



Environmental  
Protection Agency

## Division of Materials and Waste Management

### Response to Comments

**Project:** Materion Brush Inc. Ohio Hazardous Waste Permit Renewal

**Ohio EPA ID No.:** OHD 004 212 999 / 3-62-0042

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On May 12, 2011, Ohio EPA issued a draft hazardous waste installation and operation renewal permit to Materion Brush Inc. for its beryllium processing plant in Elmore, Ohio. The draft permit is a renewal authorizing Materion Brush Inc. to conduct the following activities: container storage of hazardous waste – beryllium powder (P015), post-closure of surface impoundments including ground water monitoring and corrective action including ground water monitoring. Ohio EPA initiated a 30-day comment period on May 13, 2011, regarding the draft hazardous waste installation and operation renewal permit. The only comments received were from Materion Brush Inc. This document summarizes the comments received from Materion Brush Inc. during the public comment period, which ended on June 27, 2011.

Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health.

In an effort to help you review this document, the comments are grouped by topic and organized in a consistent format.

The following comments were received from Materion Brush Inc. (Materion) in a letter dated June 24, 2011.

#### General Permit Comments

**Comment 1:** Materion commented on Draft Renewal Permit Condition A.1 stating that "The second sentence of the second paragraph of this condition is unclear and should be revised to add the phrase "the hazardous waste installation and operation permit for" after the term "renewal of" to add clarity. In addition, Materion notes that it submitted the renewal application on December 13, 2010, and most recently updated the application on April 1, 2011, not March 9 as indicated in this condition. This condition should be revised to state "The permit application, as submitted to Ohio EPA on

December 13, 2010, and last updated on April 1, 2011, is hereby incorporated into this permit.”

**Response 1:** Ohio EPA agrees with Materion’s recommendation to add *“the hazardous waste installation and operation permit for”* to Condition A.1 for added clarity. In addition, Ohio EPA has revised Condition A.1(a) to state *“The permit application, as submitted to Ohio EPA on December 13, 2010, and last updated on April 1, 2011, is hereby incorporated into this permit.”*

**Comment 2:** Materion commented on Draft Renewal Permit Condition A.27(b)(vi) stating that “The actual operating procedures to be followed are included in Section I of the renewal application, making the reference documents irrelevant. If Ohio EPA has specific concerns about the methods described within the operating procedures, then those concerns should be expressed. Because the reference material is extraneous, these references should be removed rather than updated.”

**Response 2:** Ohio EPA agrees that the information provided from Section I will provide sufficient guidance. Therefore Permit Condition A.27(b)(vi) will be removed.

**Comment 3:** Materion commented on Draft Renewal Permit Condition B.13(a) stating that “Materion is unsure what constitutes “making a diligent effort” or to which “arrangements” paragraph (ii) is referring. Materion requests that this condition be more clear with the addition of the regulatory text found in OAC Rule 3745-54-37(A).”

**Response 3:** Ohio EPA appreciates your suggestion for clarifying Condition B.13(a). However, Ohio EPA feels that the wording is adequate and is not inclined to change the wording at this time. By “making a diligent effort” Ohio EPA simply means that the facility was conscientious and earnest in its efforts to make arrangements with local responders. As noted in the rule and condition, the facility must document a local responder’s refusal. The “arrangements” noted from paragraph (ii) are referring to any preparations that are to be made with Ohio EPA emergency response teams, emergency response contractors, and equipment suppliers that are appropriate for the types of wastes that are to be managed.

**Comment 4:** Materion commented on Draft Renewal Permit Condition C.1(a) stating that “Ohio EPA should clarify that the requirement to use “standard 55 gallon, DOT-multi-trip, steel drums” is only applicable to storage of hazardous waste beryllium powder. Additional hazardous waste being accumulated for less than 90 days within Building 49 may be placed into any container meeting the general requirements of OAC Rule 3745-66-70 through 77.”

