous to or in close proximity of each other, and maintaining a separate ground water monitoring system for each unit would be duplicative and impractical.

Ohio EPA's Response: In order for Ohio EPA to combine the ground water monitoring requirements for the units in post-closure care and the units in corrective action, the criteria

of the post-closure rule must be satisfied. Therefore Ohio EPA has changed the condition to read "*The seven units listed in Permit Condition F.1(a)(i) are either contiguous or in close proximity of each other and may be contributing the above mentioned contaminants to the same plume of contaminated ground water.*" During review of this comment, Ohio EPA also discovered similar language in Module E in the second paragraph under the Summary of the Integrated Ground Water Monitoring Program. Accordingly Ohio EPA has also changed that language to be "*However, for purposes of this IGWMP, all of the above units are combined because they are either contiguous or in close proximity of each other and may be contributing the above mentioned contaminants to the same plume of contaminated ground water.*"

8. **Comment received on Condition F.1(c)1:** To avoid misunderstandings and differences in interpretation, BWI requests that the term "residential risk-levels" should be quantified by adding the following description in parentheses following "residential risk."

(risk greater than 1×10^{-5} and a Hazard Index of greater than 1 for residential exposure)

Ohio EPA's Response: Ohio EPA assumes that BWI intended the above reference to Permit Condition F.1(c)(1) to read F.1(c) and that the "(1)" was a typographical error. Regarding Permit Condition F.1(c), the term residential risk is equivalent to an upper bound risk level of less than or equal to 1×10^{-5} and less than or equal to a hazard index of 1. In order to avoid being repetitive, Ohio EPA did not believe it was necessary to include both. Therefore Condition F.1(c) has not changed.

9. **Comment received on Condition F.2(a):** The current version of Attachment F-1 is a map from the IGWMP (Figure 1-2) showing the location of all wells at the Facility. As reflected on Table F-1, only a subset of those wells are to be sampled and used for depth-to-water measurements. In order to avoid any confusion, BWI has prepared a revised version of Attachment F-1 that depicts the location of the wells included in this subset. BWI requests that this revised Attachment F-1, which is attached, be used in the final Permit and that the reference to Figure 1-2 of the IGWMP be deleted. Brush Wellman suggests that the words "consisting of" replace the words "based on" in this condition.

In addition, this network as described in this condition should constitute a definition of the term "Network" that can be used throughout Condition F.2 for consistency and clarity.

Ohio EPA's Response: Ohio EPA agrees with BWI. Revised Attachment F-1 will replace the current Attachment F-1 that was in the draft Permit. Ohio EPA requests that BWI submit a revised Attachment F-1 with increased font size for the well designation due to legibility. This request has been added to the Compliance Schedule found in Permit Condition F.11(l). The words "consisting of" will replace the words "based on". In addition, the term "Network" will be defined and used through Permit Condition F.2. Therefore, Permit Condition F.2(a) will be revised to read as follows:

F.2(a) The Permittee shall maintain a ground water monitoring network consisting of the wells listed in Table F-1 in this condition and shown on the figure in Attachment F-1 of this Module. For the purposes of this Module the term "Network" is defined as those wells listed in Table F-1 and shown on the figure in Attachment F-1.

10. **Comment received on Condition F.2(f):** As drafted, Permit Conditions F.2.(f)(ii), (iii), (v), and (vi) mistakenly assume that when a well is replaced, the ground water chemistry between the original and replacement well should, in all cases, be statistically equivalent. In a case where a well has to be replaced due to damage, and the objective of the replacement is to provide ground water equivalent to that of the well being replaced, this goal is understandable and, in general, is acceptable to BWI. However, this condition does not anticipate situations such as the replacement of MW-19 by MWRW-19. In this case, MW-19 was replaced by MWRW-19 because MW-19 was not providing representative ground water samples and, in this case, a difference between the samples would be expected, if not desirable. The current language also does not address replacement of a well included on Table F-1 for only water-level collection. In this situation, based on the current permit language, a "water-level only" well identified on Table F-1 which is damaged and has to be replaced would be sampled for the Appendix IX list and analyzed statistically. Clearly, this is not what Ohio EPA intended by this condition.

In addition, the required Appendix IX analysis, should be limited to Appendix IX VOCs or metals as are conducted during the annual sampling event and should not, necessarily, include Appendix IX SVOCs, PCBs, pesticides, herbicides, and dioxins. As written, it is not clear if F.2(f) applies to MWRW-19 which was installed over a year ago. The following proposed language is intended to address the above issues and address general inconsistencies and confusing language.

- (f) *Whenever a Point of Action, Within the Plume, or Plume Growth Well is replaced or any other well is added to the monitor well network (Attachment F-1) after the effective date of this permit modification, the Permittee must:*
 - (i) *Within one year from the date of installation, sample the well for the applicable constituent groups of Appendix to OAC Rule 3745-54-98 (Appendix IX) at that well;*
 - (ii) *Within one year of the date of installation, collect from that well all ground water samples necessary to determine if the replacement well has met its intended objective, either statistically or otherwise;*
 - (iii) *Submit a report to Ohio EPA detailing the results of the activities described in F.2(f)(i) and (ii). This report is due along with the sampling report for the event immediately following the end of the first year after the installation of new well. The schedule for sampling reports is in Permit Condition F.9(b). The Permittee shall*

enter the Appendix to OAC Rule 3745-54-98 ground water data generated pursuant to Permit Condition F.2.(f)(i) into the Operating Record. The Operating Record is described in Permit Condition F.9(a);

- (iv) If the objective of the ground water sampling conducted pursuant to Permit Condition F.2(f)(ii) is to determine if the well is equivalent to the well being replaced, and the comparison of ground water quality shows a significant difference between that of the original well and the replacement well, then the report described in Permit Condition F.2(f)(iii) must also evaluate whether this difference has a significant effect on the ground water monitoring program, including the assessment of risk for the ground water medium;*
- (v) If, as the result of the evaluation conducted pursuant to Permit Condition F.2(f)(iv), any changes to the ground water monitoring program are necessary, the Permittee shall submit a request for permit modification in accordance with OAC Rule 3745-50-51 and Permit Condition F.10.*

Ohio EPA's Response: BWI is correct in that it was not the intent of Ohio EPA to have "water-level only" wells identified on Table F-1 sampled for Appendix IX constituents and statistically analyzed. Ohio EPA agrees with the language provided by BWI with clarification. BWI did not include "Background Wells" in the language provided for this permit condition and is missing the draft Permit Condition F.2(f)(iii). Ohio EPA has also provided clarification to restrict Appendix IX sampling and statistical analysis to only new or replaced Point of Action, Within the Plume, Plume Growth, and Background Wells.

Ohio EPA agrees that not all wells need to include Appendix IX SVOCs, PCBs, pesticides, herbicides, and dioxins. As BWI proposed, Permit Condition F.(2)(f)(i) will be revised so that the applicable constituent groups of Appendix to OAC Rule 3745-54-98 will be sampled at the well(s) in question. Since MWRW-19 is a replacement well, this permit condition would apply. However, BWI voluntarily installed MWRW-19 prior to the issuance of the draft permit in order to have the well in-place upon permit approval. The terms and conditions of this modified permit do not become effective until the day it is journalized by the director of Ohio EPA, therefore Permit Condition F.2(f) could not be retroactively applied to MWRW-19. Due to this, Ohio EPA does not think it is necessary to include BWI's proposed language which states, "after the effective date of this permit modification."

Ohio EPA revised BWI's proposed language for Permit Condition F.2(f)(iv) re-incorporating the missing F.2(f)(iii) originally in this draft permit condition (Permit Condition F.2(f)(v) below). This clarifies that a statistical comparison of the water quality from the replacement well with that of the original well is required. Ohio EPA believes revised Permit Condition F.2(f)(v) below does not change the meaning of BWI's proposed language.

Permit Condition F.2(f) will therefore be revised to read as follows:

F.2(f) Whenever a Point of Action, Within the Plume, Plume Growth, or Background Well is replaced or any Point of Action, Within the Plume, Plume Growth, or Background Well is added to the monitoring well Network, the Permittee must:

- (i) Within one year from the date of installation, sample the well for the applicable constituent groups of Appendix to OAC Rule 3745-54-98 (Appendix IX) at that well identified in Table F-1;
- (ii) Within one year of the date of installation, collect from that well all ground water samples necessary to perform any statistical analysis of data to determine if the replacement well has met its intended objective;
- (iii) For replacement wells, perform a statistical comparison of the water quality at the replacement well with that of the original well;
- (iv) Submit a report to Ohio EPA detailing the results of the activities described in Permit Condition F.2(i), (ii), and (iii). This report is due along with the sampling report for the event immediately following the end of the first year after the installation of the new well. The schedule for sampling reports is in Permit Condition F.9(b). The Permittee shall enter the Appendix to OAC Rule 3745-54-98 ground water data generated pursuant to Permit Condition F.2(f)(i) into the Operating Record. The Operating Record is described in Permit Condition F.9(a);
- (v) If the comparison of ground water quality pursuant to Permit Condition F.2(f)(iii) shows a difference between that of the original well and the replacement well, then the report described in Permit Condition F.2(f)(iv) must also evaluate whether this difference has an effect on the ground water monitoring program, including the assessment of risk for the ground water medium;
- (vi) If, as the result of the evaluation conducted pursuant to Permit Condition F.2(f)(v), any changes to the ground water monitoring program are necessary, the Permittee shall submit a request for a permit modification in accordance with OAC Rule 3745-50-51 and Permit Condition F.10.

