**Michigan Department of Environmental Quality**
**Waste and Hazardous Materials Division**

# RESPONSE TO COMMENTS

**Hazardous Waste Facility Operating License**
**and**
**Major Operating License Modification**

**The Dow Chemical Company**
**1000 East Main Street and 2314 West Salzburg Road, Midland, Michigan**
**MID 000 724 724 and MID 980 617 435**
**June 12, 2003**

Note: This Response to Comments document should be read in conjunction with the Summary of Changes document. Comments received during the public comment period that did not result in revisions to the draft operating license and operating license modification are summarized in this Response to Comments document. All comments that resulted in revisions to the draft operating license are summarized in the Summary of Changes document. No comments were received from the public on the major operating license modification.

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## COMMENTS ON PART 111 DRAFT OPERATING LICENSE

### GENERAL COMMENTS

**Comment 1:** Several commenters requested an extension of the comment period for the draft operating license and the corrective action consent order.

**Response:** Former MDEQ Director Russell Harding decided not to extend the public comment period for the draft operating license and corrective action consent order in response to requests from several members of the public. However, on December 27, 2002, a decision was made by Director Harding to withdraw the draft corrective action consent order and to address all of the off-site corrective action requirements in the draft operating license. In January 2003, the new MDEQ Director, Steven Chester, reconsidered the earlier requests from the public to extend the public comment period. The public comment period on the draft operating license was re-opened from January 27, 2003 to February 26, 2003. The extension to the public comment period was announced in the *Midland Daily News,* the *Saginaw News,* and the *Bay City Times* and on local radio station WSGW. In addition, a notice announcing the extended public comment period was sent out to individuals on the Dow facility mailing list maintained by the MDEQ-WHMD and to the Tittabawassee River mailing list maintained by the MDEQ, Remediation and Redevelopment Division (RRD).

**Dow Comment 4-13 Regarding Previous Comments on the Proposed Corrective Action Consent Order:** Dow incorporates by reference as comments on the draft operating license its previous comments on the proposed corrective action consent order. In the final months of 2002, Dow submitted numerous comments on a proposed corrective action consent order dealing with corrective action obligations that will now be addressed in the license. We incorporate by reference, in their entirety, all of Dow's comments on the proposed corrective action consent order.

**Response:** This comment was rescinded by Dow in a letter dated March 6, 2003. The licensee's corrective action consent order comments dealt with certain issues, such as the development of site-specific criteria and the use of probabilistic risk assessment, that are appropriately considered within the scope of the operating license. However, these issues are not relevant to license issuance at this time and relate to future decisions to be made within the framework of the operating license after issuance.

**Comment 2:** A commenter stated that the vast majority of residents do not have the slightest idea of what is encompassed by the draft operating license and that they do not feel that the license information has been adequately presented to the public in a manner as to allow anyone to make an intelligent, educated comment of any kind. The commenter stated that at the few meetings that were presented, everything that was presented was slanted to favor Dow and keep the public ignorant. Also, the commenter indicated that they do not see the need to consolidate three state licenses and two federal permits into one license and they questioned the wisdom of allowing the license term to be for a period of 10 years.

The commenter expressed concern that everything under the operating license that was presented to the public was designed to be as inexpensive as possible for Dow rather than being a properly designed facility with zero emissions for the community.

The commenter stated that the MDEQ should completely dismantle the license as written and rewrite five separate licenses and permits to address the issues for which they were originally designed. Also, prior to any attempt to issue a license, the affected residents should be

educated in a manner as to be able to make an educated decision about what is about to be done to them or for them. The only knowledge the public has, including the local health departments, regarding dioxin and its effects on people, has been supplied by Dow, not the MDEQ or the Michigan Department of Community Health (MDCH). The public is entitled to know what we are living in, ALL the illnesses that may result from exposure to dioxin, and how these licenses may affect us in the future, if in fact we have a future.

**Response:** The MDEQ agrees that the information covered by the operating license is very extensive. The Dow operating license covers more complex hazardous waste management units than any other hazardous waste facility operating license issued by the MDEQ. Due to the complexity of the Dow operating license, two public information meetings were held in addition to the public hearing in an attempt to provide as many people as possible with multiple opportunities to obtain an overview of what the operating license covered. Complete copies of Dow's hazardous waste facility application and the draft operating license were available for public review at the Grace A. Dow Memorial Library for individuals to take a more detailed look at the content of the documents. The MDEQ went beyond its normal public participation requirements to try to ensure a high level of staff availability so the public could get formal and informal answers to their questions and concerns about the proposed relicensing action. If the information presented by the MDEQ technical staff seemed to be slanted to favor Dow, this perception is incorrect. However, much of the information presented at the public meetings and hearing was in support of the MDEQ's advertised intent in the public notice to issue an operating license to Dow.

The MDEQ disagrees that requirements under the operating license are designed to be as inexpensive as possible for Dow rather than representing requirements for a properly designed facility. The hazardous waste facility license review process does not take implementation costs for such things as facility operation and corrective action into consideration. The air permit issued by the MDEQ, Air Quality Division (AQD), for Dow's incinerator imposes the air emission limitations. The air regulations and permit program require very low emissions, but they do not require zero emissions. Similarly, the water program and the National Pollutant Discharge Elimination System (NPDES) permit issued by the MDEQ, Water Division, for Dow's wastewater treatment plant (of which the Tertiary Pond is a part) require very low emissions to the Tittabawassee River, but they do not require zero emissions. These are the primary air and water emission points for Dow's hazardous waste facility operations that are licensed by the WHMD. Proper regulation and compliance oversight requires a multi-media coordination effort between the three MDEQ Divisions referenced above.

One of the major goals of the operating license reissuance was to combine three state hazardous waste facility operating licenses (covering the Midland Plant container and tank storage units and Tertiary Pond surface impoundment; the Incineration Complex; and the Surface Impoundment Post-Closure Units), applicable provisions from the two federal corrective action permits (Midland Plant and Incineration Complex), and selected provisions from past consent orders into one license so there would be a single comprehensive license that would achieve administrative efficiency. Ideally, the MDEQ would have preferred to have originally covered all of Dow's hazardous waste management units under a single operating license, but this was not possible due to the national permitting priorities and time frames that were set by the United States Environmental Protection Agency (U.S. EPA) as the hazardous waste program evolved. Since the time Dow's operating licenses were originally issued, the state hazardous waste regulations have been revised to allow a 10-year term (with a five-year re-opener for the Tertiary Pond surface impoundment as is required for land disposal facilities), consistent with the permit term allowed under the federal hazardous waste regulations. Given that it has taken 10 years to reissue the Midland Plant operating license, which was originally

issued in 1988 with a five-year term, the MDEQ believes that a 10-year license term is appropriate and is necessary to ensure state-wide program consistency for license terms.

In addition to the above-described inter-divisional permitting coordination that is done within the MDEQ, there is also a great deal of inter-agency coordination that occurs with such agencies as the MDCH, local health departments, local units of government, the U.S. EPA, and the U.S. Fish and Wildlife Service. While the hazardous waste program requires the MDEQ to ensure that regulated facilities conduct their operations in a manner that protects human health and the environment, the MDCH and local health departments are mandated with the primary charge of protecting public health. The MDEQ Director must coordinate with the MDCH Director when crucial public health decisions relating to hazardous waste facilities need to be made. Significant efforts are underway to ensure that these agencies do a better job at providing information and making decisions related to public health protection for off-site releases of contaminants in the Midland/Saginaw/Bay County area.

In late March, 2003, the MDEQ proposed a process to keep local officials, Dow, and other interested parties in the area informed regarding off-site corrective action activities conducted under the Dow operating license. This process is currently referred to as the Tri-County Project Coordination Plan/Community Involvement Plan, but the name and the process are subject to change by the participants once a steering committee is formed and meetings officially commence. Individuals interested in participating in this process or who would like to obtain additional information regarding this process may contact Ms. Cheryl Howe, Hazardous Waste Permits and Technical Support Unit, WHMD at 517-373-9881 or at howec@michigan.gov or Ms. Liane Shekter Smith, Chief of the Hazardous Waste and Radiological Protection Section, WHMD at 517-373-0530 or at shekterl@michigan.gov.

**Comment 3:** On December 6, 2002, the EPA published an extensive review of the Dow Hazardous Waste Management Facility Operating License titled: "Comments on the Draft Hazardous Waste Management Facility Operating License to be issued by the Michigan Department of Environmental Quality to the Dow Chemical Company, Midland, Michigan [EPA ID No. MID 000 724 724], as Published for Public Comment on October 7, 2002." We demand that the proposed license be revised with language to correct every single objection the EPA mentions in this document.

**Response:** The MDEQ has reviewed and responded to all of the U.S. EPA's comments on the draft operating license. Some of the U.S. EPA comments are responded to in this Response to Comments document. In cases where the revisions requested by the U.S. EPA were inconsistent with the MDEQ's established licensing practices, no changes were made to the operating license in response to those comments. However, the MDEQ agreed with the majority of the U.S. EPA comments and requested Dow to submit updated license application information to address those comments. Refer to the Summary of Changes document for the specific changes that were made in response to many of the U.S. EPA comments.

**Comment 4:** The Mayor of the City of Midland commented that he has been mayor since 1996 and served on the Midland City Council since 1991. He lives in and represents the portion of Midland including all of the Dow plant and the area that would be most affected by any wind borne contaminants coming out of the Dow plant. In his role as mayor he has been involved in the dioxin issue in a very significant way since 1996. He has met on a number of occasions with officials from the MDEQ and Midland Department of Community Health, including the directors and staff to discuss the soil contamination issue in Midland. He has attended both public information meetings in preparation for this public hearing and reviewed all of the materials that were handed out and believes he is very well informed on the dioxin issue as it

bears on the City of Midland. He stated that he is very impressed with the enormous detail and effort evidenced by the proposed permit to monitor the performance of The Dow Chemical Company. Presentations have made it clear that the MDEQ is very well acquainted with the Dow plant and their operations. He has no concerns with the permit as it is presently being proposed and urges the MDEQ to issue the permit as proposed. Dow is a substantial employer and taxpayer in Midland and it is important to the community that they be able to continue their manufacturing in Midland. If the permit were not issued, then the results would be economically devastating for the community. He expressed confidence that the MDEQ is able to monitor Dow's operations and to protect the public health and urges that the permit be issued.

**Response:** The MDEQ acknowledges these comments.

**Comment 5:** A commenter stated that the quality of the community has a lot to do with what Dow Chemical has brought to it, including good jobs and the people they bring in from throughout the world. They've had a very positive affect on the overall health of this community, whether it's physical, emotional or economic. The commenter expressed concern that the dioxin and other issues related to the permit will cause overreaction and trepidation in people's minds. The commenter believes that such things as cigarette smoking, overeating, driving without a seat belt, and drinking too much pose risks that are probably equal to what we're talking about with some of the environmental hazards that Dow may cause. The MDEQ is not adequately explaining to people the risks/hazards produced by Dow compared to those from such things as eating ice cream, not wearing seat belts, not sleeping enough at night and going out in the sunshine. The commenter indicated they are in favor of Dow's permit being approved, but hopes that the MDEQ would exercise great caution as they go forward and talk about some of these other hazards.

**Response:** The MDEQ acknowledges these comments. Risk communication is always a difficult issue. Communicating risk is complex because people generally view voluntary risks (e.g., such as from cigarette smoking, driving without a seat belt, etc.) differently from involuntary risks (i.e., those that are imposed upon them by others). Dow's treatment, storage, and disposal activities and releases from these activities undoubtedly pose an involuntary risk on residents in the Midland community. However, such risks may not be inherently greater than those posed by adjacent manufacturing operations on the plant site (which are not regulated under the hazardous waste facility operating license, but may be regulated to some degree under other state permitting programs; e.g., air permits).

Under the operating license renewal process, the state and federal hazardous waste regulations do not require the MDEQ to quantify the risk from the continued operation of Dow's hazardous waste facilities. Rather, the regulations and the Dow operating license contain many general provisions that require the facility to be operated in a manner that does not pose undue risks to human health and the environment. For example, Condition II.A. of the operating license requires that "The licensee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the environment, including air, soil, or waters of the State which could threaten human health or welfare or the environment." Condition II.L.7. requires the licensee to report any noncompliance with the license that may endanger human health or the environment. This license provision is in place to ensure that the MDEQ will be informed if fires, explosions, or releases of hazardous waste occur at the facility so that the MDEQ can verify that the licensee has implemented appropriate corrective measures to address any risks posed to human health and the environment and that steps are taken to prevent such problems from occurring in the future.

In cases where historical or ongoing releases of contaminants pose risks, the operating license also contains provisions for addressing such hazards. Condition XI.A.1. of the operating license requires that "The licensee shall implement corrective action for all releases of a contaminant from any waste management units at the facility, regardless of when the contaminant may have been placed in or released from the waste management unit. For the purposes of this license, the term "corrective action" means an action determined by the Chief of the Waste and Hazardous Materials Division to be necessary to protect the public health, safety, welfare, or the environment, and includes, but is not limited to, investigation, evaluation, cleanup, removal, remediation, monitoring, containment, isolation, treatment, storage, management, temporary relocation of people, and provision of alternative water supplies, or any corrective action allowed under Title II of the federal Solid Waste Disposal Act, or regulations promulgated pursuant to that act." The operating license provisions described above are designed to eliminate or address risks from hazardous waste facility operations and are applicable to all such facilities in Michigan to ensure that a level playing field exists throughout the state. Similarly, these operating license conditions are intended to ensure that human health and the environment are subject to a consistent level of protection on a state-wide basis.

**Comment 6:** A commenter stated that their largest concerns are in the area of monitoring and publishing of the results. Air Quality Division did an incinerator permit in 2001. The Waste and Hazardous Materials Division is now doing a site permit, but it doesn't include manufacturing emissions and it is unknown how this relates to the incinerator permit.

From about June to mid-October, there were little or no visible emissions from the "production stacks" (that group of 5 or more smoke stacks) coming from Michigan Operations. The commenter said they were beginning to think it had shut down entirely. The commenter indicated that they go by the plant two to three times per week, usually in the early morning and in the late evening. It suddenly started up again in mid-October (right around the 15th) and now seems to be pumping out something (smoke, steam, whatever is it) continuously. At times, the plume appears to go for miles. One night when there was a Southeast breeze, the plume extended out past Poseyville Road along Gordonville for some distance (hence the commenter moved their kids to a different school this year). What is in that emission and who is responsible for that permitting and licensing?