**Response 4:** Ohio EPA agrees to change wording in Condition C.1(a) for added clarity. However, hazardous waste being accumulated for less than 90 days is not regulated under this Hazardous Waste Permit. The following text has been added to Condition C.1(a).

*C.1 Container Storage / Quantity Limitation*

- (a) *The Permittee is authorized to store up to 192, 55-gallon drums (10,560 gallons) of containerized hazardous waste beryllium powder at any given time in the permitted Container Storage Building No. 49.*

*The Permittee must store hazardous waste beryllium powder in standard 55-gallon, DOT multi-trip, steel drums described in Section D of the permit application. Additional hazardous waste being accumulated for less than 90 days within Building 49 may be placed into any container meeting the general requirements of OAC Rule 3745-66-70 through 77.*

Corrective Action

**Comment 5:** Materion commented that "Ohio EPA should update the Corrective Action Summary to reflect corrective action activities at the facility since the issuance of the current permit. Materion suggests that Ohio EPA use the updated information contained in Section J of the permit application."

**Response 5:** Ohio EPA agrees that the Corrective Action Summary should be updated to reflect corrective action activities that have occurred at the facility. The following text has been added to the Corrective Action Summary, subsequent to paragraph 6.

*The RFI Final Report was approved by US EPA on January 19, 2001 and was approved by Ohio EPA on February 2, 2005. This report concluded that 3 waste management units must be addressed in the Corrective Measures Study (CMS) phase of the project. A fourth waste management unit, WMU No. 28, the Oil Separator Pond, was also investigated and it was subsequently determined that it should not be included in the CMS phase.*

*The CMS workplan was approved by Ohio EPA on May 23, 2006. The CMS workplan and implementation schedule required submittal of a Vapor Intrusion Investigation Workplan, Unit 4 Supplemental Investigation Workplan and Project Management Plan. These plans were submitted on November 13, 2006, November 20, 2006 and May 11, 2006 respectively.*

*On June 6, 2007, the facility sent a letter to Ohio EPA describing an environmental covenant to be entered into by the parties during final remedy implementation. The letter identified future land use restrictions at the site.*

On May 26, 2009, the CMS workplan was revised to incorporate an evaluation of Lagoon 5 (WMU No. 9). This revision was necessary as a condition of the SWMU No. 9 interim measures approval letter of March 4, 2009. This CMS revision was approved by Ohio EPA on September 15, 2009.

The Unit 4 Supplemental Investigation Workplan was submitted to Ohio EPA on November 20, 2006. Ohio EPA commented on the workplan on February 28, 2007 and July 6, 2007. The facility revised the plan in response to Ohio EPA comments on April 5, 2007 and August 7, 2007. Ohio EPA approved the Unit 4 Supplemental Investigation workplan on September 13, 2007. The plan was implemented between October 2007 and October 2008. On October 6, 2008, the final report on the supplemental investigation was submitted to Ohio EPA. Ohio EPA provided comments on the report in letters dated July 6, 2009 and June 8, 2010. In response to Ohio EPA comments, the facility revised the report on September 2, 2009 and August 10, 2010. The final SIR report was approved by Ohio EPA on October 29, 2010. The facility submitted the corrective measures study report for unit 4 to Ohio EPA on February 25, 2011.

The Vapor Intrusion Investigation workplan was submitted to Ohio EPA on October 18, 2006 and was approved by Ohio EPA on August 23, 2007. Phase I and Phase II investigations were completed between August 2007 and September 2008. The facility submitted results of sub-slab soil gas sampling on August 30, 2010. Ohio EPA approved the sub-slab soil gas sampling results in a letter dated October 26, 2010.

In addition to the waste management units investigated during the RFI, Materion Brush 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 Materion Brush for the WMUs in Permit 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 Permit Condition E.5 of this permit, Ohio EPA will notify Materion Brush, in writing, of the need to submit a RFI workplan or additional information for the WMUs identified in Permit Conditions E.3(b) and E.3(c).