- 11. Comment received on Table F-1:** The well identification (ID) of the eleventh well from the top of the table is not clear. It should be MWRW-19. MW-45 is listed in the "Water Level Collection Only" section of Table F-1. Because MW-45 is a POA Well, and is included on that list, it should be removed from the "Water Level Collection Only" group.

Ohio EPA's Response: Ohio EPA agrees with BWI. Table F-1 will be revised accordingly.

12. **Comment received on Condition F.3(a):** BWI believes that the reference to "semiannually" is confusing and this condition instead should indicate that the sampling required in this condition shall take place in October or November of each year. Table 5-1 of the IGWMP was designed (and is labeled as such) to specifically identify the compounds, method, holding time, preservative, and containers to be used in the sampling for the site-specific hazardous constituents. Table 5-1 should be referenced instead of Tables 5-2, 5-3, 5-4 and 5-5 in this condition since Tables 5-2 through 5-5 cover a larger list of constituents, most of which are not analyzed for during this sampling event. The term "detection limits" used in this condition should be changed to "Practical Quantitation Limit (PQL)" to match the tables of the IGWMP.

Ohio EPA's Response: Ohio EPA does not feel this request is warranted and will only cause confusion between the Permit and IGWMP. When drafting this Class 3 Permit Modification Ohio EPA used the term "semiannually" because this is the language used in BWI's Class 3 Permit Modification application to describe this sampling event. If this change is made, BWI would need to revise this language throughout their entire permit application. In order to avoid revising their permit application and to alleviate BWI's concerns regarding this Permit language all applicable permit conditions will be revised to include "(i.e., October or November)" after the word "semiannually". Ohio EPA agrees to reference Table 5-1 instead of Tables 5-2, 5-3, 5-4 and 5-5 in this condition. However, in doing so BWI will need to provide Ohio EPA a revised Table 5-1 to include arsenic. This requirement has been added to the Compliance Schedule found in Permit Condition F.11(m). Finally, Ohio EPA agrees to use the term "Practical Quantitation Limit (PQL)" in place of the term "detection limits" to match the tables in the IGWMP. To reflect these changes, Permit Condition F.3(a) will be revised to read as follows:

F.3(a) The Permittee shall semiannually (i.e., October or November) monitor POA wells for the site-specific constituents listed in Table F-1. The required practical quantitation limits (PQLs) for the constituents are identified in Table 5-1 of the IGWMP.

13. **Comment received on Condition F.3(b):** BWI believes that the reference to "annually" is confusing and this condition instead should indicate that the sampling required in this condition shall take place in April or May of each year. The term "detection limits" used in this condition should be changed to "Practical Quantitation Limit (PQL)" to match the referenced tables of the IGWMP.

Ohio EPA's Response: Ohio EPA does not feel this request is warranted and will only cause confusion between the Permit and IGWMP. When drafting the Class 3 Permit Modification Ohio EPA used the term "annually" because this is the language used in BWI's Class 3 Permit Modification application to describe this sampling event. If this change is made, BWI would need to revise this language throughout their entire permit application.

However, in order to avoid revising their permit application and to alleviate BWI's concerns regarding this Permit language all applicable permit conditions will be revised to include "(i.e., April or May)" after the word "annually". Ohio agrees to change the term "detection limits" to "Practical Quantitation Limit (PQL)" in this permit condition. In order to reflect these changes Permit Condition F.3(b) will be revised to read as follows:

F.3(b) The Permittee shall annually (i.e., April or May) monitor POA, Plume Growth, Within the Plume, and Background wells for the constituents listed in Table F-1. The required PQLs for the constituents are identified in Tables 5-2, 5-3, 5-4, and 5-5 of the IGWMP.

14. **Comment received on Condition F.6(a):** Water levels are typically collected during ground water sampling events for two purposes: first, to allow calculation of purge volume and second, to be used in constructing a map showing direction of ground water flow. According to Condition F.8(c), a ground water flow map and calculation of flow rate with respect to the uppermost aquifer is required only once per year. BWI proposes to collect water levels and prepare and submit resulting flow maps and rate calculations during each regularly scheduled sampling event. It is not necessary, however, to collect water levels for each well identified in Table F-1 when additional sampling beyond the two regularly scheduled sampling events is conducted, and BWI is not aware of any ground water monitoring regulations requiring this. BWI will, of course, determine the ground water elevation prior to purging at each of the wells being resampled for any reason. This measurement is required in the calculation of the purge volume. BWI, therefore, requests that Condition F.6(a) be replaced with the following:

The Permittee shall determine the ground water surface elevation of each well identified in Table F-1 during sampling required under Permit Condition F.3. This requirement does not apply to other sampling or resampling events.

Ohio EPA's Response: Ohio EPA agrees with BWI if clarification is added. The last sentence in BWI's proposed language for Permit Condition F.6(a) seems to imply that ground water surface elevation requirements do not apply for resampling or other miscellaneous sampling events. This is not correct. OAC Rule 3745-54-97(f) requires a determination of the ground water surface elevation each time ground water is sampled. Although BWI explained their intent to meet this rule in the above comment, it was not clearly explained in the last sentence of BWI's proposed permit language. Therefore, in order to clarify what is required, Permit Condition F.6(a) will be revised to read as follows:

F.6(a) The Permittee shall determine the ground water surface elevation at each well identified in Table F-1 during sampling required under Permit Condition F.3. This requirement also applies to any specific well(s) being sampled or resampled.

15. **Comment received on Condition F.6(b):** BWI is not familiar with the term "aprons" as used in this condition. The only survey information relevant to the monitoring program are

measuring point elevation (tops of casing), ground surface elevation, and map location (x and y coordinates). It is not necessary to determine elevations of aprons or protective casings, and BWI is not aware of any ground water monitoring regulations requiring this information. In addition, these additional surveying requirements are beyond what is required under Condition F.2(b). Condition F.2.(d) does not appear to be related to surveying and should not be referenced in this condition. BWI recommends replacing the draft language with the following:

Within 45 days of the date of installation of monitor wells pursuant to Permit Condition F.2(b), the Permittee shall report in writing to Ohio EPA Northwest District Office, the surveyed measuring point, the ground surface elevation, and the area location.

Ohio EPA's Response: Ohio EPA agrees with BWI. However, in order to provide clarification Ohio EPA has added "(tops of casings)" after the phrase "surveyed measuring point elevation", the word "map" after "area", and "(x and y coordinates)" after the phrase "area map location". Ohio EPA will also remove the reference to Permit Condition F.2(d). Permit Condition F.6.(b) will therefore be revised to read as follows:

F.6(b) Within 45 days of the date of installation of monitoring wells pursuant to Permit Condition F.2(b), the Permittee shall report in writing to Ohio EPA Northwest District Office, the surveyed measuring point elevation (top of casings), the ground surface elevation, and area map location (x and y coordinates).

16. **Comment received Condition F.7:** This condition states that the background limits identified in Table 4-1 will be used for any statistical purposes. The meaning and intent of this statement is unclear. The background limits were developed statistically based on a background data set. As described in the IGWMP, concentrations of metals and fluoride in POA, Plume Growth and Within the Plume Wells will be compared to the background limits (through a one to one comparison) to determine if a release has occurred and if a constituent should be considered as a hazardous constituent. There are currently no statistical analyses planned for as part of the IGWMP. However, it is possible that it may be necessary to utilize the downgradient or background data set for other purposes such as trend analysis or to determine if a result is an artifact caused by an error in statistical analysis or natural variation in ground water. See Permit Condition F.8(h). As currently written, the condition is overly broad and restrictive and would limit BWI's ability to conduct the allowed statistical evaluations. As the first several sentences of the condition indicate, the number and kinds of ground water samples must be appropriate for the statistical test and should not be limited by a permit condition.

Use of the background limits as currently envisioned is adequately covered in Permit Condition F.8.(e)(i). Therefore, the last sentence of this paragraph as currently written is not necessary and should be deleted. However, if Ohio EPA feels it is necessary to reference the current background limits as part of this condition, BWI recommends the

following sentence be used in place of the last sentence of this condition.

Background limits for fluoride and the metals in Appendix to OAC Rule 3745-54-98 are identified in Table 4-1 of the IGWMP.

Ohio EPA's Response: Ohio EPA agrees with BWI. However, in order to provide clarification Ohio EPA has added the word "statistical" before the word "background" to BWI's proposed language. Permit Condition F.7 will be revised to read as follows:

F.7 The numbers and kinds of ground water samples collected to establish background must be appropriate for the form of statistical test to be employed as part of the IGWMP, following generally accepted statistical principles. The minimum sample size for establishing background must be sufficient to yield results that are both statistically and hydrogeologically valid. Statistical background limits for fluoride and the metals in Appendix to OAC Rule 3745-54-98 are identified in Table 4-1 of the IGWMP.