As residents -- and biological organisms -- the commenter stated that they would like a means to know what they are coming into contact with, how much, how frequently, and whether it meets state and federal standards. That includes waste and production, injection wells, landfills, incinerators, air, water, etc.

**Response:** The WHMD does not regulate manufacturing emissions at the Dow Midland Plant and now has a lesser role than in the past with respect to the regulation of incineration. The stacks described by the commenter, which are fairly short and all in a row, are Consumers Energy's stacks. They are located adjacent to the Dow property and are visible from Overlook Park on Poseyville Road and from Gordonville Road. Dow's incinerator stacks are about 200 feet tall and could not be described as a group of 5 or more smoke stacks. Consumers Energy is regulated by the AQD, not the WHMD. When this comment was received by e-mail, it was referred to the AQD for appropriate follow-up.

With respect to the commenter's statement that they would like a means to know what they are coming into contact with, how much, how frequently, and whether it meets State and Federal standards, multiple MDEQ contacts may need to be made to obtain such information. The MDEQ regulates waste management activities and emissions from production processes, but

does not have jurisdiction over the actual production processes. The appropriate regulatory Divisions within the MDEQ must be contacted to obtain the desired information:

| STAFF | CONTACT INFORMATION | TOPICS |
|---|---|---|
| Waste and Hazardous Materials Division - Lansing Office | | |
| Cheryl Howe, Permit Engineer | 517-373-9881 or howec@michigan.gov | General Hazardous Waste Questions, Containers, Tanks, Surface Impoundments, Landfills, Incinerators, Air Monitoring |
| Dan Dailey, Permit Engineer | 517-335-6610 or daileyd@michigan.gov | General Hazardous Waste Questions, Incinerators |
| Al Taylor, Geologist | 517-335-4799 or taylorab@michigan.gov | Groundwater, Soil, and River Sediment Monitoring, Corrective Action, Landfills |
| Ginny Himich, Environmental Quality Analyst | 517-373-7974 or himichv@michigan.gov | General Environmental Sampling Questions, Environmental Monitoring Operation and Maintenance Inspection Results |
| Deb MacKenzie-Taylor, Toxicologist | 517-335-4715 or mackenzd@michigan.gov | Toxicological Issues, Risk Assessment |
| Waste and Hazardous Materials Division - Saginaw Bay District Office, Bay City | | |
| Terry Walkington, District Supervisor | 989-686-8025, Ext. 8200 or walkingt@michigan.gov | Hazardous Waste Related Complaints |
| Trisha Peters, Compliance Inspector | 989-686-8025, Ext. 8204 or peterst@michigan.gov | Hazardous Waste Related Complaints, General Hazardous Waste Questions, Hazardous Waste Facility Compliance Inspection Results |
| Air Quality Division - Permits Section, Lansing Office | | |
| Paul Schleusener, Permit Engineer | 517-335-6828 schleusp@michigan.gov | Incinerator Air Permits |
| Air Quality Division - Saginaw Bay District Office, Bay City | | |
| Mark Reed, District Supervisor | 989-686-8025, Ext. 8250 reedm@michigan.gov | Complaints Regarding Air Emissions and Odors, General Air Permits Questions, Incinerator Compliance Inspection Results |
| Remediation and Redevelopment Division - Saginaw Bay District Office, Bay City | | |
| Brenda Brouillet, District Supervisor | 989-686-8025, Ext. 8300 or brouillb@michigan.gov | Flood Plain Soil Results |

| STAFF | CONTACT INFORMATION | TOPICS |
|---|---|---|
| Sue Kaelber-Matlock Geologist | 989-686-8025, Ext. 8303 or matlocks@michigan.gov | Flood Plain Soil Results |
| Water Division - Saginaw Bay District Office, Bay City | | |
| Kathy Brewer, Environmental Quality Analyst | 989-686-8025, Ext. 8263 or brewerk@michigan.gov | Wastewater and Storm Water Discharge, NPDES Permit |
| Geological and Land Management Division, Lansing Office | | |
| Ray Vugrinovich, Geologist | 517-241-1532 or vugrinov@michigan.gov | Injection Wells |
| Tom Godbold, Supervisor (Back-up) | 517-241-1545 or godboldt@michigan.gov | Injection Wells |
| Environmental Science and Services Division, Lansing Office | | |
| Environmental Assistance Center Staff | A toll-free, single point of contact for referrals to MDEQ technical staff in all environmental programs.<br><br>800-662-9278 | • Clean air assistance<br>• Above ground storage tanks<br>• Baseline Environmental Assessments<br>• Common Violations<br>• Compliance assistance (Federal & State)<br>• Contaminated site cleanups and redevelopment; funding<br>• Environmental Management Systems<br>• Handling, disposal and management of solid waste and hazardous waste<br>• Hauling and disposal of liquid industrial waste; hauler licensing<br>• Information about seminars, workshops and training programs<br>• Permits, including air, groundwater discharge, NPDES, water, wetlands/flood plains<br>• Pollution prevention and waste reduction<br>• Purchasing contaminated sites<br>• State Revolving Fund for Water and Wastewater Treatment<br>• Stormwater discharge<br>• Underground storage tanks |
| SARA Title III Program Staff | 517-373-8481<br>deq-ead-sara@michigan.gov<br>MDEQ Web Site Information<br>http://www.michigan.gov/deq<br>Click on: Assistance & Support Services; Environmental Reporting; SARA Title III | Michigan Toxic Chemical Release Inventory Data Under Title III of the Superfund Amendments and Reauthorization Act (SARA Title III; also known as the Emergency Planning and Community Right-to-Know Act of 1986) |

**COMMENTS ON PART II - GENERAL OPERATING CONDITIONS**

**Dow Comment 2-1 on Condition II.L.8. – Other Noncompliance:** This special condition should be narrowed to fit the Agency's regulatory authority. The special condition says the licensee must report, within 30 days, any violation of this license, any violation of Part 111 or its rules, and any violation of any other environmental law. The regulations cited by MDEQ in this condition do not support either the reporting requirement or the 30-day deadline; however, Dow realizes this deadline was present in the previous permit and therefore we do not object to it continuing. R 299.9521(1)(a) and 40 CFR 270.30(l)(10) require reporting only of noncompliance with provisions that are in the license (see 40 CFR 270.30[a]). Even then, these regulations do not impose a 30-day deadline; they specify that the information must be reported at the same time as monitoring reports under the license.

This condition would impose mandatory self-disclosure for every violation of every environmental law. In practical impact, that would constitute an amendment of many, many regulatory provisions – which would require rulemaking. For example, under Rule 912 of MDEQ's air permitting program, certain exceedances must be reported if they continue for more than one hour. Releases of a shorter duration need not be reported. The proposed special condition, however, would require the licensee to report shorter-duration exceedances, contrary to Rule 912 and contrary to the provisions in the air permit. This would revise Rule 912, without consulting AQD (the division responsible for Rule 912) or following rulemaking procedures. This is merely a single example; the special condition would similarly revise a multitude of other regulations.

The special condition would also impose a reporting requirement with respect to Federal regulatory programs, even if authority over such programs has not been delegated to the Agency. Clearly this would be outside the Agency's authority.

Finally, a hazardous waste license is not the appropriate vehicle to discuss reporting under other laws. Nor is WHMD the appropriate division to receive reports under unrelated regulatory programs that WHMD does not administer.

The following deletion would provide wording consistent with Condition I.E.14. in the previous Act 64 Hazardous Waste Facility Operating License, issued September 30, 1988. Dow proposes the first sentence of Condition II.L.8 would read: "The licensee shall report all other instances of noncompliance with this license~~, Part 111 of Act 451, the rules, and any other applicable environmental laws or rules that apply to the licensed facility,~~ at the time monitoring reports required by this license are submitted or within 30 days, whichever is sooner."

**Response:** The operating license was not revised in response to this comment. After submitting this comment, Dow submitted an additional comment, Dow Comment 3-1, regarding Condition II.L.7 and II.L.8., to supplement and clarify previous comments that had been made on the draft operating license. Please refer to the Summary of Changes document for the response to Dow Comment 3-1 and the resulting operating license revision.

**U.S. EPA Comment 1 on Financial Responsibility:** The Operating License is inconsistent with Section 324.11123 (2) of Michigan's Natural Resources and Environmental Protection Act, as amended, (NREPA or Act 451), 1994 PA 451 and Michigan R 299.9710. This provision specifically states that, "An applicant for an operating license for a treatment, storage or disposal facility that is a surface impoundment, landfill or land treatment facility shall demonstrate financial responsibility for claims arising from nonsudden and accidental occurrences relating to the operation of the facility." A demonstration of financial responsibility

has not been included with the Operating License. This information should be included to ensure that Dow is able to cover such financial responsibility.

**Response:** The operating license was not revised in response to this comment. Although the U.S. EPA may not have received a copy of Dow's current financial test, a current demonstration of financial responsibility is included in the MDEQ's copy of the operating license application in compliance with R 299.9710. It is not the MDEQ's normal practice to include a financial assurance attachment to an operating license because these documents are required to be updated annually pursuant to Condition II.Q. of the operating license regarding Liability Requirements. The current financial assurance mechanism is always maintained in the WHMD's financial files.

**COMMENTS ON PART IV - TANK STORAGE AND TREATMENT CONDITIONS**

**U.S. EPA Comment 5 on Condition IV.A.4. - Coverage of License:** The last sentence on page 6 of the Operating License states that "Construction of a storage unit(s) to replace the Waste Storage IIA tank system may be approved by the MDEQ if construction is completed before the operating license expires." Regardless of the expiration date of the Operating License, any such hazardous waste storage unit must be approved under a separate application. Once such an application has been submitted to MDEQ by Dow, the Operating License may then be amended to include the storage unit, assuming the application for the hazardous waste storage unit has been properly reviewed and approved by MDEQ.

**Response:** The MDEQ was unable to locate the sentence referenced by the U.S. EPA on page 6 of the draft operating license, but it appears that the U.S. EPA may be referring to Condition IV.A.4. The license modification procedures of R 299.9519 will be followed when the operating license is modified. No revision to the operating license is required in response to this comment, since these requirements are already referenced in Part II, Standard Conditions.

**U.S. EPA Comment 131 on Condition IV.A.1.- Coverage of License:** The table on page 19 of the Operating License states that the storage capacity for Building 1163 is 1800 cubic yards or 360,000 gallons. However Dow's July 2002 Part A Application indicates that the storage capacity for Building 1163 is to be 655,500 gallons or 3245 cubic yards. This discrepancy needs to be resolved.

**Response:** A revised Part A Application page was submitted by Dow to match the 1163 Building tank system storage capacity, so this discrepancy no longer exists. The operating license did not need to be revised in response to this comment.

**Dow Comment 3-2 on Condition IV.A.5(c). - Coverage of License:** This condition prescribes several standards that must be met as prerequisites to the transfer of 600 cubic yards of unused storage capacity from the 1163 Building to the existing 29 Building tank system. If the stated standards are met, the transfer should be deemed approved automatically. As written, however, once all of the criteria have been satisfied, the transfer is still subject to approval by the Chief of the Waste and Hazardous Materials Division. The license provides no indication of the standards to be applied by the Chief for this final level of review. Dow believes that the additional approval step is redundant at best, and could provide a basis for the imposition of further conditions not reflected in the License. Accordingly, Dow requests that subparagraph 5(c) be deleted.

**Response:** This comment was reviewed by the Michigan Department of Attorney General's office. The operating license was not revised in response to this comment. The condition

referenced in this comment has been changed from Condition IV.A.5. to Condition IV.A.6. due to the addition of a new sub-condition to the operating license in response to another comment. Dow's comment suggests that if certain standards for transfer of unused storage capacity from the 1163 Building to the 29 Building Tank System are met, the transfer should be deemed "approved automatically." There is no legal basis for the proposed change. On the contrary, it is both appropriate and essential that the MDEQ approve, in writing, the proposed transfer. This is necessary to assure that the MDEQ concurs that the standards have been satisfied, and to have an objective basis for both Dow and the MDEQ to confirm that the transfer of capacity is legally effective. The MDEQ will not unreasonably withhold approval of this capacity transfer if the 29 Building tank system meets the hazardous waste tank system standards referenced in Conditions IV.D. and IV.E., along with the requirements in Conditions IV.A.6.(a) and (b) of the operating license.

**U.S. EPA Comment 10 on Conditions IV.H.2. and IV.H.3. - Disposition of Accumulated Liquids:** Items 2 and 3 on pages 22 and 23 of the Operating License indicate that accumulated precipitation will be removed "within 96 hours" and that spilled/leaked/released liquids will be removed "within 48 hours." This provision is inconsistent with 40 C.F.R. 264.193(c), which specifically states that "spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within 24 hours." This language needs to be changed to conform with Michigan R 299.9615 and 40 C.F.R. 264.193(c).

**Response:** 40 CFR 264.193(c) states that "spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within 24 hours . . . or in as timely a manner as is required to protect human health or the environment." It is the judgment of the MDEQ technical staff that additional time beyond 24 hours is routinely required for the removal of accumulated liquids because, depending upon analytical results, the facility may have to send such liquids for treatment by incineration. The additional time was deemed to be required to allow sufficient time for sampling and analysis to ensure the appropriate management of spilled or leaked waste and accumulated precipitation. It does not eliminate the licensee's obligation to maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the environment, including air, soil, or waters of the State which could threaten human health or welfare or the environment in accordance with Condition II.A. of the operating license and R 299.9602, R 299.9606, R 299.9607, and 40 CFR 264.31 and 264.51, which are adopted by reference in R 299.11003. The operating license was not revised in response to this comment.

**COMMENTS ON PART V - INCINERATOR CONTAINER STORAGE CONDITIONS**

**U.S. EPA Comment 135 on Condition V.A. - Coverage of License:** It is unclear whether liquids will be stored in the containers. The Operating License should be revised to clarify this and, if so, indicate whether the containers are tested for the presence of free liquids. Revise the application to provide the test method used to test for the presence of free liquids in the containers.