**Comment 6:**

Materion commented on Draft Renewal Permit Condition E.4 requesting that "the progress reporting frequency be changed from monthly to quarterly. Materion believes this to be appropriate, given the amount of direct oversight Ohio EPA

exercises at this site. Monthly reporting is overly burdensome and offers no more environmental protection than quarterly reporting.”

**Response 6:** Ohio EPA agrees that monthly progress reporting offers no more environmental protection than quarterly reporting. Condition E.4 of the permit has been re-written as follows:

*E.4 Progress Reporting*

*Beginning the month after permit journalization, the Permittee shall submit a quarterly progress report for all corrective action activities. The report shall be due every three months by the 15<sup>th</sup> day of the month following the reporting period.*

**Comment 7:** Materion commented on Draft Renewal Permit Condition E.5 stating that “Condition E.5, as written, requires Materion to submit a RFI workplan within 90 days of the effective date of the permit. However, Materion has already conducted an RFI for the WMUs identified in condition E.3(a). Also, Materion and Ohio EPA have been working on the corrective action process with the understanding that any RFI (if needed) for the units identified in Conditions E.3(b) and (c) would be conducted upon written notification from Ohio EPA that it was time to do so (i.e., after completion of CMS/CMI activities for the E.3(a) units). This is the process established in Condition E.5 in the current permit, and the way it is written in the corrective action summary of the Draft Permit. To make Condition E.5 in the renewal permit consistent with the corrective action summary, the current permit and our shared understanding of the timing of corrective action activities for the site, Materion requests that Condition E.5 be re-written to provide as follows:

*E.5 RCRA Facility Investigation (RFI)*

*OAC Rule 3745-54-101*

*The purpose of conducting an RFI is to evaluate the nature and extent of releases of hazardous wastes and hazardous constituents from all applicable WMUs.*

*Materion has conducted an RFI to address releases from WMUs identified in Permit Condition E.3 (a) above. Ohio EPA will notify Materion, in writing, of the need to submit a RFI workplan or additional information for the WMUs identified in Permit Conditions E.3(b) and E.3(c). In accordance with Permit Conditions E.10 and E.11, Ohio EPA will determine if an RFI is required for any newly identified WMUs. The major tasks and required submittal dates for any potential forthcoming RFIs are shown below.*

*The scope of work for each of the tasks is found in U.S. EPA’s CAP.*

(a) *RFI Workplan*

*The Permittee must submit a written RFI Workplan for any newly discovered unit(s) to Ohio EPA on a time frame established by Ohio EPA.*

(i) .... "

**Response 7:** Ohio EPA agrees that Condition E.5 of the renewal permit should be re-written as suggested by Materion Brush. The text under Permit Condition E.5 has been changed accordingly.

**Comment 8:** Materion commented on Draft Renewal Permit Condition E.6 stating that "In the Interim Measures approval letter of March 4, 2009, Ohio EPA imposed a requirement to perform monthly inspections of Settling Lagoon 5 to ensure that the geotextiles/soil layer and water level within the lagoon are adequate to prevent the sludge from becoming exposed along the dike wall. Materion suggests that, for sake of completeness, Ohio EPA should include a permit condition which requires the performance of these interim measure inspections."

**Response 8:** Ohio EPA agrees that, for the sake of completeness, the requirement that Materion Brush perform these monthly inspections should be included in the language under this permit condition. The following text has been added to Permit Condition E.6:

*Per the March 4, 2009 Interim Measures approval letter, Materion Brush is required to perform monthly inspections of the above-referenced interim measures to ensure that the geotextile/soil layer and water level within the lagoon are adequate to prevent sludge from becoming exposed along the dike wall.*

**Comment 9:** Materion commented on Draft Renewal Permit Condition E.7(a) stating that "This condition allows that "Based on the results of the completed RFI and other relevant information, the Permittee may submit an application to Ohio EPA for a permit modification under OAC Rule 3745-50-51 to terminate the Corrective Action tasks of the Schedule of Compliance." Materion notes that there is no corrective action Schedule of Compliance contained in the draft permit. Materion is unsure of which "Schedule of Compliance" this condition is referring to and requests that this be clarified in the final renewal permit."