17. **Comment received on Condition F.8:** As Ohio EPA is aware and recognizes in the Permit, the IGWMP, as implemented by and incorporated in this Permit, is intended to take into account the particular conditions at the Site and the impracticality of separately implementing post-closure ground water monitoring and corrective action requirements with respect to the WMUs covered by the IGWMP. Ohio EPA and BWI have engaged in extensive discussions over several years to try to construct a process that addresses conditions at the Site in a protective and practical way. In light of the genesis of and rationale for this permit modification, BWI is concerned with the generality and non-specificity of the first sentence of this condition. In particular, BWI notes that there is no way to measure and compare the "effectiveness" of the IGWMP and a ground water monitoring program that otherwise may have been implemented under OAC Rules 3745-54-90 through 99. BWI's compliance should be measured in terms of its performance of the specific requirements of the Permit, including the incorporated IGWMP. It is in no one's interest to include a permit condition with which compliance cannot be determined. Thus, BWI requests that the first sentence of this condition be deleted. If Ohio EPA believes it is necessary to make some statement comparing the IGWMP to the post-closure ground water monitoring rules, BWI suggests replacing the phrase "shall be as effective as" with the phrase "is intended to be as protective as" in the first sentence.

Ohio EPA's Response: Ohio EPA does not feel it is appropriate to remove the first sentence entirely but Ohio EPA agrees that it is acceptable to replace "shall be as effective as" with the phrase "is intended to be as protective as." Therefore Condition F.8 has been changed accordingly.

18. **Comment received on Condition F.8(b):** BWI is very concerned with Ohio EPA's request to report analytical results to below the laboratory reporting limit and the implications (perhaps unintended) of such a requirement. BWI is unaware of any valid regulatory or

technical reason to do so. Condition F.8(b) should be removed in its entirety. See Comment to Condition F.11(j) for a thorough discussion of this issue.

Ohio EPA's Response: See comment received on Permit Condition F.11(j) discussed in Responsiveness Summary Comment 39.

- 19. Comment received on Condition F.8(c) and (d):** Water level measurements typically are collected prior to the actual collection of a ground water sample, not following. Therefore, the word "following" should be replaced with "during" when describing the timing of water level measurements. As discussed in the Comment for Condition F.6(a), ground water flow direction will be determined using water level measurements from each network well during each regularly scheduled monitoring event.

Ohio EPA's Response: Ohio EPA did not find the reference to the above comment in Condition F.8(c), however Ohio EPA agrees to replace the term "following" with "during" in Condition F.8(d) and has changed it accordingly. Also, in accordance with Responsiveness Summary Comments 12 and 13, Ohio EPA has added "annual (i.e., April or May)" and "(i.e., October or November)" after "semiannual" to clarify this permit condition.

- 20. Comment received on Condition F.8(c):** This condition as currently drafted is confusing and does not accurately describe the comparison of ground water quality data that is supposed to take place under the IGWMP. In particular, the determination of whether there are additional hazardous constituents to be added to the list of site-specific hazardous constituents because they are detected (organic) or are present above background (inorganic) is to take place only during the sampling event conducted pursuant to Condition F.3(b). Therefore, BWI suggests that the prefatory language of the condition be rewritten as follows:

The Permittee shall compare the results of the analysis of samples collected in compliance with Permit Condition F.3(b) to determine if constituents other than those identified as Hazardous Constituents, Possible Degradation Products or Other VOCs on Table F-1 ("Additional Hazardous Constituents") are present in the samples.

Moreover, the reference to the semiannual report should be removed from Permit Condition F.8(e)(iii)(1). Throughout the rest of Permit Condition F.8, the newly-defined term "Additional Hazardous Constituent" should be used when referring to such detected constituents. Accordingly, the beginning of Condition F.8(e)(i) should read:

If the Permittee determines that Additional Hazardous Constituents that are organic are present at any level or Additional Hazardous Constituents that are inorganic are present at levels exceeding the background limits specified in Table 4-1 of the IGWMP in the POA or Plume Growth Wells, . . .

Similarly, the beginning of Condition F.8(e)(iii) should read:

If the analysis of the second sample confirms the presence of the organic Additional Hazardous Constituents or the background exceedance of the inorganic Additional Hazardous Constituent . . .

Finally, BWI suggests that Permit Condition F.8(e)(iv) be revised to read as follows:

The Permittee shall begin analyzing samples for the confirmed Additional Hazardous Constituents at the next sampling event required by Permit Condition F.3(b) following the event in which they were confirmed present or in exceedance of background limits, as applicable.

Ohio EPA's Response: Ohio EPA assumes that BWI intended the above reference to Permit Condition F.8(c) to read F.8(e) and that the "(c)" was a typographical error. Regarding Permit Condition F.8(e) Ohio EPA agrees with BWI, with a few exceptions. Due to the exceptions, Ohio EPA will discuss each proposed change in the permit condition separately.

- BWI requested that Permit Condition F.8(e) be revised to read as follows: "The Permittee shall compare the results of the analysis of samples collected in compliance with Permit Condition F.3(b) to determine if constituents other than those identified as Hazardous Constituents, Possible Degradation Products or Other VOCs on Table F-1 ("Additional Hazardous Constituents") are present in the samples." Ohio EPA agrees with this proposed language.
- BWI requested that the term "semiannual reports" be removed from Permit Condition F.8(e)(iii)(1). Ohio EPA agrees the only time an Additional Hazardous Constituent would be added to the site-specific list would be during the annual (i.e., April or May) sampling event. In addition, Ohio EPA will revise the permit to refer to such detections as "Additional Hazardous Constituents".
- BWI requested that the beginning of Permit Condition F.8(e)(iii) be revised to read as follows: "If the analysis of the second sample confirms the presence of the organic Additional Hazardous Constituents or the background exceedance of the inorganic Additional Hazardous Constituent . . ." Ohio EPA agrees with this proposed language.
- BWI requested that Permit Condition F.8(e)(i) be revised to read as follows: "If the Permittee determines that Additional Hazardous Constituents that are organic are present at any level or Additional Hazardous Constituents that are inorganic are present at levels exceeding the background limits specified in Table 4-1 of the IGWMP in the POA or Plume Growth Wells, . . ." Ohio EPA agrees with this proposed language. However, BWI needs to provide Ohio EPA a revised Table 4-1

and Appendix H from the IGWMP to include a background limit for cyanide. Since cyanide does not appear to have been detected in any of the background wells, the background limit should be the PQL. This requirement has been added to the Compliance Schedule found in Permit Condition F.11(n).

- BWI requested that Permit Condition F.8(e)(iv) be revised to read as follows: "The Permittee shall begin analyzing samples for the confirmed Additional Hazardous Constituents at the next sampling event required by Permit Condition F.3(b) following the event in which they were confirmed present or in exceedance of background limits, as applicable." Ohio EPA disagrees with BWI's reference to F.3(b) in this permit condition. If an Additional Hazardous Constituent is confirmed pursuant to F.3(b), then it should be sampled at the next sampling event required by Permit Condition F.3(a). BWI's proposed language would not require an Additional Hazardous Constituent detected in the April or May sampling event to be sampled again until April or May of the following year. Ohio EPA believes the proposed schedule for including Additional Hazardous Constituents is not protective of human health or the environment.

In order to reflect all the above revisions Permit Condition F.8(e) will be revised to read as follows:

- F.8(e) The Permittee shall compare the results of the analysis of samples collected in compliance with Permit Condition F.3(b) to determine if constituents other than those identified as Hazardous Constituents, Possible Degradation Products or Other VOCs on Table F-1 ("Additional Hazardous Constituents") are present in the samples.
- (i) If the Permittee determines that Additional Hazardous Constituents that are organic are present at any level or Additional Hazardous Constituents that are inorganic are present at levels exceeding the background limits specified in Table 4-1 of the IGWMP in the POA or Plume Growth Wells, the Permittee may resample the wells in question for the Additional Hazardous Constituent(s) within 30 days of completing data validation.
 - (ii) If the resampling does not confirm the presence of the organic Additional Hazardous Constituent or the background exceedance of the inorganic Additional Hazardous Constituent, then those constituents will not be included as site-specific hazardous constituents identified in Table F-1 and, consequently, will not be included in the risk assessment calculations (outlined in Permit Condition F.8(f)).
 - (iii) If the analysis of the second sample confirms the presence of the organic Additional Hazardous Constituents or the background exceedance of the inorganic Additional Hazardous Constituent or if the Permittee chooses not

to resample within 30 days of completing data validation, the Permittee must:

- (1) Report both the initial and confirmation concentrations of these Additional Hazardous Constituents to the director as part of the sampling reports in accordance with Permit Condition F.9(b).
- (2) Submit a permit modification in accordance with OAC Rule 3745-50-51 to add the Additional Hazardous Constituent(s) to Table F-1, and Tables 5-1 and E-1 in the IGWMP.
- (3) Include the new Additional Hazardous Constituent(s) in the risk assessment calculations outlined in Permit Condition F.8(f).
- (iv) The Permittee shall begin analyzing samples for the Additional Hazardous Constituents at the next sampling event required by Permit Condition F.3(a) following the event in which they were confirmed present or in exceedance of background limits, as applicable.