**Response:** The 830 Building Container Storage Area is the only container storage area in Part V of the operating license that has a limitation on the storage of liquid waste. Of the 125,000 gallon capacity, no more than 100,000 gallons may be liquid waste. Packs that are stored in this container storage area are typically destined for incineration and, therefore, contain absorbents to eliminate any free liquids. Portable containers (e.g., totes, dempsters) containing liquid waste are also stored in this container storage area. In addition, the container storage area is designed to capture releases from the unit as if all containers stored there

contain free liquids (i.e., provided with sufficiently impermeable secondary containment to detect releases, etc.). Therefore, the MDEQ does not agree that testing for the presence of free liquids is necessary. The operating license was not revised in response to this comment.

**COMMENTS ON PART VII - INCINERATOR TREATMENT CONDITIONS**

**U.S. EPA Comment 11 on Applicability of Federal Hazardous Waste Combustor Regulations:** Part VII of the Operating license directs Dow to comply with all incinerator provisions of its Michigan air permit, Permit Number 212-00A, issued September 6, 2001. The September 6, 2001 Permit, in part, includes stack emission limits based on 40 C.F.R. Part 63 Subpart EEE; however, the emission limits imposed upon the incinerator reflect the Subpart EEE emission standards applicable to existing incinerators, and not the more stringent standards applicable to new incinerators. On December 2, 2002, U.S. EPA Region 5 staff received a copy of revised Permit 212-00A, effective November 26, 2002. The Region 5 Air Division is in the process of reviewing revised Permit 212-00A as of the date of these comments. Their preliminary review reveals that revised Permit 212-00A correctly contains the emission standards applicable to new incinerators. However, the final compliance date in the permit for meeting the emission limits for mercury, dioxins and furans is set for September 30, 2004, beyond that which is allowable under the Part 63 regulations.

The 32 Incinerator instead is subject to both the requirements and the compliance dates applicable to newly constructed sources set forth in 40 C.F.R. Part 63 Subpart A, 40 C.F.R. Part 63 Subpart EEE, Section 112(i)(1) of the Clean Air Act, 42 U.S.C. § 7412 and the Clean Air Act permitting requirements. For newly constructed incinerators such as 32, the compliance date for emission standards for mercury, dioxins and furans is upon start up of operations, pursuant to 40 C.F.R. 63.6(b) and 40 C.F.R. 63.1206(3). The MDEQ permitting staff contacted U.S. EPA air permitting staff to determine if a permit mechanism existed to allow an extension of the Part 63 compliance dates for new incinerators. On or about November 8, 2002, Region 5 Air Division staff notified MDEQ staff that an extension of the compliance dates for the 32 Incinerator could not be done through the state permit to install, but if there was a violation, could be addressed pursuant to an agreed to compliance schedule (in addition to other requirements) in a consent decree or consent order.

It is important (and required under 40 C.F.R. 270.62, Michigan R 299.9623 and the Clean Air Act) that the licensee demonstrate that the 32 Incinerator is in compliance with the air emission standards and limitations for new incinerators in 40 C.F.R. Part 63, Subpart EEE, (including conducting a comprehensive performance test and submitting a notification of compliance). The hazardous waste facility operating license does not amend any of the Clean Air Act permitting procedures and requirements for new hazardous waste combustors.

**Response:** The operating license was not revised in response to this comment. However, Permit No. 212-00A, the air permit for the 32 Incinerator that is referenced in Conditions VII.A.2., VII.A.6., and VII.C.2. of the license, was revised on November 26, 2002, and again on December 17, 2002. Permit No. 212-00A now incorporates the Hazardous Waste Combustor Maximum Achievable Control Technology (HWC MACT) new source standards in lieu of the existing source standards. The revised permit also requires that the 32 Incinerator comply with the HWC MACT upon startup. The issuance of the Supplements To Permit No. 212-00A by the DEQ, Air Quality Division, does not necessitate a change in the license language in the first sentence of Condition VII.A.6. that reads “In accordance with R 299.9601(7), the 32 Incinerator shall comply with the Air Quality Division Permit Number 212-00A, effective September 6, 2001, and any subsequent revisions to that permit, pursuant to the 40 CFR, Part 63, Subpart EEE Hazardous Waste Combustor Maximum Achievable Control Technology (MACT) regulations.”

The revisions to the air permit are noted in this response so the U.S. EPA and the public are aware of the impact of the revisions to the air permit and the fact that the operating license intentionally references subsequent revisions to the air permit.

**COMMENTS ON PART VIII - SURFACE IMPOUNDMENTS STORAGE AND TREATMENT CONDITIONS, TERTIARY POND**

**U.S. EPA Comment 12A. on Condition VIII.A. - Coverage of License:** [MDEQ Note: U.S. EPA Comment 12 contains multiple comments which require separate responses, so it was split into three parts (12A, 12B, and 12C).] This section of the Operating License should be modified by MDEQ to clarify how the maximum allowable treatment volume of 50,000,000 gallons per day was derived, given the fact that the total storage capacity of the tertiary pond system is 783,000,000 gallons. The Operating License should also state the typical daily output of such wastes from the Wastewater Treatment Plant to ensure that the stated surface impoundment treatment capacity will be sufficient.

**Response:** The 50,000,000 gallons per day treatment capacity in Condition VIII.A. is the interim status treatment capacity for the Tertiary Pond that has been carried through from the original Part A application filed with the U.S. EPA in 1980 to previous State licensing to the current operating license. The average and maximum daily discharges to the Tittabawassee River from the Tertiary Pond (23,000,000 and 48,000,000 gallons per day, respectively) are regulated under Dow's NPDES permit. Condition VIII.B. of the license limits the Tertiary Pond to treating only Michigan Operations secondary Waste Water Treatment Plant effluent, and Condition VIII.C. requires the tertiary treatment to consist of processes authorized in Dow's NPDES permit. There is no need to revise the operating license to address the sufficiency of the Tertiary Pond treatment process as this is more properly regulated under the NPDES permit.

**U.S. EPA Comment 13 on Condition VIII.D., Design and Operating Requirements, and Attachment 19:** According to the determination presented in Attachment 19, Dow has obtained a waiver from U.S. EPA for compliance with Minimum Technology Requirements for surface impoundments pursuant to Section 3005(j)(3) of the RCRA statute. As a condition of this waiver, Dow is prohibited from managing certain wastes in the tertiary pond system. Consequently, this section of the Operating License should specify that Dow may not place land disposal restricted wastes in the tertiary pond pursuant to RCRA Section 3005(j)(11)(B). The Operating License should also state that Dow may not manage dioxin wastes (i.e., hazardous wastes F020, F021, F022, F023, F026, and F027) in the tertiary pond without development and regulator approval of an appropriate dioxin management plan as required by Michigan R 299.9616 and 40 C.F.R. Section 264.231.

**Response:** Attachment 5 of the operating license, the List of Acceptable Waste Types for Management at the Michigan Operations, Midland Plant Site, does not include hazardous waste codes F020, F021, or F022 in the Tertiary Pond column, so these wastes are not allowed to be managed in the Tertiary Pond. Attachment 5 has been revised to delete hazardous waste codes F023, F026 and F027 from the Tertiary Pond column of the list, so these wastes are not allowed to be managed in the Tertiary Pond. By virtue of these hazardous wastes not being included in Attachment 5 of the operating license, Dow is prohibited from managing dioxin wastes in the Tertiary Pond.

In addition, compliance condition 5 of the waiver approved by the U.S. EPA for compliance with Minimum Technology Requirements for surface impoundments pursuant to Section 3005(j)(3) of the RCRA statute, which is attached to the operating license as Attachment 19, states:

"Hazardous wastes F020, F021, F022, F023, F026, and F027 must not be placed into the surface impoundments unless Dow operates the surface impoundments in accordance with a management plan that is approved by the Regional Administrator pursuant to the standards in 40 CFR 264.231. The dioxin management plan must be incorporated into the draft HSWA permit." The cover sheet of the operating license states, in part : "This license consists of the 82 pages of the table of contents and conditions attached hereto (including those in any Attachments 1 through 29) and the applicable regulations contained in R 299.9101 through R 299.11008, as specified in the license." Therefore, the List of Acceptable Waste Types for Management at the Michigan Operations, Midland Plant Site, contained in Attachment 5 of the operating license, and compliance condition 5 of the waiver contained in Attachment 19 of the operating license are enforceable conditions of the operating license. Since no dioxin management plan was included in the application or the draft operating license, Dow is prohibited from managing dioxin hazardous wastes in the Tertiary Pond without adding any additional prohibition language to the operating license.

**COMMENTS ON PART X - ENVIRONMENTAL MONITORING CONDITIONS**

**Dow Comment 3-3 on Part X and Orders Pursuant to Section 11148(1):** Conditions X.A.10, X.B.10, X.C.10, X.F.11, X.J.7, and X.L.9 all require Dow to comply "immediately" with an order issued by the Director pursuant to Section 11148(1) of Act 451 under circumstances suggesting the presence of an imminent and substantial hazard. Each of these provisions concludes with a sentence stating that "[t]his condition does not limit the MDEQ's ability to take enforcement action pursuant to Sections 11148 and 11151 of Act 451." Dow requests that each of these sentences be modified to include the following additional language: "**, nor does it limit any right, defense, or argument available to the licensee under applicable law.**"

**Response:** The operating license was not revised in response to this comment. This comment proposes to add language to each condition stating that it "does [not] limit any right, defense, or argument available to the licensee under applicable law." A review of this request by the Michigan Department of Attorney General's office concludes that the proposed addition is both unnecessary and improper. It is unnecessary because nothing in the license condition as drafted purports to limit Dow's rights or defenses under applicable law. It is improper because it incorrectly suggests, as a legal matter, that the license is a negotiated agreement or settlement between Dow and the MDEQ. On the contrary, the operating license is an exercise of the MDEQ's regulatory authority over Dow's activities under applicable law.

**U.S. EPA Comment 14 on Conditions X.A. and X.B. Regarding Glacial Till, Regional Aquifer, and Sludge Dewatering Facility Groundwater Monitoring Programs:** This part of the Operating License states that background values for constituents of concern in glacial till, the regional aquifer and sludge dewatering facility groundwater will be established at values less than the respective laboratory target detection limits. Ideally, the established background concentrations should be nondetect at or above the laboratory detection limits. This would establish that background groundwater is contaminant free and that the results can reliably be used for comparison with positive results detected downgradient. Selection of laboratory target detection limits above the established background levels is inappropriate and would hinder comparison of the data. There would be no way to determine if non-detect results in downgradient sampling locations were truly below background, or above background and below the analytical detection limit. Furthermore, use of detection limits above the background concentration effectively negates the value of establishing background contaminant concentrations since every positive detection would necessarily be above background and therefore be considered anthropogenic. In order to ensure accurate measurement, reporting, and data comparison, target detection limits for the laboratory must be selected at levels lower

than the established background concentrations. MDEQ should revise the Operating License accordingly. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

**Response:** The operating license was not revised in response to this comment. The MDEQ believes that the license conditions are adequate as written. In these groundwater contaminant detection monitoring programs, a statistically significant increase is identified if a primary monitoring constituent (that is a non-naturally occurring organic compound) is detected at or above the target laboratory detection limit. The target laboratory detection limits are included in Attachment 24 of the operating license and are consistent with the MDEQ's laboratory detection limits. Simply put, a statistically significant increase is identified if a monitored constituent is detected at or above the target detection limit. This provides a very conservative indication of a potential release to groundwater.

**U.S. EPA Comment 34 on Condition X.A. Regarding Glacial Till and Regional Aquifer Detection Groundwater Monitoring Program:** As outlined in Section X.A of the Operating License, the detection monitoring program for glacial till and regional aquifer groundwater will include an assessment of vertical gradient and confirmation of upward flow. However, this evaluation is limited to only four locations immediately surrounding the tertiary pond. Because shallow groundwater impacts have been identified elsewhere within the facility boundaries and immediately off-site, and because additional AOCs [Areas of Concern] are being investigated in the area, the vertical gradient evaluation should be expanded to confirm upward flow across the entire site area and beneath impacted off-site areas. Results of such an assessment will enable Dow, MDEQ, and U.S. EPA to discount the possibility of downward contaminant migration and to rule out the subsequent need for chemical monitoring of regional aquifer groundwater in areas where shallow groundwater contamination is identified. MDEQ should modify the Operating License accordingly. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F)

**Response:** The operating license was not revised in response to this comment. As part of the Compliance Schedule, Attachment 28 of the operating license, the licensee is required to develop a groundwater monitoring program for the glacial till sand units (Item H-4). The evaluation of vertical hydraulic gradients will be expanded as part of this program. The MDEQ, however, does not agree that the possibility for vertical migration of a contaminant can be discounted solely on the basis of an upward hydraulic gradient. The presence of dense nonaqueous phase liquids, for example, could result in downward migration of contaminants even if there is an overall upward vertical hydraulic gradient. To date, the licensee has not conducted any significant site characterization for contaminants in groundwater other than at the site perimeter and in the deeper regional aquifer. Therefore, the MDEQ believes it is necessary for Dow to begin conducting chemical monitoring, as well as more extensive hydraulic monitoring, in the more vulnerable shallow glacial till sand aquifers at the facility. Based on the results of a comprehensive chemical and hydraulic evaluation of the glacial till sands, it may be possible to discount the need for chemical monitoring in some or all of the regional aquifer as suggested by this comment.

**U.S. EPA Comment 24 on Condition X.F.4. Regarding Tertiary Pond Monitoring Programs:** Condition X.F.4 of the draft Operating License proposes use of the generic residential drinking water criteria from Part 201 of Act 451 in determining if remediation of shallow groundwater west of the rectangular pond is complete. To facilitate data comparison, Table V-8 of Attachment 25 should be expanded to include pertinent criteria for the area-specific constituents of concern.(Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F)

**Response:** The operating license was not revised in response to this comment. The criteria that are to be used are developed pursuant to Part 201 of Act 451. These criteria can change

based on changes to the algorithms, exposure assumptions and updated toxicity information. Because changes are possible, it is more appropriate to generally cite the appropriate criteria. The specific data comparison can be made to the criteria that are applicable at the time that the comparison is being made.