Moreover, as written, this condition appears to allow a No Further Action determination only after completion of a RFI. There may be, however, situations where sufficient information to approve a

NFA request exists without completion of an RFI. For example, a Release Assessment may conclude that there have been no potential for releases from a unit. Materion asks that the text be changed to read "Based on the results of the completed RFI or other relevant information...."

**Response 9:** Materion is correct that no Schedule of Compliance is contained in the draft renewal permit. Accordingly, the term "Schedule of Compliance" has been removed from the final renewal permit and the first paragraph of text under Permit Condition E.7 (a) has been revised. The revision also includes Materion Brush's request that the word "and" be replaced with the word "or" in the first sentence of this paragraph. The text in the renewal permit reads as follows:

*Based on the results of the completed RFI or other relevant information, the Permittee may submit an application to Ohio EPA for a permit modification under OAC Rule 3745-50-51 to terminate Corrective Action tasks which are enumerated throughout Section E of the permit. Other Corrective Action tasks identified in Section E shall remain in effect. This permit modification application must conclusively demonstrate that there are no releases of hazardous waste or constituents from WMUs at the Facility that pose an unacceptable risk to human health and the environment.*

**Comment 10:** Materion commented on Draft Renewal Permit Condition E.9(b) stating that "This condition as written, requires Materion to provide financial assurance "within 30 days after receiving approval of the CMI". It is unclear what milestone constitutes "approval of the CMI". Materion believes that the requirement to provide financial assurance is more appropriately tied to the permit modification discussed in draft condition E.9(a). Materion suggests that the language of this permit condition be revised to be consistent with the language as it's written in Condition E.9(b) of the current permit."

**Response 10:** The permit condition as written ensures that sufficient time is given for financial assurance to be demonstrated before implementation of the selected CMI measure(s). Ohio EPA believes that delaying the financial assurance demonstration until permit modification to incorporate the CMI may not allow sufficient time prior to implementation of the selected measure(s). As stated in Permit Condition E.9, Ohio EPA will authorize one or more of the Corrective Measures in the CMS, and will notify the Permittee in writing of the decision. This notification serves as "approval of the CMI." The language of this permit condition has not been revised.

### Integrated Groundwater Monitoring Program (IGWMP)

Please note: During the public comment period Ohio EPA noted that draft Permit Condition F.1 is Module Highlights. To be consistent with the remainder of the permit, Ohio EPA has moved the module highlights into the introduction of Module F and thus renumber the remaining permit conditions such that Permit Condition F.2 is now F.1 and so on.

**Comment 11:** Materion commented on Draft Renewal Permit Condition F.11(a) stating that "Materion is unclear of what Ohio EPA believes is missing from Appendix D and requests that this condition be deleted or clarified. On Materion's copies, January 26 and February 3, 1987 are the first two dates on pages 2 of 8 of Appendix D. September 5, 1997 and the associated correspondence are the fourth entry on page 6 of 8. Dates of subsequent documents through January 30, 2002 follow through the end of Appendix D."

**Response 11:** Materion submitted two separate copies of Section E of the hazardous waste facility installation and operation permit application to Ohio EPA. The first was received by Ohio EPA Northwest District Office (NWDO) on December 10, 2010. Based on this copy Ohio EPA provided Materion draft comments. The majority of these comments were incorporated into a second copy of Section E received by Ohio EPA on April 1, 2011. Ohio EPA has confirmed that the dates noted in Permit Condition F.11(a) are missing from Appendix D in Ohio EPA's copy of the April 1, 2011, permit application. This condition has been re-numbered F.10 and has not been deleted.