21. Comment received on Condition F.8(e)(i): BWI assumes that resampling must be conducted within 30 days of receipt of the completed validation. This is because the evaluation can not be completed until the validation is complete. BWI, therefore, requests that "of completing data validation" is added after "30 days" in each of these conditions.

Ohio EPA's Response: Ohio EPA agrees with BWI. See revised Permit Condition F.8(e) in Responsiveness Summary Comment 20.

22. Comment received on Condition F.8(f)(ii): BWI requests that a specific time frame, within 90 days after conducting the initial risk calculation, for conducting the resampling and repeated risk calculation, be added to this condition.

Ohio EPA's Response: Ohio EPA disagrees with BWI. In accordance with Permit Condition F.9(b) the result of the risk resampling event pursuant to Permit Condition F.8(f)(ii) is required to be submitted to Ohio EPA within 90 days of completion of the original sampling event. In BWI's permit application regarding resampling for risk it states, "If additive concentrations exceed these risk value at any of the POA or plume growth wells, the well with the exceedance will be immediately resampled on a rush laboratory turnaround and the risk calculation conducted a second time." This implies a time period for resampling much shorter than 90 days. Therefore, this permit condition will not be changed.

23. Comment received on Condition F.8(f)(iv): BWI requests that specific starting points for each of the deadlines in this condition be indicated. Thus, BWI requests that the phrase "after the exceedance determination" be added after each reference to "30 days" and that

the phrase "after such confirmation" be added after the reference to "45 days."

Ohio EPA's Response: Ohio EPA agrees if clarification is added. Ohio EPA believes that the phrase "after the exceedance determination" does not give a definitive starting point when referring to the 30 day resampling period. Therefore, consistent with Comment 21, Ohio EPA will add "of completing data validation" after "30 days". Ohio EPA agrees to include the phrase "after such confirmation" after the reference to "45 days". Permit Condition F.8(f)(iv) will therefore be revised to read as follows:

F.8(f)(iv) The Permittee will compare the analytical results from the Plume Growth Wells listed in Table F-1 to the most current EPA Region V Ecological Data Quality Levels (EDQLs) (also known as Ecological Screening Levels (ESLs)) for the constituents evaluated as part of the forward human health risk calculations in Permit Condition F.8(f)(i). If the EDQLs are exceeded, the Permittee may resample the wells in question within 30 days of completing data validation. If the resampling does not confirm the exceedance, no further action will be taken. If, however, the resample confirms the exceedance of the EDQL, or if the Permittee chooses not to resample within 30 day of completing data validation, then the Permittee must notify the Director in writing within 7 days of such confirmation and either submit a report to Ohio EPA for review and approval within 45 days after such confirmation outlining the actions which the Permittee shall conduct for further investigation or implement the contingencies in Permit Condition F.8(h).

24. **Comment received on Condition F.8(h):** As currently written, this condition could be interpreted incorrectly to require that EDQLs be evaluated at POA wells. To address this problem, BWI recommends that "as applicable" be inserted following "EDQL," in the first sentence of this condition.

Ohio EPA's Response: Ohio EPA agrees with BWI. The first sentence of Permit Condition F.8(h) will be revised to read as follows:

F.8(h) If the Permittee determines, pursuant to Permit Condition F.8(f)(iii) or (iv), that the concentrations at the POA or Plume Growth wells have exceeded a risk level or EDQL, as applicable, the Permittee may demonstrate that a source other than the units covered by the IGWMP caused the exceedance or that the exceedance is an artifact caused by an error in sampling, analysis, statistical evaluation, or natural variation in ground water.

25. **Comment received on Conditions F.8(h)(i) and (ii):** As established in Conditions F.8(f)(i) and F.8(f)(iv), respectively, risk levels will only be calculated for the POA and Plume Growth Wells and EDQLs only apply to Plume Growth Wells. To reflect these requirements clearly, the initial clause of each of these conditions should be revised as follows:

F.8(h)(i)

Within 7 days of determining a POA or Plume Growth Well exceeds calculated risk levels or EDQLs are exceeded at Plume Growth Wells, . . .

F.8(h)(ii)

Within 90 days of determining a POA or Plume Growth Well exceeds calculated risk levels or EDQLs are exceeded at Plume Growth Wells, . . .

Ohio EPA's Response: Ohio EPA agrees with BWI. Permit Condition F.8(h)(i) will be revised as follows:

F.8(h)(i) With 7 days of determining a POA or Plume Growth Well exceeds calculated risk levels or EDQLs are exceeded at Plume Growth Wells, notify the director in writing of the intent to make an alternate source demonstration in accordance with OAC Rule 3745-54-99(I).

Likewise, Permit Condition F.8(h)(ii) will be revised as follows:

F.8(h)(ii) Within 90 days of determining a POA or Plume Growth Well exceeds calculated risk levels or EDQLs are exceeded at Plume Growth Wells, submit a report to the director which demonstrates that a source other than a unit under the IGWMP caused the exceedance or that the exceedance resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water.

In addition, for clarity Ohio EPA has moved Permit Condition F.8(h)(iv)(a) to the end of F.8(h)(ii). The last sentence of Permit Condition F.8(h)(ii) will read as follows:

If the exceedance is demonstrated to be an error in sampling, analysis, or statistical evaluation, the Permittee shall make appropriate changes to the present IGWMP at the facility.

26. **Comment received on Condition F.8(h)(iii):** If the alternate source is found to be a WMU listed in E.3(a), (b), or (c), Permit Condition E.10 and E.11 would not apply. For clarity, BWI recommends replacing "as they apply" with "if applicable."

Ohio EPA's Response: Ohio EPA agrees that if the alternate source is a WMU listed in Condition E.3(a), (b), or (c), then Conditions E.10 and E.11 do not apply. However BWI would still be responsible for addressing that WMU as part of corrective action. If the alternate source is found to be a new WMU, then Conditions E.10 and E.11 do apply. Ohio EPA agrees to replace "as they apply" with "if applicable" and has changed Condition

F.8(h)(iii) accordingly.

27. **Comment received on Condition F.8(h)(iv):** The respective actions to be taken after the exceedance of a risk level or EDQL differ. If a risk level is exceeded, a proposed remedial action program must be submitted pursuant to Permit Condition F.8(g). If an EDQL is exceeded, then an investigation plan is to be submitted pursuant to Permit Condition F.8(f)(iv). Accordingly, this condition should be revised to read as follows:

Within 180 days of determining that a POA or Plume Growth Well exceeds a risk level or within 45 days of determining a Plume Growth Well exceeds an EDQL, and it cannot be demonstrated that the source is other than a unit covered by the IGWMP or that the exceedance is due to an error in sampling, analysis, statistical evaluation or natural variation in ground water, the Permittee shall either:

- (a) *If the exceedance is a risk level exceedance, submit to the director an application for a permit modification according to OAC Rule 3745-50-51 to establish a remedial action program meeting the requirements of OAC Rule 3745-55-01 as described in Permit condition F.8(g); or*
- (b) *If the exceedance is an EDQL, submit a report to Ohio EPA for review and approval outlining the actions which the Permittee shall conduct for further investigation.*

Ohio EPA's Response: Ohio EPA agrees with BWI with added clarification. In BWI's comment they removed draft Permit Condition F.8(h)(iv)(a), which requires BWI "Make appropriate changes to the present IGWMP at the facility". This permit condition shall remain but will now be part of Permit Condition F.8(h)(ii). If a risk level or EDQL is exceeded and BWI demonstrates that the exceedance resulted from error in sampling, analysis or statistical evaluation, then the appropriate changes would need to be made to the IGWMP program in order to prevent this error from re-occurring. Permit Condition F.8(h)(iv) will be revised to read as follows:

F.8(h)(iv) Within 180 days of determining that a POA or Plume Growth Well exceeds a risk level or within 45 days of determining that a Plume Growth Well exceeds an EDQL, and it cannot be demonstrated that the source is other than a unit covered by the IGWMP or that the exceedance is due to an error in sampling, analysis, statistical evaluation or natural variation in ground water, the Permittee shall either:

- (a) If the exceedance is a risk level exceedance, submit to the director an application for a permit modification according to OAC Rule 3745-50-51 to establish a remedial action

program meeting the requirements of OAC Rule 3745-55-01 as described in Permit Condition F.8(g); or

- (b) If the exceedance is an EDQL, submit a report to Ohio EPA for review and approval outlining the actions which the Permittee shall conduct for further investigation.

28. **Comment received on Condition F.9(a)(i):** For clarity and to reduce the potential for misinterpretation, the term "method codes" should be replaced with the term "laboratory method numbers" and the term "detection limit" should be replaced with the term "laboratory reporting limits."