**U.S. EPA Comment 25 on Condition X.F.12. Regarding Tertiary Pond Groundwater Monitoring Programs:** Condition X.F.12 of the Operating License should be expanded to specifically identify those monitoring locations to be used in confirming hydraulic containment within the tertiary pond slurry wall. Water levels are currently proposed only to be measured in well 3795, but measurements must be taken in at least one well or monitoring point on both sides of the slurry wall in order to make a comparison and determine the hydraulic gradient. This section of the draft Permit should also be modified to note that hydraulic monitoring will be conducted monthly, as indicated in Section III.B of the fact sheet. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

**Response:** The operating license was not revised in response to this comment. The information and evaluation requested by this comment are addressed by Condition X.F.12. and Table 2 of Attachment 24 of the operating license, the Groundwater Monitoring Program Sampling and Analysis Plan.

**U.S. EPA Comment 27 on Condition X.G.8. Regarding East Side Main Plant Revetment Groundwater Interception System (RGIS) Hydraulic Monitoring Program:** According to this section of the Operating License, water levels in the east side RGIS shall be maintained at least two feet below those measured real-time in the adjacent Tittabawassee River. License condition X.G.8 presents details of the proactive response to be initiated by Dow in the event that RGIS water levels rise to within this two-foot margin of safety. To ensure a timely response, subparagraph (a) of this section should be clarified to indicate that, even if high river levels delay initial onset of the proactive response investigation, the licensee shall continue to monitor river water levels such that the investigation can commence as soon as possible. Furthermore, MDEQ should revise the Operating License to state that once this investigation has begun, the proactive response period shall last no longer than two calendar days. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

**Response:** No revisions were made to the operating license in response to this comment. Condition X.G.3. of the operating license requires the licensee to continuously monitor each primary piezometer under all environmental conditions, including during proactive response activities. Condition X.G.8.(a) allows for the proactive response period to extend beyond two calendar days under the condition where high river levels prevent access to the RGIS. The MDEQ believes that this is appropriate because it may not be possible to diagnose or respond to a problem with the RGIS without physically examining the components of the RGIS that are being restricted from access by the high water event.

**U.S. EPA Comment 29 on Condition X.I.3. Regarding West Side Main Plant and Tertiary Pond RGIS Monitoring Program:** For clarity, Condition X.I.3 of the Operating License should be expanded to discuss relative water level measurements that would indicate that the tertiary pond RGIS is acting as an effective hydraulic barrier between the Tittabawassee River and Bullock Creek and approaching impacted groundwater (i.e., RGIS water levels should be maintained lower than those measured in surface water or groundwater on the opposite side of the west side tile system). The Operating License should also specify any margin of safety that must be maintained in the relative water level measurements (e.g., at least two feet difference), as was outlined for the east side RGIS in Condition X.G.8 of the draft license. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

**Response:** The operating license was not revised in response to this comment. The requested specificity is detailed in Table 2 of Attachment 24 of the operating license. It was necessary to include this information in Attachment 24 because the type(s) of evaluation(s) that are conducted to determine compliance for the Tertiary Pond RGIS varies depending on the location of the piezometer group being evaluated.

**U.S. EPA Comment 31 on Condition X.J. Regarding Facility Shallow Groundwater Monitoring Program:** The first paragraph of this section of the Operating License refers to Figure 8 of Attachment 24 for a map of piezometers to be used for monitoring shallow groundwater facility-wide. However, no such figure is provided in either Attachment 24 or 25, and does not appear to have been included with the reapplication package. Consequently, the adequacy of this key groundwater monitoring component (which will be used to determine site-wide and off-site shallow groundwater flow directions and approximate velocities) could not be properly assessed. Before the Operating License is issued, MDEQ must require Dow to provide a figure and full list of the pertinent monitoring locations for review and evaluation. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

**Response:** The operating license was not revised in response to this comment. Figure 8 and the associated list of piezometers for the shallow groundwater monitoring program are included in the SAP, Attachment 24 of the operating license.

**Comment 7:** A commenter stated that there are certain questions that still need to be addressed and that it appeared that the State may benefit from some external input to make the proposed license package technically feasible. The commenter referred to an article from the June 23, 2002, *Midland Daily News* that they mentioned at one of the public meetings on the license regarding the risk scale posed by dioxins. Defense mechanisms built into the human body permit accommodation of environmental insults without deleterious effects, if they are present in small (below-threshold) amounts.

The commenter went on to reference the issue of “split samples” and indicated that environmental sampling must be a very exacting task so that the results of expensive analytical efforts result in meaningful data. In the case at hand, the quantities of contaminants are so small that they cannot be assumed to be homogeneously distributed in a sample. Split samples with “contradictory” analytical results therefore may not appear meaningful, reflecting poor analytical technique. They may, however, in fact be good analyses, but must be interpreted properly. In the proposed sampling scheme, very scattered data may be obtained, a fact that “split samples” may in fact further aggravate.

In the case of the proposed Soil Box Monitoring, the “boxes” exposed to the air will pick up dioxin contamination from airborne particulates. It was scientifically established that this contaminant adheres primarily to solids, when released into the atmosphere. Individual specks of dust may thus be the carriers of the dioxin that is collected in the boxes. To gain meaningful data, the entire box must be considered “The Sample” in order to measure the amount of fallout, per box opening. The box opening itself must be large enough to be truly representative of the area for which the results are to be considered. If the box is sub-sampled (split sampled) it may happen that all the dioxin present is associated with but a single speck of fly ash. Depending on whether this speck ends up in the portion that is sampled, the “concentration” may be very high, while another sub-sample (split sample) from the same soil box shows absolutely nothing. The lay person may then conclude that the analytical data is wrong, and the nit-picking environmentalists concentrate on the sample that gave the high value. The commenter urged

that these factors be considered when writing the protocol for the monitoring sampling at the Dow locations.

At the public meeting, in response to the question about what is done with all the air monitoring data that Dow collects, the MDEQ stated that the data will go into a database which will be analyzed at a later time and that we currently look for trends. Getting the data represents a considerable amount of work and expense. Such should only be mandated and undertaken if the data is in fact properly evaluated at the time when remedial action could be taken. If you have no way to do that - on a cost-benefit basis - you should not require it. On the other hand, if you decide to mandate such, the draft should have an appendix that discusses these issues in detail and allows all those who do not understand the issue to have the means to follow the reasoning and not get the impression that you are "promoting" the company's interest.

There are in these cases many issues that the lay-person cannot fathom by intuition or everyday experience. In a public debate then there is also never enough time to present a course in analytical sampling. Without such, however, even the folks negotiating the "Consent" (on either side) may be too ignorant of the issues to allow them sound judgment. This must be avoided, lest counterproductive regulations bind the company, which wants to cooperate, into scientifically impossible demands that then pose a subsequent dilemma for enforcement that cannot be solved, because of the very nature of the beast.

We in Midland hope that the forthcoming regulations will not, in the end, make it impossible for Dow to meet regulator requirements that were negotiated in good faith by people who did not understand the issues. The company will then have to be held to the letter of the permits, which are technically impossible to meet.

**Response Regarding Deleterious Effects of Environmental Insults:** Some chemical effects do demonstrate a threshold below which effects have not been seen. This is generally true for noncancer effects. However, for a few health effects, including cancer, it is thought possible that even one molecule of chemical has the potential to damage DNA such that it could lead to the formation of a tumor. The default conservative approach for assessing the risk to chemicals that have been demonstrated to cause cancer is to assume no threshold, to ensure public health protection. For some chemicals, a threshold mechanism has been demonstrated for increased incidence of specific tumors. A specific threshold mechanism has not been demonstrated for induction of tumors by dioxins. Dioxin also induces multiple tumor types. Therefore, in the absence of certainty, the default approach of assuming a non-threshold mechanism is applied for assessing the cancer risk of dioxin.

**Response Regarding Soil Monitoring:** The soil monitoring program was proposed by the licensee as part of the Soil and Groundwater Exposure Control Program. The function of this monitoring program is to evaluate the effectiveness of programs that the licensee is implementing to prevent the additional migration of dioxins and furans off-site via vehicle trackout and blowing dust. Condition X.L. of the operating license has been revised as described in response to Dow Chemical Comment 2-4 in the Summary of Changes document to allow the licensee additional time to develop a framework for the evaluation of the data collected from this program. Please refer to this response for additional information on this issue. The commenter's suggestions will be considered during the review of the framework proposed by the licensee for the evaluation of the data collected under this monitoring program.

No changes were made in the operating license in response to the comments on split sampling and soil box monitoring. The MDEQ agrees with the commenter that "environmental sampling must be a very exacting task so that the results of expensive analytical efforts result in

meaningful data." The MDEQ also agrees with the commenter that the quantities of contaminants are "so small that they cannot be assumed to be homogeneously distributed in a sample". These comments were made specifically in reference to split samples collected from Dow's soil sampling boxes. These concerns are adequately addressed in the operating license in the "Soil Sampling Procedures" contained in Attachment 24. The soil sampling procedures in the operating license state that representative samples from the soil media are to be collected by compositing soil samples (where appropriate for the analytical parameter to be analyzed). When collecting samples for dioxin and furan analysis, cores of soil are collected from systematic grid locations in the sampling area and the overall sample is homogenized prior to placing soil in the collection jars. While there will always be analytical differences between split samples, historic split sampling between the MDEQ and Dow has shown that the differences in split sample results tend to be minimal when these sampling procedures are used. As such, the license contains a technically sound procedure for collecting soil samples to be analyzed for permit required parameters and the split sampling audits that MDEQ will routinely conduct will adequately verify the quality of Dow's analytical data.

**Response Regarding Ambient Air Monitoring:** The hazardous waste regulations require the ambient air monitoring that is being conducted by Dow. Significant reductions in the monitoring parameters and frequencies have been approved since Dow began this monitoring program. The MDEQ recognizes that obtaining the air monitoring data incurs time and expense on Dow's part. However, it is a program that is mandated by law and it is not appropriate to allow Dow to totally cease this monitoring program. The availability of the data for conducting long-term trend analysis has value regardless of whether the MDEQ does this on a regular basis. However, it should be noted that the AQD recently added a technical staff person to coordinate the reviews of ambient air monitoring programs and the data generated under them. An appendix was not added to the ambient air monitoring program in response to this comment to describe the evaluation of the generated air data, since the review process is subject to change over time. One of the appendices to the ambient air monitoring program does include copies of the approval letters that document the revisions that have been made to the program since it began. Anyone wishing to obtain information related to the ambient air monitoring program may contact Ms. Cheryl Howe, Hazardous Waste Permits and Technical Support Unit, WHMD, at 517-373-9881 or at howec@michigan.gov.

**PUBLIC COMMENTS ON PART XI - CORRECTIVE ACTION CONDITIONS**

**Comment 8:** The Mayor of the City of Midland submitted the following additional comments during the reopened public comment period. On behalf of the City of Midland, the following comments are submitted for consideration by the Michigan Department of Environmental Quality ("MDEQ") with respect to its decision on the renewal/modification of the above referenced licenses.

The City supports Dow's application. As a major employer in this area, issuance of the license is obviously critical to Dow's continued operation and our community's economy.

Our comments below generally focus on the off-site corrective action requirements proposed for the draft-operating license for the 1000 East Main Street facility (the "OL"), found beginning at Section XI (B) [MDEQ Note: The correct citation is Condition XI.B.]. It appears that this license sets forth a process for developing a plan for the implementation of corrective action. The City believes that both the manner in which this process is carried out, and the substance of the action that Dow is ultimately required to take, is critical to allaying the concerns of City residents regarding the existence of Dioxin in this community.

We note that the MDEQ "Fact Sheet" summarizing the Department's rationale for its proposed approval of the renewal of the OL, states, in relevant part:

"Based on the review of the Dow operating license application that was submitted to the MDEQ and numerous site inspections and audits, the MDEQ staff have proposed the operating license be issued based on the following conclusions:

It is unknown at this time whether historical releases from the facility present a hazard to human health or the environment. The proposed operating license contains a compliance program to determine if a human health hazard exists, and if so, requires implementation of measures to address any hazards found to be present."

Apparently, as a result of these conclusions, the MDEQ has decided to incorporate off-site corrective action requirements into the operating permit.

We strongly concur with these conclusions. However, we offer our comments to emphasize two concerns.

First, we strongly believe that as part of Dow's off-site corrective action requirements, it is necessary that Dow be required to conduct a comprehensive study to determine the health effects of the historical releases of dioxin in the Midland area. This health study should precede further soil sampling in our community.

Second, that as the MDEQ reviews, and considers approval of, future submittals by Dow for its corrective action plan, we strongly advocate that the MDEQ require the maximum amount of public input possible. City government should be consulted regarding any investigation or remediation steps that impact our citizens.

1. <u>The MDEQ Should Require That A Comprehensive Health Study Be Conducted To Determine The Health Effects of the Historical Releases of Dioxins in the Midland Area.</u>

In December, 2002 the MDEQ was involved in negotiations with Dow regarding a proposed Consent Order (the "Proposed CO") that would have (among other things) required Dow (as set forth in Sections 8.8 – 8.10 of the Proposed CO) to conduct a comprehensive study of the exposure and health effects of polychlorinated dibenzodioxin and dibenzofuran isomers ("PCDD/Fs") in residential soils in the Midland Area (as defined in the Proposed CO), in accordance with a proposal (identified as proposed Attachment 3 to the Proposed CO) entitled *"Midland, Michigan and Tittabawassee River Floodplain Comprehensive Dioxin Exposure and Health Effects Study"* (the "Proposed Health Study").

The Midland community has obviously been impacted by Dioxin. Thousands of residents of the Midland community have worked and lived in a community that may have been exposed to this substance. Some individuals have alleged that their health has been impacted by exposure to Dioxin. However, there is no current evidence of any health effect. Many in our community strongly believe that the fear of Dioxin is exaggerated.

After decades of concern and study, there does not appear to be consensus within the scientific community as to what level, if any, the public may be exposed to Dioxin without adverse health effects. Therefore, there is obviously a need for a comprehensive health study to determine the true impact on human health of exposure to Dioxin. We believe that a health study evaluating the impact (or lack thereof) on individuals in the Midland community is extremely necessary to

serve as a step forward in the search for an answer to the question that is distressing our community: is Dioxin impacting our health?

The City does not possess the expertise to determine whether the Proposed Health Study that would have been required by the Proposed CO would be adequate to satisfy these concerns. However, the City believes that a study that strives to achieve this result is essential to lifting the "cloud" that exists due to the lingering question as to the impact of Dioxin on our community. The Health Study should also establish other exposure factors that should be taken into account for City of Midland soils. We believe that such a study must precede additional sampling in our community.