**Comment 12:** Materion commented on Draft Renewal Permit Condition F.11(d) stating that "The current language provided on page 7-5 of the IGWMP provides the same general steps (outlier evaluation and trend analysis) for updating the background data set as requested by Ohio EPA without the specifics on how the outlier evaluation and trend analysis are conducted. A general discussion on the statistical approach for updating background is more appropriate for situations such as this in which the size of the data set, distribution of the data, and the frequency of censored data are unknown. In addition, new statistical tests are developed all the time and others fall into and out of general acceptance through time. As stated on page 7-5 of the IGWMP, as part of its effort to update background, Materion would submit a modification request, which Ohio EPA could approve, deny, or provide comments and suggestions to. If warranted at that time, Ohio EPA then could provide specific recommendations on statistical methods based on the information submitted. Based on the above, Materion requests that this condition be deleted."

**Response 12:**

Ohio EPA understands Materion's concern. For example, the box-plot outlier evaluation is no longer considered a formal outlier evaluation and Ohio EPA has developed, with general acceptance from statistical professionals, industry, and consultants, a statistical outlier procedure for evaluating background data sets with a high percentage of non-detects. In addition, other factors may need to be evaluated in determining representative background such as sampling technique and differences in results between analytical methods and laboratories. This condition has been re-numbered F.10(d) and has not been deleted, but modified as follows:

*Submit to the director an application for a permit modification in accordance with OAC Rule 3745-50-51 to revise paragraph 1 on page 7-5 to read "As stated previously, the facility will utilize static background limits as established in Appendix H. The facility, however, will continue to collect background data and may request through a modification to revise the background data set as necessary. Background data will not be updated with less than four new data points at any one time. As part of the modification to incorporate new background data, an outlier evaluation and trend analysis will be conducted for each constituent. The outlier evaluation will utilize statistical methods acceptable to Ohio EPA. Background analytical results also will be visually compared to historical data to determine if VOCs are present at the background locations and to determine if concentrations of inorganic constituents are consistent with historical concentrations. If VOCs are detected in the background wells or inorganic constituents are present in the background wells at elevated levels (compared to historical data), Ohio EPA will be immediately notified and the well will be resampled for confirmation purposes.*

Ohio EPA removed from the original paragraph the reference to the box-plot outlier evaluation and evaluating outliers where only a sufficient percentage of detections allow.

**Comment 13:**

Materion commented on Draft Renewal Permit Condition F.11(e) stating that "As described on page 7-5 of the IGWMP, Materion utilizes static background limits for inorganic constituents. These static background limits were established based on many years of groundwater monitoring data. The process used to determine the background limits is discussed in Appendix H of the IGWMP. Materion does not understand why Ohio EPA believes it is necessary to update the background limits at this time and for these particular constituents. The current IGWMP background limits are adequately protective to determine if a release has occurred and, if a release has occurred, does it pose a threat to human health and the environment. Materion understands that, for instance, you would normally not want to utilize a background limit of 10 mg/l for a constituent with a drinking water standard of 5

mg/l. A similar comparison of practical quantitation limit (PQL), background limit, and drinking water standard is provided below for copper, fluoride, nickel, and zinc. Note that the MCLs for copper and zinc are secondary MCLs which are non-enforceable guidelines used in regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

Constituent	Units	PQL	Background Limit	Drinking Water Standard and Type
Copper	mg/l	0.005	0.06	1.0 - Secondary MCL
Fluoride	mg/l	0.05	1.8	4.0 - Primary MCL
Nickel	mg/l	0.005	0.02	0.73 - EPA Regional Screening Level
Zinc	mg/l	0.02	0.12	5.0 - Secondary MCL

Recalculation of background limits for these constituents would provide no additional meaningful protection of human health and the environment, but would instead require additional time and money and would result, with no apparent benefit, in an increase in false positives which require Materion Brush to report and Ohio EPA to address for no beneficial reason. Based on this information, Materion requests that this condition be removed.”