Ohio EPA's Response: Ohio EPA agrees that the term "method codes" should be replaced with the term "laboratory method numbers". However, Ohio EPA disagrees with BWI's request to replace the term "detection limit" with the term "laboratory reporting limit". Due to Permit Condition F.8(b) that requires all data above the method detection limit (MDL) be reported, the term "detection limit" will be more accurately described as "Method Detection Limit" and will be revised accordingly in Permit Condition F.9(a)(i). BWI will also be required to report the "Practical Quantitation Limits (PQLs)" in Permit Condition F.9(a)(i) as this terminology is used throughout in the IGWMP.

Permit Condition F.9(a)(i) will therefore be revised to read as follows:

F.9(a)(i) The laboratory results from each of the well samples, duplicates, blanks, and their associated qualifiers, including laboratory sheets for every sampling event (including laboratory method numbers, method detection limits, laboratory practical quantitation limits (PQLs), and units of measurement);

29. **Comment received on Condition F.9(a)(ii):** The use of the parenthetical "tabulated" is unclear as well as unnecessary and thus should be deleted. The date each well was sampled will be reflected on the laboratory sample sheets.

Ohio EPA's Response: Ohio EPA agrees with BWI. Permit Condition F.9(a)(ii) will be revised to read as follows:

F.9(a)(ii) The date each well was sampled;

30. **Comment received on Condition F.9(a)(iii):** The word "field" should be inserted before the word "blanks."

Ohio EPA's Response: Ohio EPA disagrees with BWI. If the term "field" were to be inserted before the word "blanks" as requested by BWI, it may be misinterpreted as only requiring field blanks and duplicates (two of the three components of the field quality

assurance/quality control (QA/QC) samples required by the IGWMP). As BWI is aware, a trip blank is also a field QA/QC sample. Also, if applicable, BWI may elect to collect an additional equipment blank to demonstrate an alternate source. Therefore, Ohio EPA requires all blanks be placed into the operating record and does not believe that the change is necessary.

- 31. Comment received on Condition F.9(a)(viii):** The phrase "but is not necessarily limited to" should be deleted from this condition. If there are other elements of the validation summary that Ohio EPA wants to be included, then they should be specifically listed. Otherwise, BWI is placed in the unreasonable and unacceptable position of not knowing what it must do to comply with the Permit.

BWI objects to the unnecessary addition of adherence to Ohio EPA guidance to the data validation requirements. Currently, under this permit, BWI's laboratory is required to validate its results in accordance with SW-846, and BWI is required to conduct a second party validation in accordance with both the U.S. EPA Functional Guidelines and specific permit requirements. Now, Ohio EPA wants to add the Ohio EPA guidance to the validation requirements. The differences in the requirements of SW-846 and the U.S. EPA Functional Guidelines currently result in rejected data and additional required tasks which provide no increase in the protection of human health and the environment. The required use of three different guidance documents, and the validation requirements in the permit, will only result in confusion, frustration and the potential for violations. BWI also notes that it generally is inappropriate to incorporate unpromulgated guidance as a requirement in a hazardous waste permit. The text, "consistent with the U.S. EPA and Ohio EPA guidelines for data review" should be removed from the condition.

Ohio EPA's Response: Ohio EPA agrees to remove the two phrases suggested above from Condition F.9(a)(viii) and therefore has changed the permit accordingly.

- 32. Comment received on Condition F.9(a)(x):** The word "All" should be deleted. As written, the condition could be interpreted to mean that original chain-of-custody documents as well as any existing multiple copies would have to be included in the Operating Record.

Ohio EPA's Response: Ohio EPA agrees with BWI. Condition F.9(a)(x) will be revised to read as follows:

F.9(a)(x) Chain-of-Custody documents;

- 33. Comment received on Condition F.9(b):** In order to avoid confusion, BWI suggests that the reports covered by this condition be referred to as Sampling Reports. These reports include results from both types of sampling events required under Permit Condition F.3. BWI also believes it is confusing to require some submissions to the director only and others also to the Northwest District Office. BWI is willing to send copies of all submissions under the IGWMP to both the Central Office and the Northwest District Office. Moreover,

BWI does not think that Ohio EPA intended to require it to submit a copy of its Operating Record as indicated in the draft Permit with its reference to Permit Condition F.9(a). This reference thus should be stricken. Rather, a better reference for listing the type of information to include in the Sampling Reports is Section 7.3 of the IGWMP. In order to reflect these comments, BWI requests that this condition read as follows:

(b) Sampling Reports

The Permittee shall submit in writing the results of the sampling events required under Permit Condition F.3 as well as the results of any resampling events conducted pursuant to Permit Condition F.8(e)(i), F.8(f)(ii) or F.8(f)(iv). These Sampling Reports shall include the information described in Section 7.3 of the IGWMP. If applicable, the Sampling Report will also include any information required to be submitted under Permit Conditions F.2(f)(iii) and (iv). The Sampling Reports shall be submitted to the director to the attention of the Central Office, Regulatory and Information Services Section of the Division of Hazardous Waste Management with a copy to the Northwest District Office. The Permittee must submit the Sampling Reports for the scheduled sampling events within 90 days of the completion of the sampling event. If the due date falls on a weekend or holiday, the report will be due no later than the next business day.

Ohio EPA's Response: Although Ohio EPA believes the term "Semi-Annual Reports" in Permit Condition F.9(b) is adequate, this term will be revised to "Sampling Reports" as requested by BWI. The information described in Section 7.3 does not contain all the same requirements as in Permit Condition F.9(a) and may cause misunderstanding between Ohio EPA and BWI regarding what is expected in the sampling reports. Although BWI disagrees with the reference to Permit Condition F.9(a), OAC Rule 3745-54-75 requires all information on the annual reporting form be submitted to Ohio EPA.

Therefore, Ohio EPA believes placing the phrase "the information contained in" after the word "and" and before "F.9(a)" alleviates BWI's concerns regarding the content and where to send submittals. Ohio EPA has also removed the reference to weekends and holidays.

As a result, Permit Condition F.9(b) will be revised to read as follows:

F.9(b) Sampling Reports

The Permittee shall report in writing the results of the sampling events required under Permit Condition F.3.

The Permittee shall submit the information required by Permit Conditions F.2(f)(iv) and (v), F.6(a), F.8(b), (d), (e) and (f), and the information contained in Permit Condition F.9(a)(i) through (xv) to the director to the attention of the Central Office,

Regulatory and Information Services Section of the Division of Hazardous Waste Management with a copy to the Northwest District Office. The Permittee must submit the Sampling Reports for the scheduled sampling events within 90 days of the completion of the original sampling event.

- 34. Comment received on Condition F.11:** The word "complete" as used in the first sentence of this condition should be changed to "initiate." Many of the tasks identified in this condition are subject to task-specific deadlines in the Permit and those deadlines ought to prevail. Moreover, some of the tasks included in this condition have already been completed, and including them in the Permit would be confusing. Specifically, Conditions F.11(b)(i), F.11(c), F.11(e) and F.11(f) have already been completed and should be removed with the rest of this condition renumbered accordingly. The balance of the comments with respect to this condition refer to the numbering as it appears in the draft Permit.

Ohio EPA's Response: Ohio EPA disagrees with BWI. The intent of this permit condition is to have the items listed in this condition "completed" within the time frame stated in the permit condition (i.e., 45 days). The word "initiate" does not provide any time frame for completion of the tasks. Ohio EPA agrees that some tasks specified in this permit condition have been completed, while other specific deadlines outlined in the permit were agreed upon with BWI in development of the IGWMP. For example, it would not be protective to human health or the environment to allow an additional year to sample MW-50 in order to evaluate whether this well needs to be included as a sampling point in the IGWMP. Ohio EPA believes that the previous agreements between Ohio EPA and BWI ought to prevail and that the current language in Permit Condition F.11 is satisfactory. Ohio EPA will, however, revise Permit Condition F.11 replacing "within forty-five (45) days" with "within ninety (90) days" to allow for the installation of the Plume Growth Well downgradient of MW-44 as outlined in Permit Condition F.11(d).

Regarding the specific tasks which have already been completed by BWI, Ohio EPA will remove the present language and place "Reserved" for Permit Conditions F.11(b)(i), F.11(c), and F.11(e). Ohio EPA is unaware that BWI has completed Permit Condition F.11(f). This information has not been provided to Ohio EPA. Permit Condition F.11(f) will therefore not be revised.

See Responsiveness Summary Comment 39 for revised Permit Condition F.11.

- 35. Comment received on Condition F.11(b)(ii):** This condition seeks BWI to sample MW-50 for Appendix IX VOCs and Appendix IX metals, plus fluoride. BWI agreed to install and sample MW-50 for the specific purpose of determining if the presence of low levels of cis-1,2-Dichloroethene (cis-1,2-DCE) at MW-38 are associated with the existing ground water plume monitored through the IGWMP or, as BWI believes, is associated with the North Landfill AOI. In light of the specific original objective of MW-50 and previous agreement with Ohio EPA, BWI requests that the reference to Table 5-3 be removed from this condition.