2. Public Input is Essential to Resolving Public Concerns as to the Impact of Dioxin on the Midland Community.

While it barely deserves repeating, the concern regarding the impact of Dioxin on the Midland community is significant and deserves substantial attention and consideration by both Dow and the MDEQ.

The public will only be satisfied by a process that is "transparent," and thus subject to full public scrutiny. We recognize and expect that the MDEQ will apply its expertise to this situation. We acknowledge that the result of this process will not satisfy everyone. However, we believe that for the good of our community, we must have a process that is open, objective, and to the extent possible, makes a significant step forward in addressing the question of what, if anything, must be done to address the existing soil contamination.

In this regard, we note that Section XI (G) [MDEQ Note: The correct citation is Condition XI.G.] calls for Dow to submit an interim response activity ("IRA") work plan within sixty (60) days of the issuance of the license. We request that the MDEQ actively solicit input from the City and the public generally, regarding this, and all subsequent submittals required by the license, particularly where any proposed work impacts our citizens.

In conclusion, the City respectfully requests that the MDEQ give substantial weight to the concerns expressed above.

**Response to Point 1:** The MDEQ agrees an exposure study and possibly a health study can provide meaningful information to the community. The MDCH is the appropriate state agency to oversee an exposure and/or health study. Therefore, a requirement for Dow to conduct an exposure and health study has not been added to the operating license.

Prior to conducting a health study, an exposure study is needed to determine if the people that are living where there are elevated dioxin levels in soil have elevated dioxin levels in their bodies. Additional soil sampling to identify those residential areas where dioxin levels are highest is needed before such a study can be designed or conducted. Such studies need to proceed in a careful step-wise fashion so that time and resources are not wasted on efforts that will not produce useful information. For example, it is not enough to compare disease rates in Midland County to those of other counties. We need first to determine where dioxin levels are highest, then compare dioxin blood levels of people living in these areas to levels in people living in "cleaner" areas; and, if differences are seen, try to determine what if any impact higher blood dioxin levels have had on the health of these people. It would also be necessary to determine the relationship of blood levels of dioxin to dioxin concentrations in soil and other sources of exposure (e.g., foods, local fish, work exposures).

The results of an exposure study cannot be used to determine a cleanup criterion that is designed to protect 95 percent or more of the population. The proposed study design, based on the questions asked, would not evaluate the separate exposure assumptions used in calculating these criteria, and may only determine if there are increased blood levels in the study group as compared to another community. If there are significant differences in blood levels, it will be difficult to attribute the levels or apportion the levels to specific sources of exposure (e.g., soil, diet, local fish, worker exposure). There is probably significant variability in blood levels in any population based on dietary differences alone. The estimates for soil direct contact exposure for development of criteria are intended to be reasonable maximum exposures, which an exposure study would not characterize. In addition, the long half-life (5-14 years) of these chemicals in the human body may make specific sources of exposure more difficult to determine. Current blood levels in many individuals may be more dependent on past exposures than current exposure levels. Therefore, it is important that any study focus on individuals who have lived in the contaminated area for a long period of time.

Health statistics from a single exposure and health study cannot be used to adjust the toxicity value used in developing cleanup criteria for dioxins. Even with 100 percent participation for the whole study area and no background cancer incidence, it would be impossible to detect a 1 in 100,000 increase in cancer risk as required by Part 201, Environmental Remediation, of Act 451, when the population of the city of Midland is less than 42,000. Cancer health statistics are reported as cancer incidence, which is typically the number of new cases diagnosed per year per 10,000 people. The 1 in 100,000 protection level over background for a 70-year lifetime equates to 0.0014 cases per year per 10,000 people. The most recent cancer incidence rate reported for Michigan residents is 50.9 per 10,000 people, averaged for years 1998-2000, age-adjusted. Even for exposures 10 times or 100 times the 90 parts per trillion (ppt) criterion (900 ppt or 9,000 ppt), with 10,000 people exposed to those levels, the increase in the number of cancers diagnosed per year from exposure to dioxin in soil would be expected to still be less than one (0.14). In other words, a health study based on cancer incidence would not show an increase above background due to dioxin soil exposure.

Although it may be possible for there to be increases in incidence of some of the more sensitive noncancer effects associated with dioxin, health statistics are not collected for most of these effects. The most sensitive effects of dioxin exposure are developmental effects in infants and children, including reproductive, cognitive, behavioral, and immunological effects. The most sensitive developmental effects would not likely be identified in a birth defects registry, since they are not gross deformities. Additional health effects that have been observed in adults exposed to higher levels of dioxin include diabetes, cardiovascular disease, cancer, and chloracne.

**Response to Point 2:** Following issuance of the operating license, the MDEQ intends to focus substantial resources on the dioxin contamination in the Midland area and the Tittabawassee and Saginaw Rivers. Condition XI.B. of the operating license has been substantially revised to address concerns that MDEQ technical staff had with the draft language and to respond to comments received from the U.S. EPA and the public. Refer to the response to U.S. EPA Comment 35 in the Summary of Changes document for detailed information regarding these revisions. The revised language now emphasizes the corrective action work to be done in the off-site release areas. As described in response to other comments related to Condition XI.B. of the operating license, Dow is being required to submit a Scope of Work (SOW) plan for a Remedial Investigation, rather than an IRA work plan as referenced in the comment. In accordance with Condition XI.B.3.(c), the SOW is required to include a proposed plan for public participation. As part of this process, the city of Midland will have the opportunity to review and

actively comment in a public forum on the SOW proposed by Dow. The MDEQ will consider these comments as part of the SOW review and approval process.

In addition to the license requirement for Dow to include a public participation plan in the SOW, as briefly described in the response to Comment 2 above, the MDEQ has proposed a process to keep local officials, Dow, and other interested parties in Midland, Bay, and Saginaw Counties informed regarding the above-referenced off-site corrective action activities. Representatives from the city of Midland, the Midland County Department of Public Health, and other local officials from the tri-county area, attended a meeting with MDEQ representatives on March 27, 2003, at which proposed revised language for Condition XI.B. of the operating license, the concept for the Tri-County Project Coordination Plan, and the Community Involvement Plan contained therein, were presented. Later in the day on March 27, 2003, the same information was presented in separate meetings to representatives of Dow and representatives of local environmental groups and affected residents in the Tittabawassee and Saginaw River watershed area. The MDEQ intends for the public participation processes under the operating license and the Tri-County Project Coordination Plan/Community Involvement Plan to be transparent, inclusive, and balanced.

**Comment 9:** Several commenters who are Midland area residents and business owners indicated that they are opposed to additional community soil sampling for dioxin outside of the context of a comprehensive health study (i.e., the Dow funded, independent study proposed under the now defunct draft corrective action consent order). The only way speculation and controversy can be put to rest in Midland is to have a comprehensive study that provides data to either support or refute the problems associated with dioxins in Midland. Any time Dow wants any kind of permit, this is going to "come back to haunt us" until a comprehensive health study is done. The licensing and the health study are two independent things. Dow needs to have the licensing approved to continue operating, but a health study should be the deciding factor in what the remedy needs to be.

**Response:** Under the operating license, Dow is required to conduct corrective action for releases of contaminants beyond the facility boundary pursuant to Part 111 and RCRA. This includes determining where contaminants have migrated and what the concentrations are of the contaminants. Fulfilling these requirements will necessitate further soil sampling in the community under the corrective action portions of the operating license, particularly Condition XI.B.

The additional soil sampling required by the operating license will also provide information necessary for designing an exposure study or a health study. Neither an exposure study nor a health study can be used as the primary deciding factor in determining an appropriate remedy for the community. These issues are discussed further in the response to Comment 8 immediately above and in other comments in the Responsiveness Summary.

**Comment 10:** The long negotiating period between MDEQ staff and Dow, required to put together this state operating license, was under the same MDEQ administration that cut a deal with Dow and Midland city officials to halt all follow-up community sampling for dioxin in areas that already exceeded the state's cleanup standards.

The goals of Dow and MDEQ management appear to be indistinguishable, making it difficult, and at times impossible, for the MDEQ staff to write a strong permit that puts public health and the environment before the polluter's wish list. Some of the language in the state operating license reflects these limitations.

There has been a long pattern of MDEQ management overriding the technical comments and recommendations of their own staff in favor of Dow's ideas, that have generally been aimed at (1) halting further community sampling in Midland; (2) narrowing the exposure pathways; and (3) weakening the dioxin cleanup standards to escape cleanup and liability.

There may be an abuse of power and authority in the implementation of the state operating license under RCRA. Although the EPA authorized the MDEQ to implement the RCRA program in Michigan they do maintain oversight. The commenter stated that in the past few months they have communicated their concerns about these issues to the EPA.

**Response:** The MDEQ believes the license as issued will protect public health and the environment consistent with the requirements of Part 111 and RCRA.

**Comment 11:** A commenter stated that the Midland County Department of Public Health recently held a briefing on the health status of Midland and dioxin. After hearing this information, the commenter feels Midland is as healthy or healthier than other communities in the State or in the Nation. The commenter stated they are not necessarily against additional testing, however, the following conditions must be met:

- The State must be consistent in using guidelines of ATSDR in determining further action regarding existing soil testing.
- The State conducts testing for dioxins within the context of studies that will provide conclusive information regarding health risks that might be posed by dioxin levels in Midland soils.
- That the Midland County Department of Public Health be included as a full partner in any additional soil testing and health studies, relating to dioxins in Midland.

**Response:** Corrective action conducted under the Part 111 hazardous waste program is designed to prevent potential adverse health effects from environmental chemical exposure. The primary mandate of the corrective action program is to protect public health, safety, welfare and the environment, not to react to adverse health effects only after they have been proven to exist. The requirements of Conditions XI.A. and XI.B. of the operating license are necessary to fulfill this preventative mandate for corrective action. The MDEQ and the U.S. EPA have developed extensive regulatory requirements and guidance to achieve the above-stated purposes of corrective action that are different than the Agency for Toxic Substances and Disease Registry (ATSDR) interim policy guidelines for dioxins in soil.

The ATSDR has a different mandate than the MDEQ. The ATSDR determines the level of exposure(s) and the occurrence of health effects when exposure to contaminants has not been prevented. Although part of the ATSDR's mandate includes taking action to mitigate exposures in instances when timely mitigation has not occurred under other authorities, it is the intent of the MDEQ to use Part 111 and the operating license conditions as the appropriate authority for any necessary exposure mitigation. The MDCH represents the ATSDR under contract for conducting public health assessments and consultations in the State of Michigan.

Despite the different mandates of the two agencies, the MDEQ intends to consult with the MDCH/ATSDR, as well as local officials (including the Midland County Department of Public Health) and the general public, in evaluating any work plans or proposals for corrective action submitted by Dow as part of their operating license conditions. Part of this public participation process will be to ensure that the information collected and presented provides accurate and balanced information for the MDCH/ATSDR and the community.

It is unlikely that a health study of the type proposed in the previously proposed Consent Order to study exposed populations in Midland or the downriver flood plains could provide conclusive information on the presence or absence of adverse health effects from dioxin exposure. Currently available health statistics are not expected to detect health effects associated with dioxin at the potential exposure levels in the Midland community. The only health statistics thought to be available at this time are cancer registries and birth defects registries. To determine if effects of chemical exposure are occurring, a comparison must be made at differing exposure levels, preferably including an unexposed group. Most of the comparisons made to date have only used health statistics for all of Midland County. The people in Midland County do not all fall into a single exposure group.

The MDEQ is required to protect the public health from environmental chemical exposure at a level that is the 95 percent upperbound on the calculated risk of 1 additional cancer above the background cancer rate per 100,000 individuals. The 90 ppt generic residential direct contact criterion for dioxins in soil is calculated for that purpose. Cancer health statistics are reported as cancer incidence, which is typically the number of new cases diagnosed per year per 10,000 people. The 1 in 100,000 protection level over background for a 70-year lifetime equates to 0.0014 cases per year per 10,000 people. The most recent cancer incidence rate reported for Michigan residents is 50.9 per 10,000 people, averaged for years 1998-2000, age-adjusted. Even for exposures 10 times or 100 times the 90 ppt criterion (900 ppt or 9,000 ppt), with 10,000 people exposed to those levels, the increase in the number of cancers diagnosed per year from exposure to dioxin in soil would be expected to still be less than one (0.14). In other words, a health study based on cancer incidence cannot show an increase above background due to dioxin soil exposure, even including exposed people in the downriver tri-county area.

The other more sensitive health effects associated with dioxin exposure are predominantly developmental effects observed from fetal, infant and childhood exposures, including reproductive effects, cognitive effects, behavioral effects and immune effects. These types of effects are not gross malformations, such as those included in a birth defects registry and are not routinely tracked. In addition, effects of this nature (e.g., decreases in fertility later in life, delays in reaching developmental milestones, increased aggressive behaviors, increased susceptibility to infectious diseases) are not easy to measure and may not manifest themselves for several years or decades after the critical exposure.

**Comment 12:** A commenter stated that their ancestors were some of the first homesteaders in Midland County. When they moved here from Lenawee County more than a hundred years ago, this area was mostly wilderness. A hundred years later Midland and everything downstream is a chemical waste dump. 105 years of chemical production has taken its toll. Many people have made great fortunes from this natural capital, the wealth of the earth. Now, the wealth is gone. Many of us now can expect to lose money. It is clean-up time. We may lose the property value in our houses, the value of our stock, our retirement benefits, our jobs. Let us hope that we don't also lose our integrity.

Let's figure out how we can clean up this mess. Whether it is paid for by corporate stockholders or by citizens through higher taxes, it has to be cleaned up. We can't let this dioxin continue to be flushed downstream, contaminating the Great Lakes bioregion. We have more than ourselves to consider. We have to remember all future generations and give them the gift of clean water. If we cannot do that, then our lives have no meaning. Our legacy must be a planet that sustains life.

Of course, chemical releases and emissions have been greatly reduced since the first Earth Day in 1970. Even on the worst day in Midland, the stench is not as bad as a normal day in the

1960s. We must strengthen environmental laws to continually reduce emissions of any chemicals. A chemical that seems benign today may be found in the future to be very toxic on its own or in combination with other chemicals. Dioxin was not thought to be that toxic just a few decades ago.