**Response 13:**

Typically, once background is obtained it is not regarded as a fixed quantity. For this reason, as part of the 10 year renewal process, Ohio EPA's initial draft comment stated all background inorganic constituents should be updated. In a March 14, 2011 meeting to discuss Ohio EPA's preliminary draft comments on the December 1, 2010 renewal application, Materion requested that Ohio EPA reduce the requirement to update background to a select group of inorganic constituents due to resources and expense. Ohio EPA agreed. The constituents copper, fluoride, nickel, and zinc have a background limit that Ohio EPA believes may not be representative of current background conditions based on the last 10 years of upgradient ground water quality data.

The Table in Materion's response relates current background limits for copper, fluoride, nickel, and zinc as being protective of human health and the environment. The goal of the IGMWP is to first be able to detect a release and then show that the concentrations being released are protective of human health via the residential risk assessment. The ability to detect a release from the Integrated Ground Water Monitoring Program (IGWMP) is based on comparison of representative upgradient ground water quality data (via statistical background limits) to downgradient concentrations at POA wells.

Therefore, this condition has been re-numbered F.10(e) and has not been removed. Further, as discussed in Ohio EPA's response to Condition F.11(d), other factors may need to be evaluated when updating background such as differences in sampling technique and differences in results between analytical methods and laboratories.

**Comment 14:**

Materion commented on Draft Renewal Permit Condition F.11(f) stating that "The IGWMP utilizes a PQL of 0.005 mg/l for antimony, but the results are reported down to the method detection limit (MDL). Detections of antimony between the MDL and PQL are reported and qualified as estimated. If detected, the estimated values are utilized for direct comparison to the background limit. Laboratories continually refine (typically downward) their reporting limits, but this does not mean that it is necessary to continually seek lower and lower limits for existing monitoring programs. As long as the reporting limit is low enough to detect a potential release at concentrations below which the detection may pose a risk to human health and the environment, there is no reason to seek lower reporting limits. This is especially true for constituents which are not suspected of being associated with the waste being monitored. In the case of antimony, both the PQL and MDL are below the antimony drinking water standard and provide adequate detection of a potential release and protection of human health and the environment. Based on this information, Materion requests that this condition be removed."

**Response 14:**

The IGWMP utilizes a residential risk based approach to determine whether or not the plume beneath the facility has expanded. For inorganic constituents, detected concentrations are compared to their respective statistical background limits in order to determine if a release has occurred. Only if the inorganic constituent(s) is detected at or above its corresponding background limit, is the constituent(s) concentration added to the residential risk based calculation to determine if the plume is expanding. In the case of antimony, the background limit is the practical quantification limit (PQL) of 0.005 mg/l. The drinking water standard for antimony is 0.006 mg/l. In determining the statistical background limit Materion must comply with the statistical performance standards outlined in OAC Rule 3745-54-97(I). According to OAC Rule 3745-54-97(I)(5) any PQL approved in the permit used in the statistical method must be the lowest concentration level that can be reliably achieved during routine laboratory operating conditions that are available to the facility. Materion currently analyzes arsenic, nickel, and thallium using Method 6020 in the IGMWP. As such, Method 6020 is available and is not an additional method being requested in order to achieve a lower PQL. Therefore, this condition has been re-numbered F.11(f) and has not been removed.