Ohio EPA's Response: Ohio EPA agrees with BWI. Permit Condition F.11(b)(ii) will be revised to read as follows:

F.11(b)(ii) Collect a ground water sample at MW-50 in accordance with the procedures outlined in Section 5.0 for the constituents listed in Table 5-2 of the IGWMP.

36. **Comment received on Condition F.11(b)(iii):** BWI does not feel it is necessary to include the results from the sampling of MW-50 in the Operating Record. The well is not part of the monitoring program, nor was it intended to be used as such. The results will be submitted to Ohio EPA. The second sentence of this condition should be removed.

Ohio EPA's Response: Ohio EPA disagrees with BWI. BWI is required to submit all data into the operating record in accordance with OAC Rules 3745-54-73, 3745-54-75, 3745-54-77(c), 3745-54-97(J), and 3745-55-01(G). Therefore, Permit Condition F.11(b)(iii) will not be revised.

37. **Comment received on Condition F.11(b)(iv):** As discussed above, monitor well MW-50 was installed to meet a specific agreed upon objective. When BWI agreed to install the well, it was agreed by Ohio EPA that the well would not automatically become part of the IGWMP as Ohio EPA is now suggesting with this condition. This condition should be removed in its entirety.

Ohio EPA's Response: Ohio EPA will not remove this permit condition but will provide clarification. As written, Permit Condition F.11(b)(iv) may be interpreted as automatically requiring a permit modification to the IGWMP. If no volatile organic compounds (VOCs) associated with the plume are detected at MW-50 pursuant to Permit Condition F.11(b)(ii), then the current modification meets the intent of the IGWMP and would not need to be modified. If, however, contamination associated with the plume is detected at MW-50, then the intent of the IGWMP would not be met and an application for a permit modification would be required. Thus, to remove this permit condition in its entirety would not be acceptable to Ohio EPA. Permit Condition F.11(b)(iv) will be revised to read as follows:

F.11(b)(iv) If hazardous constituents associated with the plume are confirmed at MW-50 pursuant to Permit Condition F.11(b)(ii), submit to the director an application for a permit modification in accordance with OAC Rule 3745-50-51 to make any appropriate changes to the IGWMP at the facility based upon Permit Condition F.11(b)(iii) in accordance with the schedule in Permit Condition F.10.

38. **Comment received on Condition F.11(i):** This particular requirement of having to resample for rejected results and/or estimated results with a low or unknown bias has been overly burdensome for BWI since the 2001 permit became effective. In fact, the condition has resulted in two Notices of Violation. The condition is not required by regulation and does not provide a significant increase in protection to human health and the environment.

In every case, the rejected or estimated low/unknown bias results which require resampling are non-detects. During the 2001 draft permit comment period, BWI commented that the condition would result in unnecessary resampling, which has proved to be the case. The current draft language is a significant improvement over the 2001 permit language, and BWI appreciates Ohio EPA's effort to understand this issue. However, we feel several additional changes to the draft condition would meet the overall intent of using valid data for decision making, would further reduce unnecessary resampling, and would not sacrifice the protection of human health and the environment. The proposed changes include the addition of several other compounds to the list of constituents for which resampling is not required. These include 2-Chloro-1,3-butadiene, 2-Butanone, Bromomethane, Vinyl Acetate, and Methyl Methacrylate. A query of the BWI sampling database indicates that, in addition to the constituents identified as poor performers in the National Functional Guidelines and those specifically identified by Ohio EPA in draft Condition F.11(i), the above constituents were frequently qualified as rejected or estimated with a low or unknown bias in Point of Action and Plume Growth Wells. In addition, BWI believes that the resampling requirement should be limited to rejected data. For most applications, including risk assessment, the only qualified data which is not used is rejected data. Finally, we believe that the requirement for resampling should not apply to field QA/QC samples such as replicate samples, field blanks, or trip blanks.

The following proposed language is intended to address the above issues and provide continued protection of human health and the environment:

Submit to Ohio EPA a revised page 7-4 of the IGWMP to describe the procedures for handling rejected ground water data. Section 7.1.(h)(i) of the IGWMP should be revised to include that if a rejected constituent is a site-specific hazardous constituent listed on Table E-1 in a Plume Growth Well or an Appendix IX constituent in a POA Well, then Permittee shall notify Ohio EPA within one week of validation. Within 30 days of validation, Permittee shall resample the well(s) in question for the constituents of interest. Permittee shall submit the data to Ohio EPA within 45 days of sampling or as part of the next report to be submitted pursuant to Permit Condition F.9(b), whichever is longer. If the rejected constituent is acrolein, acetonitrile, 1,4, dioxane, isobutanol (also known as isobutly alcohol), propionitrile, 2-chloro-1,3-butadiene, 2-butanone, bromomethane, vinyl acetate, methyl methacrylate, or is a constituent listed as U.S. EPA poor performer in the National Functional Guidelines for Organic Data Review, Permittee is not required to resample the well(s) in question for any of these constituents, but is required to provide Ohio EPA with supporting documentation identifying why the constituent(s) was rejected. These resampling requirements do not apply to Within the Plume Wells, Background Wells, or laboratory or field QA/QC samples. If constituents, not included above, are again rejected in the resampling episode, Permittee shall provide Ohio EPA with the necessary supporting data as described above and the rejected constituent will be added, through a Class I modification, to the above list of constituents for which resampling will not apply.

Ohio EPA's Response: Due to the number of issues discussed above, Ohio EPA will discuss each issue separately.

- Ohio EPA agrees that a revision to this permit condition is warranted. Ohio EPA was aware of BWI's concerns regarding this permit condition and has modified this draft permit condition from that of the June 14, 2001 Ohio Hazardous Waste Facility Installation & Operation Permit by removing the requirement for BWI to resample for an unknown bias.
- BWI is incorrect in their statement that the condition is not required by regulation. OAC Rule 3745-50-58(J)(1) requires that samples and measurements taken for the purpose of monitoring be representative of the monitored activity. A "rejected" constituent resulting from data validation would not constitute a representative sample.
- Ohio EPA disagrees that the constituents 2-Chloro-1,3-butadiene, 2-Butanone, Bromomethane, Vinyl Acetate, and Methyl Methacrylate need to be added to the constituent list of parameters. A review of Cox-Colvin & Associates, Inc.'s Data Validation Memorandum's for the 2002 and 2003 annual sampling events for analytical services performed by Severn Trent Laboratories indicated that 2-Chloro-1,3-butadiene, 2-Butanone, Bromomethane, and Vinyl Acetate required resampling only due to an unknown bias. As previously stated Ohio EPA has removed this requirement in the draft permit. The 2002 and 2003 Data Validation Memorandums did not list Methyl Methacrylate as having either a low or unknown bias during these sampling events. 2-Butanone is already listed as a U.S. EPA poor performer. Since the requirement to resample for an unknown bias no longer exists Ohio EPA believes it would be inappropriate to include 2-Chloro-1,3-butadiene, Bromomethane, Vinyl Acetate, or Methyl Methacrylate to the list of constituents identified in Permit Condition F.11(i).
- BWI states "In addition, BWI believes that the resampling requirement should be limited to rejected data." Ohio EPA agrees. Ohio EPA will revise the permit condition accordingly.
- BWI states "...we believe that the requirement for resampling should not apply to field QA/QC samples such as replicate samples, field blanks, or trip blanks". Ohio EPA agrees. However, there may be circumstances, on a case by case basis, in which Ohio EPA requests BWI resample a field QA/QC sample due to poor laboratory QA/QC.
- BWI proposed including the following language for Permit Condition F.11(i) "Permittee shall submit the data to Ohio EPA within 45 days of sampling or as part of the next report to be submitted pursuant to Permit Condition F.9(b), whichever is longer." Under BWI's proposed language if a sample was collected in April, Ohio

EPA may not receive the results of the resample event until February of the following year. This may not be protective of human health and the environment, and will not be included in the permit as it currently is worded. Ohio EPA believes that there is some confusion with the phrase "next report". Ohio EPA interprets this phrase to mean the report following the next sampling event. Ohio EPA believes removing the word "next" from BWI proposed language would be consistent with the intent of BWI proposed language and acceptable to Ohio EPA.

- BWI included in their proposed language the statement "If constituents, not included above, are again rejected in the resampling episode, Permittee shall provide Ohio EPA with the necessary supporting data as described above and the rejected constituent will be added, through a Class I modification, to the above list of constituents for which resampling will not apply." Ohio EPA disagrees and will not be including this language in the permit. Ohio EPA will only deal with this issue on a constituent by constituent basis.
- BWI removed the phrase rejected "due to a low bias" in the proposed language when referring to the list of constituents in which a rejected constituent would not require resampling. This language will remain in the permit. The inclusion of the constituents into this permit condition was specifically intended to alleviate BWI's concern regarding resampling non-detect constituents that consistently exhibited low bias resulting in the constituent being rejected.
- BWI removed the phrase "detailed discussion" in the proposed language when referring to the documentation provided to Ohio EPA identifying why the constituent was rejected. This language will remain in the permit. BWI will be required to provide supporting laboratory documentation and a detailed discussion identifying why the constituent(s) was rejected.