There is virtually complete scientific agreement that dioxin is extremely toxic. There may be some corporate scientists who disagree, but legitimate studies have repeatedly proven that dioxin is toxic even at extremely low concentrations. That is why the state residential clean-up level is 90 ppt! Let's move on. We can all agree that dioxin is toxic to human health. Let's get this mess cleaned up. Cleaning up old messes is the foundation for a sincere Dow Sustainability policy.

The commenter's great grandparents moved to the Midland area with many dreams. They did not imagine that their great, great grandchildren would be living in the midst of this kind of contamination. Now is the opportunity to reclaim this land for our own great great grandchildren.

**Response:** The MDEQ acknowledges these comments.

**Comment 13:** A commenter questioned whether the Tittabawassee River flood plain was in any draft of the Dow corrective action portion of the license? [MDEQ Note: This comment is in reference to drafts of the operating license prior to the version that was made available for public review on October 7, 2002.] If so, why was it taken out, when was it taken out, and who took it out?

**Response:** River Sediments and River Flood Plain Soils Downstream of the Dow Facility were listed in the table in Condition XI.B.2. of the October 3, 2002, working draft of the operating license prior to the time that the draft operating license was public noticed on October 7, 2002. Technical staff were directed by their management to remove these off-site release areas from the draft operating license. This was done on October 4, 2002.

**Comment 14:** A commenter stated that it is difficult to comment on something so voluminous, technical and confusing as the license, so they will note several obvious issues.

(1) Condition XI.A. of the license establishes Part 201 as the appropriate standard for conducting corrective action until they read Section 26(4) of Part 201, where it appears that Dow may escape liability. The commenter requested an explanation of whether Dow could escape liability under this section.

(2) Condition XI.B. of the license establishes that Dow must implement corrective action for pollution migration beyond its boundaries, but the Tittabawassee River is not listed as a known off-site release. How does the Tittabawassee River not qualify? Was it in a draft? Why was it taken out?

(3) Condition XI.B.2. of the license appears to indicate that the state must do a Remedial Investigation for Midland soils. How do all of these pending studies, Probabilistic Risk Assessment, bioavailability and the Dow funded health study relate to the Remedial Investigation now or in the future? Are they part of the Remedial Investigation? Are they subject to a timetable?

(4) Under Condition XI.C. of the license, the Tittabawassee River is contiguous to Dow and the soil/sediments exceed standards and yet it was not listed as an Area of Concern, subject to

Part 111 corrective action or Part 201 remediation. Was the floodplain left out by design? Is it legal for the State to purposefully write a license that does not include the floodplain, a contiguous known source of release at the time the license was drafted and noticed? The State's failure to specifically cite, identify or list the floodplain in the license is huge and it is disturbing. Under what authority will the floodplain be addressed? One gets the impression that MDEQ administration is waiting to see how things shake out. Obviously the state doesn't feel the floodplain is subject to corrective action under RCRA. One wonders if the state is giving Dow Chemical room to wiggle, buy time and escape liability for their releases down stream. Could the failure to identify the floodplain assist Dow in any way in avoiding future cleanup of the floodplain? Could it in any way hamper or preclude the state from taking future action against Dow for discharges to the Tittabawassee River Floodplain? Could the failure to identify the Tittabawassee River/Floodplain in this license be found to have merit in a court of law should Dow seek to avoid liability/responsibility for cleanup? In two public meetings, the commenter indicated that they were told that the floodplain would be handled under the RCRA license. Yet the floodplain is not listed. Surely your understand my skepticism. You have 25 miles plus of river contaminated by releases from Dow and the state has employed and utilized every possible avenue to avert, stall, avoid, delay and subvert efforts to characterize the extent of the contamination, the source of the contamination and now the means (i.e., RCRA license) by which the floodplain could be addressed.

(5) The commenter stated they had received an e-mail in which Mr. [Jim] Sygo stated, "Yes we believe the materials in the sediments and the flood plain soils are an off-site release. It would be best to have some documentation of these same furan fingerprints from the plant site." The commenter said they submit that the State has avoided the fingerprinting because it would have required listing the floodplain which would be good for the public and bad for the company. Why has the State not fingerprinted to date? Fingerprinting of dioxin and determination of the extent of contamination must be identified without delay. This will provide information on sources past and present, current process, identify responsible party and provide a framework for future monitoring of releases. Nowhere in the license is a timetable for these pivotal activities. Will you be putting a timetable in the license to address fingerprinting? If so, when? If not, why?

(6) Condition XI.G. of the license calls for interim response activities (IRA) to prevent, minimize and mitigate injury to the public health, etc. to address immediate public health concerns. There are numbers that exceed the direct contact criteria of 90 ppt all over the floodplain and the City of Midland. From a public relations standpoint, Dow must be cringing at the thought of going to parks and children's play areas to engage in interim response activities, but this contamination has been known for a long time. It's time for Dow to take responsibility and deal with it. The State needs to identify the areas of highest concern and demand that Dow immediately begin interim response activities. Will Dow be made to immediately take IRA in the floodplain as well as Midland Community?

(7) There are a great many unanswered questions surrounding this license such as the role of the health study, the Probabilistic Risk Assessment, the bioavailability study. How could each of these impact the license?

(8) If the floodplain is considered a known off-site release as Mr. Sygo said it was, then you have failed to properly notice Saginaw County and we insist that you do so immediately.

**Response:** The responses to these comments are provided below.

(1) The comment on Condition XI.A. of the operating license asks if Dow can escape liability of corrective action because of the liability exemption for Part 201 facilities under Section 20126(4)

of Part 201. No. Condition XI.A. of the operating license requires that, in accordance with R 299.9629, the licensee is to take corrective action to ensure compliance with the groundwater protection standards, and, if necessary, other applicable environmental protection standards established by the Director, including (but not limited to) environmental protection standards which are necessary for the cleanup and protection of soil, surface water, sediments, and ambient air that are established pursuant to the provisions of Part 201 if the limits are not less stringent than allowed pursuant to the provisions of RCRA. Although R 299.9629 requires hazardous waste facilities to comply with the environmental protection standards under Part 201, Part 201 liability does not apply if a release is subject to corrective action under Part 111. Section 20126(4) of Part 201 explicitly states that hazardous waste treatment, storage, or disposal facilities that have had a release, or the threat of a release, are subject to the liability requirements for corrective action under Part 111, rather than the liability requirements of Section 20126(1) of Part 201. This is necessary because Part 201 has a causation standard for liability compared to Part 111 and RCRA which require that the current owner or operator of the facility be liable for any corrective action. Therefore, some provisions of Part 201 that assess liability do not apply to facilities subject solely to corrective action under Part 111. As an example, a person who becomes an owner or operator of a facility as defined under Part 201 after June 5, 1995, is not liable for contamination existing at the facility if they have conducted specified activities, including a “baseline environmental assessment” (BEA). New owners/operators of hazardous waste facilities, or portions thereof, cannot use this BEA process to escape liability for conducting corrective action. Under Part 111, corrective action liability runs with the current owner of the property.

(2) This comment is responded to in the response to Comment 13 above.

(3) Condition XI.B.2. of the October 7, 2002, draft operating license required Dow (the licensee), not the state, to submit a written Remedial Investigation (RI) Work Plan to the Chief of the Waste and Hazardous Materials Division within 60 days of the issuance of the license for Midland area soils impacted by off-site migration or transportation of contaminants. Conditions XI.B.2. and XI.B.3. of the operating license have been revised as described and shown in the response to U.S. EPA Comment 35. The responsibility to conduct Remedial Investigation work for the Midland area soils remains with Dow under the revised operating license language.

Although not specifically stated in the operating license, Dow does have the option to propose site-specific criteria that could include use of a bioavailability study and a probabilistic risk assessment. Therefore, the operating license does not include a timetable for submittal of these items. If Dow chooses to submit such proposals in the future, they would be subject to public participation during both the proposed work plan review and approval process and the final MDEQ review and approval process.

An exposure and/or health study is not one of the corrective action steps required under the operating license. Please see responses to Comments 8, 9, and 11 above and other comments in the Responsiveness Summary for further clarification on these issues. An exposure study may provide information that will be valuable in prioritizing areas requiring interim response activities and making some risk management decisions on critical exposure pathways.

(4) The authority for requiring Dow to address contamination of the Tittabawassee River flood plain is contained in Section 11115a of Act 451 and in R 299.9629 of the administrative rules thereunder. Condition XI.B. of the operating license is sufficiently broad to require corrective action for any releases of contaminants beyond the Dow facility boundary, regardless of whether the contaminated areas are specifically identified in a condition in the operating license. In developing the operating license, it was always the intent of the WHMD that corrective action

would be conducted for this and the other known off-site contaminated areas. To clarify this matter, however, the operating license has been revised as described in the response to U.S. EPA Comment 35 in the Summary of Changes document to specifically include the Tittabawassee River Sediments, the Tittabawassee River Flood Plain, the Saginaw River Sediments, the Saginaw River Flood Plain, and the Saginaw Bay as off-site areas requiring further corrective action.

(5) The MDEQ does agree that additional characterization of dioxin sources and congener profiling (which the commenter referred to as "fingerprinting") within the Dow site is important and necessary work. However, it is important to note that the congener profiles of the sediment samples may not exactly match a specific congener profile from the Dow site. The dioxin congener profiles present in the river sediment samples and flood plain soils are probably the result of a mixture of dioxins from different sources within the Dow site and much lower levels of dioxins that may not be directly related to Dow. In addition, the congener profiles may change as the sediments and flood plain soils are exposed to different biological and chemical processes than may be acting on the dioxins and furans that remain on the Dow site. Therefore, it is not necessary or essential to "match" these congener profiles in order to move forward with corrective action for the areas of off-site release. The spatial distribution of the contaminants is sufficient evidence to require corrective action for these areas. As noted above, this comment has been addressed by specifically listing the areas of river and flood plain soil contamination in the revised operating license.

Characterization of other Dow sources and congener profiling will be conducted as part of the corrective action process and will be addressed as by Item H-6, Enhanced Exposure Control – Phase II, of the Compliance Schedule contained in Attachment 28 of the operating license.

(6) Condition XI.B.3.(a) of the operating license has been revised (refer to the response to U.S. EPA Comment 35 in the Summary of Changes document) to require that "The SOW must identify specific interim measures for the protection of public health for areas known through prior environmental sampling to be impacted by releases from the facility. The licensee should be prepared to immediately implement these interim measures in order to reduce exposures. As additional areas and exposure pathways are identified, further interim measures may need to be implemented accordingly." In addition, as part of the revisions to the operating license referenced above, Condition XI.B.9. has been revised to require implementation of interim response activities as follows: Consistent with the provisions of Condition XI.G. of this license, the Chief of the Waste and Hazardous Materials Division may require the licensee to implement interim response actions at any of the specific off-site area(s) identified in Condition XI.B.6. at any time during the corrective action process.

(7) The comments regarding the role of the health study, the Probabilistic Risk Assessment, and the bioavailability study are responded to at the end of the response to sub-comment 3 above.

(8) The public notice of intent to issue the operating license was published in the *Midland Daily News*, a daily major local newspaper of general circulation, as required by R 299.9513(1)(d), as well as being published in the MDEQ Calendar. Newspaper stories regarding the scheduled public information meetings and public hearing were published in the *Midland Daily News*. These stories prompted coverage of the public information meetings and public hearing by the *Saginaw News* and *Bay City Times*. A great deal of this information was available on the Internet. The public notice for the draft consent order was subsequently published in the *Saginaw News* and *Bay City Times*, in addition to the *Midland Daily News*, in response to comments that were received from the public requesting broader notification. In January 2003,

the new MDEQ Director, Steven Chester, reconsidered the earlier requests from the public to extend the public comment period and the public comment period on the draft operating license was re-opened from January 27, 2003, to February 26, 2003. The extension to the public comment period was announced in the *Midland Daily News,* the *Saginaw News,* and the *Bay City Times* and on local radio station WSGW. In addition, a notice announcing the extended public comment period was sent out to individuals on the Dow facility mailing list maintained by the MDEQ-WHMD and to the Tittabawassee River mailing list maintained by the MDEQ-RRD. In the future, the MDEQ will provide broader notification of activities of public interest (e.g., corrective action developments) through newspaper notices or articles and mailings.

**Comment 15:** A commenter submitted a photograph of their one-year-old daughter and stated that she will be living in Midland for at least the next 18 years. Please keep this in mind as you consider raising our residential dioxin clean up levels.

The commenter stated that they are outraged that the Department of Environmental Quality would consider raising the levels of acceptable toxins in our community by such a huge margin. How is our level of tolerance for toxins any different than those of Michigan residents in other communities?

The commenter and their spouse are both teachers who just purchased a home in Midland and plan to spend the rest of their lives there. The commenter is very concerned about their daughter's health growing up in an area with such high levels of dioxin. Their only hope is that if dangerous levels are confirmed here, that they will be cleaned up. If the MDEQ changes the clean up level to allow Dow to avoid cleaning up its mess, they will be stuck living in a toxic community.

They say they will be stuck here because who would want to purchase a home in a city where the government has officially lowered the standards for environmental quality? If the MDEQ chooses to raise the dioxin cleanup levels, that is exactly what you are doing. You are lowering the standard of environmental quality in our city. Please don't do this to us. Midland is a wonderful city, a place with wonderful opportunities for children. Please help make Midland a HEALTHY place for children as well. Just because Dow has made a very big mess, that may be very difficult to clean up. Don't try to bury the problem under new standards. Our family will be living with it for decades.

**Response:** The MDEQ is not considering raising the residential dioxin cleanup level in the Midland area. Work previously conducted by Dow, and proposed under the previously proposed corrective action consent order, to establish a site-specific soil criterion for dioxin in soil in the Midland area did not follow the proper procedures to obtain MDEQ approval. The applicable state-wide residential direct contact criterion for dioxin in soils is 90 ppt. This value was developed under Part 201 and incorporated into the hazardous waste program to protect the public health of all Michigan citizens on residential property with dioxin contamination. The MDEQ concurs that there is no reason to assume at this time that Midland residents have a different tolerance for toxins or different exposures than other residents of the state. Although there may be soil characteristics in some locations that make dioxin less available for uptake into the body than assumed in the development of the 90 ppt criterion by the MDEQ, this has not been adequately demonstrated for the soil types present in Midland with elevated dioxin levels. Although not specifically stated in the operating license, Dow does have the option to make such a demonstration and propose a site-specific criterion under Condition XI.A.1.(iii) of the operating license. Such a proposal could include use of a bioavailability study and a probabilistic risk assessment. If proposed in the future, Dow's proposal would be subject to significant public participation during the review process by the MDEQ.