**Comment 15:** Materion commented on Draft Renewal Permit Condition F.11(g) stating that "The use of MW-38 as a point of action (POA) well was considered in developing the original IGWMP monitoring program. By approving the IGWMP, Ohio EPA has already determined that the well should be treated as a "Water Collection Well Only" well. Since that time, there has not been documented plume growth in this area. Therefore, there is no justification or need to change the classification of MW-38. Moreover, IGWMP POA well MW-50 is located immediately upgradient of MW-38. VOC concentrations in groundwater at this location (closer to the PCE AOC - a possible source for VOC contamination at MW-38) have fluctuated between 3.6 ug/l and 5.8 ug/l since sampling began in 2004 and are nowhere near exceeding the residential risk-based calculations which define plume growth. If plume growth as defined in the IGWMP requires exceedances of the residential risk-based calculations at POA wells and MW-50 is nowhere near exceeding the risk levels, an additional POA monitor well downgradient of MW-50 is not necessary. POA well MW-50 adequately serves as a POA well for this area. An additional well located further downgradient would provide no additional protection of human health and the environment. Materion requests that this condition be removed."

**Response 15:** Ohio EPA is unclear in Materion's comment because the agency is not requiring another POA well downgradient of MW-50. Ohio EPA is requiring MW-38 become a "Plume Growth Well" to monitor ecological risk to the Portage River, not plume expansion, and to determine the full extent of contamination. Monitor well MW-38 was treated as a "Water Level Collection Only" well due in part to Materion's belief that the detection of cis-1,2-dichloroethylene in 1999 was associated with the Closed North Lagoons AOI. Ohio EPA no longer supports that statement. The concept of MW-38 as a "Plume Growth Well" is consistent with other areas of the IGWMP plume and the December 11, 2001 "Ten Points of Agreement Letter". This condition has been re-numbered F.10(g) and has not been removed.

**Comment 16:** Materion commented on Draft Renewal Permit Condition F.11(h) stating that "It is clear that there is no indication that groundwater contamination associated with the IGWMP plume has resulted in contamination of the Intermediate/Deep bedrock aquifer. An Intermediate/Deep bedrock aquifer monitor well (MW-51D) is located downgradient and north of the most downgradient edge of the IGWMP plume. At this location, groundwater flow direction in the Intermediate/Deep Bedrock Aquifer is to the southwest in response to production well pumping. Production well pumping is conducted to maintain capture of contaminants in the Intermediate/Deep bedrock aquifer originating at the Closed North Landfill AOI. Based on this information, if contamination at any location within the footprint of the IGWMP plume was to migrate

downward to the Intermediate/Deep Aquifer, it would be captured. Therefore, Materion does not believe that the requested offsite Intermediate/Deep Bedrock Aquifer well is necessary to verify hydraulic containment beneath the IGWMP plume. Materion requests that this condition be removed.”

**Response 16:**

The purpose of Condition F.11(h) is to verify hydraulic containment is being maintained beneath the IGWMP plume to the north of POA well MW-50 (towards the Portage River). This condition was based on the detection of cis-1,2-dichloroethylene (cis-1,2-DCE) in MW-38 on August 20, 1999 and confirmed on October 5, 1999 sampled during the Ground Water Quality Assessment for the Closed Triangular Lagoon and the Eastern Settling Lagoons AOI. Since that time MW-38 has not been sampled. Ohio EPA believes that the detection of cis-1,2-DCE at MW-38 is associated with the IGMWP plume. However, without current information Ohio EPA believes this condition may be premature.

Based on Condition F.11(g), MW-38 will become a “Plume Growth Well” at which time it will be determined if the plume has migrated to MW-38 and the Portage River. Ohio EPA disagrees that the Intermediate/Deep bedrock aquifer monitor well MW-51D would be sufficient to conclude that hydraulic containment beneath the IGMWP plume is being maintained if it’s determined that the plume has reached the Portage River at MW-38. Materion does not have wells installed in the Intermediate/Deep aquifer on the north side of the Portage River to make this determination. If, based on Condition F.11(g) detections of constituents associated with the IGMWP plume are found in MW-38 Ohio EPA will pursue the installation of the additional Intermediate/Deep aquifer well on the north side of the Portage River in a separate permit modification. Re-numbered Condition F.10(h) will be removed from the compliance schedule at that time.