Permit Condition F.11(i) will be revised to read as follows:

- F.11(i) Submit to Ohio EPA a revised page 7-4 of the IGWMP to describe the procedures for handling rejected ground water data. Section 7.1(h)(i) of the IGWMP should be revised to include that if a rejected constituent is a site-specific hazardous constituent listed on Table E-1 in a Plume Growth Well or an Appendix IX constituent in a POA Well, then the Permittee shall notify Ohio EPA within one week of validation. Within 30 days of validation, the Permittee shall resample the well(s) in question for the constituents of interest. The Permittee shall submit the data to Ohio EPA within 45 days of sampling or as part of the report to be submitted pursuant to Permit Condition F.9(b), whichever is longer. If the constituent is rejected due to a low bias of acrolein, acetonitrile, 1,4-dioxane, isobutanol (also known as isobutyl alcohol), propionitrile, or is a constituent listed as a U.S. EPA poor performer in the National Functional Guideline for Organic Data Review,

then the Permittee is not required to resample the well(s) in question for any of these constituents, but is required to provide Ohio EPA with a detailed discussion with supporting laboratory documentation identifying why the constituent(s) was rejected. These resampling requirements do not apply to Within the Plume Wells, Background Wells, or laboratory or field QA/QC samples. Ohio EPA may, on a case by case basis, request the Permittee resample a field QA/QC sample due to poor laboratory QA/QC.

39. **Comment received on Condition F.11(j):** BWI is very concerned with Ohio EPA's request to report analytical results to below the laboratory reporting limit. The laboratory reporting limit, also referred to as the Practical Quantitation Limit (PQL), Estimated Quantitation Limit (EQL), or Sample Quantitation Limit (SQL), is defined in Chapter One of EPA's SW-846 as:

The lowest concentration that can be reliably achieved within specific limits of precision and accuracy during routine laboratory operating conditions. The EQL is generally 5 to 10 times the MDL [method detection limit]. However, it may be nominally chosen within these guidelines to simplify data reporting. For many analytes, the EQL analyte concentration is selected as the lowest non-zero standard in the calibration curve.

Based on this guidance, reporting limits are set at approximately 5 to 10 times the MDL, but no lower than the lowest standard in the calibration curve. This value is set, within these parameters, by each laboratory at the level they have confidence reporting data. Values below the reporting limit have a lesser degree of confidence and are flagged accordingly. According to the American Council of Independent Laboratories, values reported to the MDL are susceptible to false positives. For example, in a case study conducted using six laboratories analyzing 22 elements in a blank, there was a 14.2% false positive rate for values between the Reporting Limit and the MDL. This would be an average of 3 false positives per analysis. Other significant issues (according to STL) with data reported below the reporting limit is the higher potential for contamination from laboratory-derived chemicals and cross-contamination by more highly contaminated samples. Although all laboratories, including STL, have mechanisms in place to prevent and identify these problems, analyses closer to the MDL are more susceptible to these problems and present greater difficulties in identifying the source of any such problems than analyses above the reporting limit.

BWI worked closely with Ohio EPA in selecting reporting limits for each of the constituents to be analyzed based on Maximum Contaminant Levels (MCLs) for drinking water, use in risk assessment, historical reporting limits, and background, in the case of metals. These levels were based on data quality objectives for the end use of the data. Ohio EPA has not considered the data quality objectives for the project, how the proposed information will be used, or the complications it will cause. For instance, all detections between the Reporting Limit and the MDL will be qualified by the laboratory as estimated "J Qualifier" and by Cox-Colvin as estimated, with an unknown bias or possibly low bias. Depending on the location

of the well with the estimated detection, resampling could be required in accordance with Condition F.11.(i) of the draft modification. Assuming a false positive rate of 14.2% for 11 wells, as many as two wells could be required to be resampled during each sampling episode based purely on this requirement.

BWI does not believe it should be necessary to provide results down to the MDL and consequently, it should not be necessary to revise Page 4-2 of the IGWMP to require that the constituent be added to the hazardous constituent list based on its possible presence in ground water. The implications of this requirement may be greater than initially intended by Ohio EPA, and there is no regulatory basis for this requirement. BWI is certain that the requirement would, in fact, further strain both the limited resources of BWI and Ohio EPA with no measurable gain in protection of human health and the environment. This condition should be removed.

Ohio EPA's Response: Due to the number of issues discussed above, Ohio EPA will discuss each issue separately.

- Ohio EPA disagrees with BWI's statement that they worked closely with Ohio EPA in selecting reporting limits for each of the constituents to be analyzed. Ohio EPA's comments provided when reviewing the permit application concerned BWI's proposal of a "PQL" above a drinking water Maximum Contaminant Level (MCL), which would not be protective of human health or the environment, and their proposal of a "PQL" significantly above industry standards. As stated above, reporting limits (PQLs based on the IGWMP) are laboratory derived. OAC Rule 3745-54-97(l)(5) requires that any PQL approved that is used in a statistical method needs to be the lowest concentration level that can be reliably achieved during routine laboratory operating conditions.
- BWI stated, "Ohio EPA has not considered the data quality objectives for the project, how the proposed information will be used, or the complications it will cause." Ohio EPA disagrees with this statement. Ohio EPA believes that risk assessments should include all hazardous constituents which are likely to be present above background levels for naturally occurring elements or compounds and above method detection limits for non-naturally occurring compounds. This concept is reflected in Permit Condition F.11(k) and Comment 38 in which BWI states "For most applications, including risk assessment, the only qualified data which is not used is rejected data." Therefore, this permit condition will not be removed. Please note, Permit Condition F.11(k) provides BWI with an option of using the estimate value above the MDL or half of the PQL in the ground water risk calculations.
- Permit Condition F.11(j) requires any Additional Hazardous Constituent that is organic and detected above the method detection limit be added to the site-specific list of constituents. This requirement ensures that all hazardous constituents

present in ground water are evaluated each time risk is performed at POA and Plume Growth Wells. Therefore, this permit condition will not be removed, but revised as follows:

F.11(j) Submit to Ohio EPA a revised page 4-2 of the IGWMP to add that if an organic Additional Hazardous Constituent is detected "above its respective method detection limit (MDL)" in the annual (i.e., April or May) sampling event pursuant to Permit Condition F.3(b), the well(s) will be resampled (i.e., within 30 days of data validation) for the constituent(s) for which the detection occurred.

- In order to determine if the risk assessment is properly being implemented all data above the MDL needs to be provided to Ohio EPA. This requirement is provided in Permit Condition F.8(b) and will not be removed. In addition, consistent with Comment 25, Ohio EPA will include the term "Plume Growth Wells" in Permit Condition F.11(k) to clarify wells in which risk calculations are performed.
- Ohio EPA does not agree with the statement by BWI that the requirement of reporting data above the MDL will cause complications such as resampling. Based on revised Permit Condition F.11(i) only rejected data are required to be resampled.
- Ohio EPA disagrees with BWI's statement, "The implications of this requirement may be greater than initially intended by Ohio EPA, and there is not regulatory basis for this requirement." OAC Rule 3745-50-58(J)(3) requires that the records for monitoring information include the results of such analysis. The results of such analysis would include data above the MDL since a response in the IGWMP is being based on risk.

Provided below in its entirety, is revised Permit Condition F.11 to include revisions made in Comments 34 through 40.

F.11 Compliance Schedule

The Permittee shall, within ninety (90) days after permit modification journalization, complete the following:

- (a) Begin ground water sampling and analysis in accordance with the IGWMP and follow the schedule outlined in Permit Condition F.3.
- (b) (i) Reserved.
- (ii) Collect a ground water sample at MW-50 in accordance with the procedures outlined in Section 5.0 for the constituents listed in Table

5-2 of the IGWMP.