**Comment 16:** The Michigan Department of Environmental Quality re-opened public comment on the Dow Chemical Hazardous Waste Facility Operating License on January 27, 2003. The commenter stated that they understand that community members' comments that were submitted on the corrective action consent order may not be forwarded as part of the license comments. The commenter summarized these comments as part of their letter and resubmitted the original comments as an attachment.

- Numerous Midland citizens supported site-specific criteria be established for Midland and exposure and health study.
- There was a resistance by property owners to have soil samples taken on private property.
- There were concerns about the restrictive 90 ppt level.

The draft license does not include specifics on either site-specific criteria or an exposure and health study. Additional soil sampling on residential property without the context of site-specific criteria and/or an exposure and health study disregards the requests made by majority of citizens, our health officers and elected officials that commented on this topic.

If the MDEQ maintains that residential soils are to be sampled, the newly adopted default value of 90 ppt provides no meaningful context for residents and may unnecessarily raise concerns. Rather than arbitrarily apply the 90 ppt level to Midland, it is strongly recommended that you consider more appropriate exposure assumptions and set a level that more accurately applies to Midland.

Enhancing the quality of life for Midland County residents is the basis for all activities of the Midland Economic Development Council. The MEDC will not be an apologist for any company. If there is a problem, we will insist that the company responsible correct any damage they have caused. However, we will not stand by and allow a few activists with an agenda to tarnish the reputation of our community and frighten our citizens.

**Response:** The conditions in the Dow operating license are comparable to those contained in operating licenses issued to other hazardous waste facilities in Michigan to ensure that a level playing field exists throughout the state and that human health and the environment are subject to a consistent level of protection on a state-wide basis. The 90 ppt residential direct contact criterion referenced by the commenter is not a default value. It is a value that was developed under Part 201 and incorporated into the hazardous waste program to protect the public health from direct contact exposure to dioxin contaminated soils on residential property for all Michigan. There is no reason to assume, nor has it been demonstrated, that Midland residents have less exposure to soils than other residents of the state. In fact, the residential cleanup criteria are developed assuming very localized contamination, not widespread contamination impacting a good portion of a community. In addition, Midland area residents may be more likely to also have other elevated exposures to dioxins and furans (eating locally caught fish, other local food products, occupational exposures) as compared to other Michigan residents.

There may be soil characteristics in some locations that make dioxin less available for uptake into the body than assumed in development of the 90 ppt criterion, however, this has not been demonstrated for the various soil types present in Midland with elevated dioxin levels. Dow does have the option to make such a demonstration and propose a site-specific criterion under Condition XI.A.1.(iii) of the operating license. Work previously conducted by Dow to establish a site-specific soil criterion for dioxin in soil in the Midland area has not been adequate thus far to obtain MDEQ approval.

With respect to the commenter's statement that "additional soil sampling on residential property without the context of site-specific criteria and/or an exposure and health study disregards the requests made by majority of citizens, our health officers and elected officials that commented on this topic," the MDEQ has the obligation to require Dow to conduct the additional soil sampling necessary to fulfill their corrective action obligations for off-site releases under the operating license. This obligation is present regardless of whether local residents, health officers, or elected officials want such sampling to be conducted. In addition, some of the additional corrective action sampling will likely also serve the dual purpose in the future of being used in the design of an exposure or health study. Please see the responses to Comments 8, 9, 11, 14 and 15 above for further clarification on these issues.

**Comment 17:** As mentioned at the meeting on October 29th at Dow High, we need to find out exactly where in Midland we have concentrations of dioxin. We need it all mapped out. Testing in 3 areas close to Dow is not enough. It seems like as much as half the town of Midland is likely to be highly contaminated. All the most recent research indicates that dioxin is even more toxic than originally thought.

The commenter stated that they are confused about why Dow or the MDEQ would want to make a site-specific dioxin level for the Midland area. It seems like that would open Dow to even more potential lawsuits. The commenter lives on the other side of town, and their yard has perhaps only 10 ppt, and they might be able to make a case that in their specific situation they are being unduly exposed. Perhaps it would be of greater concern if they had a child with a birth defect, or their children spent many hours and years playing in a dirt pile in the back yard. Wouldn't it be better to have one standard, rather than have each site be specific? If in a specific corner of their yard, the dirt was filled in from the landfill, so that would make that specific site very toxic. It seems like creating specific levels for each site would be very complicated legally. It would be better to have one level for the whole state for residential areas.

**Response:** Dow is required to conduct corrective action for releases of contaminants beyond the facility boundary pursuant to Part 111 and RCRA. This includes characterizing the extent of contamination that exceeds the applicable generic residential criteria that have been developed pursuant to Part 201. Fulfilling these requirements will necessitate further soil sampling in the Midland community under the corrective action portions of the operating license, particularly Condition XI.B. Therefore, additional information about community soil contamination levels will be developed under the corrective action process and these levels will be mapped as has been done with past sampling data.

The MDEQ is not currently considering raising the residential dioxin cleanup level in the Midland area. Please refer to the responses to Comments 15 and 16 above for more detailed information regarding this issue. The MDEQ never initiated a process to establish a site-specific residential dioxin level for the Midland area, but it would be legally obligated to review such a proposal if it is made by Dow or any other entity under Parts 111 and 201.

**Comment 18:** A commenter stated that Dow has a long history of pollution of Michigan's air and water, most recently the dioxin contamination of the Tittabawassee River of up to 80 times the legal limit of dioxin, making this one of the most dioxin polluted waterways in the U.S. Dioxin is a human carcinogen present at elevated levels in all Michigan residents. The MDEQ should protect the public from these health hazards by denying Dow's permits and by conducting health studies on the affected citizens and environment. The MDEQ must fulfill its legal mandate to protect Michigan's environment by tough enforcement of environmental laws,

which means steep fines and denial of permits for polluters who repeatedly violate legal standards for pollutants. Polluters should be held accountable for the damage they cause.

In addition, the commenter urged the MDEQ and (then) Governor Engler to reinstate citizen oversight of the MDEQ and to ban repeat polluters from receiving tax breaks on state contracts. It's time to protect Michigan's citizens and air and water from pollution by cracking down on polluters. We all need clean water and air to be healthy and the MDEQ must enforce environmental laws.

This commenter also submitted the following additional comments during the reopened public comment period. The commenter stated that they oppose renewal by MDEQ of the Dow Part 111 license and the decision not to enter a corrective action consent order. Dow has a long record of pollution into the air and water with toxic emissions, including the carcinogen dioxin. Dow should not be "rewarded" for their poor performance and pollution with a renewed single license that would be good for 10 years. Instead, Dow should be penalized for their pollution violations, not "rewarded" with a license renewal.

The MDEQ should strictly enforce pollution laws and punish violations with fines and penalties, in order to serve as a deterrent to pollution and an incentive to follow the rules. Only through stricter enforcement of pollution laws will MDEQ be taken seriously by polluters. The MDEQ must protect the environment with tough enforcement to protect air and water quality and public health, which depends on clean air and water.

**Response:** The commenter indicated some apparent misconceptions regarding facility licensing under Michigan's hazardous waste program. With respect to the commenter's statement that the MDEQ should protect the public from health hazards by conducting health studies on the affected citizens and environment, the MDEQ does not have the expertise or authority to conduct health studies on affected citizens. The ATSDR and MDCH (under ATSDR contract) are directed by congressional mandate to perform specific functions concerning the effect on public health of hazardous substances in the environment. These functions include public health assessments of waste sites, health consultations concerning specific hazardous substances, health surveillance and registries, response to emergency releases of hazardous substances, applied research in support of public health assessments, information development and dissemination, and education and training concerning hazardous substances.

While the operation of the Dow plant has resulted in some releases to the air and water, these releases do not warrant denial of the Dow hazardous waste facility operating license. Issuing the operating license will provide the state with specific authority to require corrective action for on-site and off-site releases. Without issuing this operating license, the authority for corrective action would remain in a federal hazardous waste permit issued in 1988. No action has been taken on many of the corrective action requirements in the 1988 permit.

The operating license includes an extensive process for conducting corrective action for releases to the environment, including specific deadlines that will require corrective action to be initiated and completed within a reasonable period of time considering the extent of contamination. The MDEQ technical staff and management are committed to making follow-up on the corrective action requirements in the operating license a high priority. The operating license has been revised as described in the response to U.S. EPA Comment 35 in the Summary of Changes document to include language to set priorities for the off-site areas where public health, safety and welfare may be impacted the most. The revised license language includes public participation in setting these priorities and identifying interim response activities necessary for immediate exposure control.

The draft corrective action consent order that was under consideration by the previous MDEQ administration, and has since been withdrawn, addressed limited corrective action requirements and included a process for establishing a higher site-specific criterion for dioxin in Midland area residential soils. Both the operating license and consent order would have been needed together to comprise the complete corrective action requirements. The preference of the MDEQ technical staff has been and is to include the corrective action requirements in the operating license, as is typically done for all hazardous waste facilities that are subject to licensing. All of the corrective action requirements were ultimately included in the Dow operating license. The MDEQ does not consider issuance of the Dow operating license to be a "reward" of any kind. The 10-year license term with a five-year re-opener for the Tertiary Pond is consistent with the Part 111 administrative rules. One of the goals of the operating license reissuance was to combine several existing licenses and consent orders into one license so there would be a single comprehensive license that would increase administrative efficiency. In fact, the operating license strengthens the ability of the MDEQ to take enforcement actions if violations of the regulations or operating license occur.

Although Dow has generally been responsive in correcting violations cited during compliance inspections, as can be seen below, the MDEQ has a strong history of using administrative consent orders to compel compliance with the operating license and applicable regulations. The Fact Sheet that was made available along with the draft operating license in October 2002 during the public comment period summarizes Dow's compliance history since the previous hazardous waste facility operating license was issued in 1988. When appropriate, the MDEQ has entered into administrative consent orders with Dow to resolve serious violations. In most cases, penalties commensurate with the severity and duration of the violations were assessed under the consent orders. The major administrative consent orders and their associated penalties are listed below:

- September 27, 1991, Waste Management Division (WMD) Order No. 64-05-245-05-91 for increased monitoring of the Revetment Groundwater Interceptor System (RGIS) that collects contaminated groundwater along the Tittabawassee River, including chemical characterization, and installation of the Tertiary Pond RGIS [$100,000 penalty].

- December 20, 1993, WMD Order No. 64-05-93 for improvements to procedures for operation of the incinerators [$43,000 penalty].

- February 11, 1997, WMD Order No. 111-01-97 for the upgrade and significantly enhanced monitoring of the RGIS, as well as implementation of a corrective action interim measure to address contamination in the surface water emergency outfall area in the Tittabawassee River [$933,000 penalty].

- July 21, 1997, Surface Water Quality Division (SWQD) Administrative Consent Order, ACO-SW97-006, and the SWQD April 25, 2000 Amended Administrative Consent Order, AFO-SW2000-01 for the removal of accumulated solids from the Tertiary Pond [$300,000 in penalties and costs plus provision of computer equipment to the MDEQ SWQD under ACO-SW97-006 and $420,000 in compliance oversight costs under AFO-SW2000-01].

- November 19, 1998, WMD Order No. 111-11-98 to address releases of Tertiary Pond solids [penalty was resolved under the consent order below].

- Joint April 11, 2002, WMD Order No. 111-31-02 and Air Quality Division (AQD) Order No.13-2002 for improvements of procedures for prevention of releases of wastewater

treatment plant solids, including Tertiary Pond solids and other waste management processes at the facility, and resolution of air permit violations. In addition, the joint consent order required Dow to conduct Supplemental Environmental Projects (SEPs) for installation of a groundwater collection tile along part of the east perimeter of the facility, removal of two large brine storage tanks and restoration of the tank area to recreational use [$509,647 costs and penalties and $800,000 in SEPs].

**Comment 19:** We are writing in regards to the letter we received involving Dow Chemical and the dioxin problem in the Tittabawassee River and surrounding land. We believe that Dow Chemical should be held responsible to the things done in the past. If the company cannot take responsibility for the things they did in the past, who is going to take responsibility in the future? If they think the people of these communities should just live with this problem they are highly mistaken. The problem is not going to just fix itself, so if Dow Chemical is not going to fix this problem then they should not be allowed to have a license allowing them to create more problems for the future. The problem is not just in our water, but in the air as well, the most recent chemical release at the plant is an indication of that. Dow Chemical should not be allowed to pollute our water and our air for a profit at everyone's expense, but their own.

**Response:** The MDEQ acknowledges these comments. Refer to the response immediately above for further information on the corrective action process required to be implemented by Dow under the operating license and the MDEQ's actions regarding past enforcement activities for hazardous waste releases. Other Divisions (e.g., Air Quality, Water) within the MDEQ have comparable enforcement programs that are applicable to the environmental media they regulate. A considerable amount of coordination occurs between the Divisions to deal with cross-media releases and overlapping program issues. However, summarizing these interdivisional issues and the other Divisions' past actions for environmental releases is beyond the scope of this Responsiveness Summary.

**Comment 20:** A commenter stated that their main concern with the burning of hazardous materials is the resulting release of poisonous gases into the atmosphere. Before granting a license, a guarantee should be obtained to the effect that none (dioxin or other) will occur.

The commenter has lived since 1957 about a mile and a half (as the crow flies) North-East of the Dow plant. For the past couple of years, the commenter's home has been filled intermittently with strong odors which they assume are coming from Dow's present incinerator. The commenter asked what they are breathing and whether anyone monitors their releases. This occurs mainly at night, especially after midnight. The commenter indicated that they have called the Dow plant several times in the past at 1:00 or 2:00 a.m. but have received no satisfactory explanation.

The commenter is not in favor of raising the allowable dioxin contamination limit. To their knowledge, the soil around the commenter's home has never been tested for dioxin contamination.

Approximately 30 years ago, the Dow Chemical's Dowicide plant had a reactor blow, or something, and about two thirds of the grass was killed. Several other lawns in the vicinity were also badly damaged. Dow compensated the commenter for the damage. In view of this and the fact that they receive strong odors from the Plant indicate that the commenter would be in the "flyway" for any future contamination thru [sic] the atmosphere.