**Comment 17:**

Materion commented on Draft Renewal Permit Condition F.11(i) stating that “Materion notes that the Draft Permit does not contain Condition F.11(i) between Conditions F.11(h) and F.11(j). If a substantive condition was omitted from the Draft Permit, Materion requests an opportunity to review it and provide any necessary comment prior to issuance of the final renewal permit. In the alternative, Materion suggests that the conditions be appropriately renumbered.”

**Response 17:**

Draft Permit Condition F.11(i) does not exist. Ohio EPA apologizes for any inconvenience it may have caused Materion. The conditions will be appropriately renumbered.

**Comment 18:**

Materion commented on Draft Renewal Permit Condition F.11(j) stating that “Materion does not believe that at this point in the

monitoring program it is necessary to further define the western horizontal extent of the IGWMP plume. The extent of contamination of the IGWMP plume was established in 2001. Plume growth, as defined by the IGWMP approved by Ohio EPA, requires exceedance of residential risk at POA wells. Based on this definition, plume growth is not occurring, and the extent should not have changed. Consequently there is no need for additional wells to determine the extent. In addition, the IGWMP includes a POA well (MW-50) located directly downgradient of the PCE AOC. Based on groundwater flow, maximum concentrations would be expected directly downgradient of the PCE AOC. As discussed with respect to Condition F.11(g) above, the concentrations at this location are nowhere near exceeding the risk-based levels. If, based on a minor flow component to the north, the extent of VOCs does extend slightly to the west of MW-50, the concentrations would be less than that at MW-50 and therefore, not significant in terms of the objectives of the IGWMP. Materion requests that this condition be removed.”

**Response 18:**

The December 1, 2001, “Ten Points of Agreement” letter defines the Point of Action as the edge of the IGMWP plume. Ohio EPA is requiring Materion to satisfy the intent of the Ten Points of Agreement and define the plume to the west of MW-27 and MW-50 (i.e., western edge of the plume). Point of Agreement No. 4 states that “horizontal measurements may be measured at MW-40, MW-41, and MW-43. DDAGW-NWDO is presently evaluating whether these wells are acceptable per the Ground Water Quality Assessment Report”. In the Ground Water Quality Assessment Report (GWQAR), Materion (formerly Brush Wellman Inc.) defined the edge of the plume at well locations MW-40, MW-41, and MW-43. Ohio EPA disagreed. This was reflected in the compliance schedule in the 2001 Ohio Hazardous Waste Facility Installation and Operation Permit Renewal that required Materion to install and sample MW-50. Unfortunately MW-50 did not define the extent of contamination and a provision was not included in the 2001 compliance schedule for an additional well(s) if the extent of contamination was not defined.

Ohio EPA has changed the original compliance schedule condition to be more descriptive. The intent of the Condition has not changed. It now reads as follows:

- (h) *The Permittee shall, within one hundred eighty (180) days after permit journalization, complete the following:*
  - (i) *Install and develop a monitor well(s) to the west of MW-50 and MW-27 in accordance with procedures outlined in Appendix J of the IGWMP to determine the extent of contamination from the IGWMP. This monitor well(s) shall be screened in the shallow bedrock aquifer.*

- (ii) Collect a ground water sample at the well installed pursuant to Permit Condition (j)(i) in accordance with the procedures outlined in Section 5.0 of the IGWMP for constituents listed in Tables 5-2 and 5-3 of the IGWMP.
- (iii) Submit a report to Ohio EPA in writing detailing the results due to Permit Condition F.11(j)(i)&(ii). The Permittee shall enter the data generated pursuant to Permit Condition F.11(j)(i)&(ii) into the operating record in the manner described in Permit Condition F.9(a).
- (iv) Submit to the director an application for a permit modification to make any appropriate changes to the IGWMP at the facility based upon Permit Condition F.11(j) (iii).

**End of Response to Comments**