- (iii) Submit a report to Ohio EPA in writing detailing the results due to Permit Condition F.11(b)(ii). The Permittee shall enter the Appendix to OAC Rule 3745-54-98 data generated pursuant to Permit Condition F.11(b)(ii) into the operating record in the manner described in Permit Condition F.9(a).
- (iv) If hazardous constituents associated with the plume are confirmed at MW-50 pursuant to Permit Condition F.11(b)(ii), submit to the director an application for a permit modification in accordance with OAC Rule 3745-50-51 to make any appropriate changes to the IGWMP at the facility based upon Permit Condition F.11(b)(iii) in accordance with the schedule in Permit Condition F.10.
- (c) Reserved.
- (d) Install and develop a Plume Growth monitoring well downgradient of MW-44 in accordance with procedures outlined in Appendix K of the IGWMP. This monitoring well shall be screened in the shallow bedrock aquifer.
- (e) Reserved.
- (f) Submit to Ohio EPA a revised Table E-2 "Summary of Well Construction and Survey Data of Wells Sampled and Used for Water Levels, Brush Wellman Inc., Elmore, Ohio" and well construction and lithology logs information for MW-50, MW-51D, MWRW-19, and Permit Condition F.11(d).
- (g) Submit to Ohio EPA a revised Table E-1 "Summary of Compliance Monitoring Program, Brush Wellman Inc., Elmore, Ohio" for Permit Condition F.11(d).
- (h) Submit to Ohio EPA a revised page 7-1 of the IGWMP to remove the reference to Attachment F-4 of the June 14, 2001 permit in the first sentence of the third paragraph of Section 7.1, as this attachment will no longer be included once the permit has been modified.
- (i) Submit to Ohio EPA a revised page 7-4 of the IGWMP to describe the procedures for handling rejected ground water data. Section 7.1(h)(i) of the IGWMP should be revised to include that if a rejected constituent is a site-specific hazardous constituent listed on Table E-1 in a Plume Growth Well or an Appendix IX constituent in a POA Well, then the Permittee shall notify Ohio EPA within one week of validation. Within 30 days of validation, the Permittee shall resample the well(s) in question for the constituents of

interest. The Permittee shall submit the data to Ohio EPA within 45 days of sampling or as part of the report to be submitted pursuant to Permit Condition F.9(b), whichever is longer. If the constituent is rejected due to a low bias of acrolein, acetonitrile, 1,4-dioxane, isobutanol (also known as isobutyl alcohol), propionitrile, or is a constituent listed as a U.S. EPA poor performer in the National Functional Guideline for Organic Data Review, then the Permittee is not required to resample the well(s) in question for any of these constituents, but is required to provide Ohio EPA with a detailed discussion with supporting laboratory documentation identifying why the constituent(s) was rejected. These resampling requirements do not apply to Within the Plume Wells, Background Wells, or laboratory or field QA/QC samples. Ohio EPA may, on a case by case basis, request the Permittee resample a field QA/QC sample due to poor laboratory QA/QC.

- (j) Submit to Ohio EPA a revised page 4-2 of the IGWMP to add that if an organic Additional Hazardous Constituent is detected "above its respective method detection limit (MDL)" in the annual (i.e., April or May) sampling event pursuant to Permit Condition F.3(b), the well(s) will be resampled (i.e., within 30 days of data validation) for the constituent(s) for which the detection occurred.
- (k) Submit to Ohio EPA revised pages 3 and 4 of Appendix G of the IGWMP to describe the procedure for handling estimated data at POA and Plume Growth Wells. Permittee may either include estimated values or half the PQL for estimated values in the ground water risk calculations for all POA and Plume Growth Wells.

- 40. Comment received on Condition F.11(k):** See above comment on Condition F.11(j). As stated above, BWI does not feel it is necessary to report analytical data to estimated values below the reporting limit. This condition should be removed.

Ohio EPA's Response: Ohio EPA disagrees with BWI. See Responsiveness Summary Comment 39 on Permit Condition F.11(j).

- 41. Comment received on Condition F.12(a):** Discussions of ground water use restrictions among BWI, Ohio EPA and U.S. EPA have been limited only to restricting the potable use of ground water pumped from within the restricted area. BWI does not believe that it is necessary to restrict other uses of the ground water. At a minimum, there needs to be some allowance with respect to PW-03 and PW-04. As Ohio EPA is aware and as discussed in Section 2.2.3.3 of the IGWMP, BWI pumps ground water from production well PW-04 and, occasionally PW-03, to maintain hydraulic containment of the Intermediate/Deep Bedrock Aquifer. Production well PW-04 is located within the area identified by Ohio EPA for ground water use restrictions and PW-03 is located within the zone of influence. BWI therefore, suggests adding the following to the end of the condition if Ohio EPA does not limit the

restriction to potable uses only.

For the purpose of this permit, remediation includes the pumping of Production Wells to maintain hydraulic capture.

Ohio EPA's Response: Ohio EPA agrees with BWI. Permit Condition F.12(a) will be revised to read as follows:

F.12(a) **No Use of Ground Water:** The Permittee shall not extract or use ground water underlying or within the zone of influence of the property or any portion of the property at the following approximate coordinates : 41.4870 degrees North latitude (southern boundary of the Eastern Settling Lagoons AOI) north to the property boundary (Portage River) and 83.2142 degrees West longitude (west of the PCE AOC) east to the property boundary for any purpose, potable or otherwise, except for monitoring or remediation of the ground water. For the purpose of this permit, remediation includes the pumping of Production Wells to maintain hydraulic capture.

- 42. Comment received on Condition F.12(b):** Historical discussions of property use restrictions among BWI, Ohio EPA, and U.S. EPA have addressed only the residential use restriction of the Shallow Bedrock Aquifer in the area downgradient and above the plume. When BWI agreed to utilize BWI's hazardous waste permit as a vehicle to implement the use restrictions, there had not been any discussions that the restrictions would include restrictions on construction of buildings or structures at any time. Air quality issues associated with day to day work practices, and even those associated with the vapor intrusion pathway in an industrial setting, are adequately regulated under the Occupational Safety and Health Act (OSHA). For this reason, U.S. EPA in its *2002 Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Ground water and Soils*¹ have concluded that the vapor intrusion pathway under an industrial scenario should not be included in the Current Human Exposure Under Control Environmental Indicator determination. We are also concerned with the very broad use of the condition to include any structure, whether used for habitation or not. Under this definition, a pipe rack could be considered a structure. BWI cannot agree with the condition as currently written and insists that the following modification, focusing on residential exposure, be used in its place.

The permittee shall not construct or allow the construction of a building designed for habitation or residential use on the property at the following approximate coordinates: 41.4870 degrees North latitude (southern boundary of the Eastern Settling Lagoons AOI) north to the property boundary (middle of the Portage River) and 83.2142 degrees West Longitude (west of the PCE AOC) east to the property boundary.

Conditions F.12(b)(i) and (ii) would then not apply and should be removed.

Ohio EPA's Response: The Ohio EPA and U.S. EPA Region V acknowledge that OSHA PELs are the primary standard for Environmental Indicator (EI) screening as advocated in U.S. EPA's 2002 *Draft Guidance for Evaluating Vapor Intrusion*. However, OSHA PELs may not be relevant in every situation to determine the risk to the public. Indeed, an examination of PELs reveals that they are not based upon modern toxicity values, modern risk assessment methods, nor are their application based upon multiple chemical adjustment. Ohio EPA is aware that OSHA regulations exist to protect workers; however, as stated in the U.S. EPA's 2002 guidance, "employees and their employers may not be aware of subsurface contaminants that may be contributing to the indoor air environment of their workplaces, particularly since vapor intrusion may include constituents that are no longer or were never used in a particular workplace, may originate elsewhere, or may be modified by bio-degradation or other subsurface transformation processes." For these situations, Ohio EPA requires that all facilities evaluate all complete pathways and receptor populations where risk pathways are complete. In BWI's case, the vapor intrusion pathway is complete and an EI evaluation is not relevant at this stage of the RFI. Ohio EPA now must require that the risk to human health and the environment be evaluated. In regard to a vapor intrusion evaluation, this obligation requires that the full risk to a receptor population (i.e., industrial worker) be evaluated using technically valid toxicity data and risk assessment methods.

The condition for a broad use restriction on building new structures arises because the Ohio EPA cannot envision all possible future building uses or structure parameters of these buildings. Furthermore, a use restriction based upon general building design concept, such as "human habitation" is not enforceable in regards to potential use of the building. However, the Ohio EPA would accept modifications, on a case-by-case basis, if the building design included either a vapor mitigation system (i.e., passive vapor venting system) or vapor barrier that would prevent the intrusion of vapors into a building. An operation and maintenance agreement would need to be in place to assure that the vapor mitigation system remained viable throughout the life of the structure. In conclusion, while Ohio EPA does not agree with BWI's proposed language, it is not the intention of the permit condition to restrict construction of items such as pipe racks. However, Ohio EPA does believe that the restriction should apply to more than residential exposures. Ohio EPA believes that Permit Condition F.12 as written is sufficient to allow construction of possible items as long as the risk is proven to be acceptable and therefore the permit condition has remained unchanged.

43. **Comment received on Condition F.12(c):** BWI has no intention of placing use restrictions on the entire facility property. The need for use restrictions will be determined through the RCRA Corrective Action process not by Ohio EPA as a broad statement in the BWI permit. Furthermore, we do not believe that the hazardous waste permit is an appropriate venue for this discussion. BWI cannot agree to the condition as written and requests replacing the draft condition with the following:

Conditions F.12(a) and F.12(b) are temporary measures to prevent the exposure

to ground water in the area encompassed by the IGWMP until legally enforceable ground water use restrictions are in place. Accordingly, Ohio EPA retains the right to require a reasonable and appropriate subsequent use restriction should an alternative remedy be chosen for corrective action.

Ohio EPA's Response: Ohio EPA included Permit Condition F.12(c) to provide assurance to BWI that Permit Conditions F.12(a) and (b) are only temporary measures to prevent the exposure to ground water in the area encompassed by the IGWMP until a final remedy is selected as part of the RCRA Corrective Action program. To avoid any disputes, Ohio EPA has removed Permit Condition F.12(c).

End of Responsiveness Summary