The commenter indicated that they are a Dow retiree after 40 years of employment as a supervisor and they think it is an excellent company.

**Response:** Concerns related to air emissions and odors are generally handled by the MDEQ, Air Quality Division (AQD), rather than by the Waste and Hazardous Materials Division. The commenter's letter was referred to Mr. Mark Reed, the AQD Saginaw Bay District Supervisor, for information and follow-up. Mr. Reed may be reached at 989-686-8025, extension 8250, or by e-mail at reedm@michigan.gov in the event that local residents have similar concerns related to air emissions and/or odors from the Dow plant. In many cases, air emissions and odors are from manufacturing operations at Dow that are not regulated under the hazardous waste program. The AQD regulates emissions from many of Dow's manufacturing operations under its air permit program. In addition, the AQD is the lead MDEQ regulatory authority over emissions from Dow's hazardous waste incinerators. The WHMD has a lesser role in regulating Dow's hazardous waste incinerators (i.e., regulatory responsibility is maintained over the storage of hazardous waste in containers and tanks prior to incineration, Waste Analysis Plan, Inspection Schedule, Contingency Plan, Closure Plan, and procedures to prevent ignitability, reactivity and incompatibility hazards).

Under the operating license being issued by the WHMD, Dow's two existing hazardous waste incinerators are being closed and replaced with a new incinerator (known as the 32 Incinerator) that is designed to meet stringent pollutant emission standards (e.g., achieving a destruction and removal efficiency of 99.999 percent of hazardous constituents in the wastestreams) established under the 1999 U.S. EPA Hazardous Waste Combustor Maximum Achievable Control Technology standards. These new requirements are imposed under an air permit for the 32 Incinerator that was issued by the AQD. The emission limit for dioxins/furans in Dow's 32 Incinerator air permit before September 30, 2004, is 0.40 nanogram (ng) TEQ/dry standard cubic meter (dscm). The emission limit for dioxins/furans on and after September 30, 2004, is 0.20 TEQ/dscm. TEQ is the acronym for toxicity equivalence. This is the international method of relating the toxicity of various dioxin/furan congeners to the toxicity of the most toxic dioxin congener, 2,3,7,8-tetrachlorodibenzo-p-dioxin. Under the HWC MACT, the U.S. EPA estimated that, on a national basis, emissions of key hazardous air pollutants from incinerators would be dramatically reduced:

- Dioxins and furans by 70 percent
- Mercury by 55 percent
- Lead and cadmium by 88 percent
- Arsenic, beryllium, and chromium by 75 percent
- Particulate matter by 42 percent
- Total chlorine by 48 percent.

These percentages are not the exact emission reductions that will be achieved by the Dow incinerator; however, significant emission reductions are expected in comparison to the emissions from operation of the two incinerators that are being closed. While emissions of pollutants from the incinerator will not be zero, the U.S. EPA estimates that under the HWC MACT, risks of cancer will generally be below 1 in 100,000 and in most cases below 1 in one million for the most highly exposed individuals.

Under the operating license, Dow is required to conduct ambient air monitoring to track air emissions at the facility. Selected metals are monitored every 6 days and selected volatile organic compounds are monitored every 12 days as described in Attachment 26 of the operating license. In addition, some limited dioxin and furan ambient air monitoring has been conducted. These monitoring results and ambient air monitoring data risk assessment reports previously submitted by Dow are available for review at the WHMD Lansing office.

The revised corrective action requirements under Condition XI.B. of the operating license (as described in the response to U.S. EPA Comment 35 in the Summary of Changes document) require Dow to submit a Scope of Work plan for a Remedial Investigation of Midland area soils to determine whether the soils have been impacted by off-site migration or transportation of contaminants. Sampling of soils in residential areas northeast of the Dow plant site will be included in the Remedial Investigation since, based on the limited soil sampling that has been conducted to date by Dow and the MDEQ, this is a known historical area of dioxin deposition. The Scope of Work plan for the Remedial Investigation will be made available for public review so residents will have an opportunity to comment to the MDEQ on the plan that is required to be developed by Dow under the operating license. At this time, the MDEQ is not considering a proposal to raise the allowable dioxin contamination level for residential soils. However, under Part 201, Dow has the option of proposing a site-specific criterion for dioxin in residential soils. If Dow proposes a site-specific criterion in the future, it will be reviewed by the MDEQ. Such a proposal would be subject to public participation prior to the MDEQ making a final decision on whether to approve or deny the proposed revised criterion.

**Comment 21:**

1. Dow Chemical should be allowed to operate only in such ways as will not negatively affect human lives or the environment.

2. Dow Chemical should be responsible to clean up any previous contamination it has allowed/caused to occur.

3. The expense of both #1 and #2 should be equitably shared by Dow Chemical and those who use Dow Chemical products (probably most of us).

**Response:** The MDEQ acknowledges these comments. The MDEQ believes that the operating license is designed to address issues 1 and 2 raised by the commenter. The expense of operating the hazardous waste management units regulated under the operating license and cleaning up contamination caused by Dow is Dow's responsibility. However, as with any manufactured products, the costs of complying with environmental regulations are indirectly factored into the purchase prices of Dow's products.

**Comment 22:**

INVENTORY: A commenter stated that a comprehensive inventory of all dioxin sources from the Dow plant site and the Midland community is needed. This inventory should include products and processes known or suspected to release dioxin. One Dow product of particular concern is their herbicide 2,4-D (50% of Agent Orange). 2,4-D is still made by Dow in Midland and contains dioxin. 2,4-D has been widely used by homeowners, farmers, and has been dumped in some Michigan lakes for so-called "weed control". Sampling for dioxin should be done on both product and process. Fingerprinting of this herbicide should be part of the dioxin search in Midland and downstream.

Products have been largely ignored even though Dow was one of the world's largest producer of the herbicide 2,4,5-T sprayed all over the U.S. and Vietnam. 2,4,5-T contained dioxin and the dioxin from this product still persists in Vietnam and in areas of the U.S. where this product was used. Animal testing has shown bioaccumulation of dioxin from this product (Deer, elk and other smaller critters).

In Midland there have also been numerous (accidental) releases of 2,4-D to the air. The contribution of this product and process has never been evaluated. Dow presented very shaky information on the levels of dioxin currently found in 2,4-D and has not publicly shared information regarding the historical levels of dioxin found in the product. The agencies have allowed Dow to slide and accepted superficial assurances that levels of dioxin in 2,4-D are "low". There are studies that suggest that pets who wander around on lawns treated with 2,4-D die of Non-Hodgkins Lymphoma at a greater rate than unexposed animals. A study of Nebraska farmers who applied 2,4-D in their fields showed similar results.

2,4-D is up for re-registration in 2003. We live in one of the most contaminated areas in the country and do not need additional doses of dioxin. The unsuspecting public should also be warned about the potential for spreading this product in their yards because of the potential for adding dioxin to the already high existing levels. We have been bombarded with false reassurances about dioxin for years. Dow's claims about dioxin from their site and in the community have been both misleading and false. Evidence now exists downstream that should suggest to the agencies that a different approach will be necessary to stop future revelations of alarming levels of contaminants. Dow reassured the public and the agencies in the eighties that dioxin emissions were "historical." The agencies accepted Dow's brand of truth without thoroughly investigating these claims. The result of this acceptance is now obvious. It's time to zero in on the ground truth. All dioxin emissions and exposure pathways need to be reported to the agencies and the public. Require Dow to submit a comprehensive list of all known and suspected products and processes that might contain dioxin and other persistent, bioaccumulative, toxic compounds that have the ability to build up in our bodies and the food chain. This is toxic trespass and we have a right to know.

SHIFT THE BURDEN OF PROOF: The revelation of alarmingly high levels of dioxin found downstream from the Dow facility in Midland suggest that there is a fundamental problem in the regulatory system that must be fixed before we can begin to get a handle on the dioxin problem in Midland and downstream.

During and after the 1984 EPA dioxin sampling in Midland County, Dow claimed that all of the local dioxin found was historical, when in fact the EPA report suggested that there may be other ongoing sources of dioxin and further sampling should be done. There was no follow-up on these recommendations until 1996. This was ten years after a 100-year flood that spread dioxins from the Dow site throughout the tri-cities area. It was clear to casual observers that when the floodwaters receded there would be "dioxin hotspots" throughout the region. Although some of the agency staff agreed at the time that this contamination was a possibility, comprehensive dioxin sampling was not done to determine the extent of the migration of these poisons. End-of-the-pipe monitoring did nothing to warn us of this widespread disaster.

Evidence that Dow's dioxin had migrated offsite into Saginaw Bay and that sediments and fish in the Tittabawassee River were contaminated existed in the late seventies but was largely ignored by the EPA and state agencies. Wildlife studies suggested harm but were downplayed or ignored. Residents have never been adequately warned about the risks of dioxin exposure or the widespread contamination. Band-aid fixes have barely begun to minimize exposure and dioxin still remains available, despite its known toxicity.

The state agencies have historically dealt with Dow's dioxin in Dow's favorite way....end-of-the pipe controls, rather than using pollution prevention methods that aim toward reducing and eliminating these poisons at the source. It is now clear that this method of regulating highly toxic and bioaccumulative substances has been a complete failure.

Exposure to dioxins has been ongoing. Dow has never conclusively proven that they have systematically reduced dioxin emissions as they have claimed. Products and processes at the Dow facility have been overlooked as possible sources. None of the agency officials have required Dow to present solid evidence that all emissions are "historic." No one has bothered to put together all of the multiple pathways of exposure or a comprehensive plan to address these multiple pathways. Permits and single end-of the-pipe regulations are still in place and residents are still being exposed with no clear end in sight. Citizens have tried everything to change this system to one that better reflects the ground truth and to one that is more protective of public health and the environment.

The "weight of the evidence" regarding dioxin exposure for Midland residents is overwhelming, yet actions to protect residents have been shelved while Dow continues to downplay the risks. Historically Dow has set the agenda and the regulatory agencies have followed their lead. Citizens concerns and information are placed at the bottom of the priority list. This approach must change. The polluter should not determine regulatory agendas.

It is time for Dow to prove that all dioxins are "historical" and that their current products and processes are free and clear of dioxin. Dow has made public statements that they have reduced dioxin emissions by 60% but cannot present any baseline data to confirm these reductions or details of how these reductions were achieved. This information has misled many residents into thinking that Midland has become a safer place. This is a dangerous myth that must be corrected by the regulatory and public health agencies. Midland and downstream residents remain at risk while the public relations spin continues. Dow's line today is the same as it was in the mid-eighties...dioxin emissions are historical. This "historical dioxin" is now the largest environmental disaster in the state. The commenter wonders what other "historical" dioxin we might find in another ten years. Currently we are facing an environmental crises that seems to have no boundaries and the agencies still are looking at end-of-the pipe regulation as a solution rather than learning a hard lesson from this experience. Pollution prevention is the only approach that will finally reduce and eliminate dioxin emissions from the environment. The current regulatory approach is allowing this toxic material to continue to recycle throughout our environment, our food chain and our bodies. This different approach will require some creative thinking and input from the impacted communities. Industries, including Dow, will not take this approach without regulatory guidance and action.

(1) It is time to represent citizen concerns, public health and the environment, by requiring Dow to present solid, verifiable evidence of any/all reductions in dioxin emissions.

(2) It is time to require Dow to present a clear and comprehensive plan to the agencies and the public of how they plan to reduce and eventually eliminate dioxin from any/all of their products or processes. We need a clear list of any/all processes/products from Dow that have the potential to create dioxin and a list of the known sources of dioxin.

(3) It is time to require Dow to come up with a plan to protect citizens from the poisons they have released into the environment, historical or current. All of the agencies are years behind in requiring Dow to present this plan.

(4) It is time to shift the burden of proof to the polluter. We should not have to prove harm before action is taken to protect our health and the environment. The precautionary principle and a weight of the evidence approach must eventually replace the current end-of-the-pipe regulatory methods. These end-of-the pipe solutions have clearly failed to detect the massive

levels of dioxin that have been migrating from the Dow site for years. Hopefully, these lessons learned, at our expense, create an opportunity to take a different approach that is more protective of public health and the environment.

Many of us have worked on these issues for years and have gathered a multitude of information on various pollution prevention opportunities. We would like to see some of this valuable information incorporated into the regulatory process. To date, Dow has been allowed to try it their way and we see the results. It's time for citizens to play a larger role in their destiny, and time for the regulatory agencies to rethink the end-of-the pipe permits, and consider how they might begin to shift their thinking to pollution prevention opportunities at the Dow site. The commenter can't think of a better place to begin this process of change.

**Response:** The MDEQ acknowledges these comments. However, many of the comments are beyond the regulatory scope of the operating license. In particular, the MDEQ does not have the regulatory authority to address the chemical make-up of products that are being manufactured by the licensee. The waste streams from these production processes, if hazardous, are within the scope of the operating license.

The MDEQ agrees that it has not been conclusively demonstrated that there are not current releases occurring from existing manufacturing or waste management operations. The MDEQ also agrees that waste streams and waste management practices need to be addressed both within the facility boundary and at the "end of pipe." Investigation and sampling of individual waste streams, waste management processes, and suspected areas of releases can and will be done, as part of the remedial investigation process for the facility, as part of Phase II of the Enhanced Exposure Control Program, which is described in Attachment 28 of the operating license, and as part of the Pollutant Minimization Program (PMP) for dioxin contained in the NPDES permit, which is administered by the Water Division. At the request of Water Division staff, WHMD staff have been participating in the review of Dow's dioxin PMP submittals. The suggestions and recommendations of the commenter will be considered as these programs are reviewed and activities are implemented.

**Comment 23:** A commenter stated that at the public meeting (on October 22, 2002, at Midland High School) they had spoken with Mr. Jim Sygo about an air monitoring station southwest of Midland that was thought to be up-wind because the predominating wind is presumed to be Southwest.

The commenter mentioned that this conflicts with a report that they had read and Mr. Sygo had indicated he would like to see what they were talking about. The report is called Human Health Risk Assessment for The Dow Chemical Incinerator Upgrade, and was prepared for The Dow Chemical Company, Midland, Michigan by SAF-RISK, LC, North Redington Beach, Florida, July 2001. The commenter believes it supported the permitting process for the new incinerator. There were also comments documented by the Air Quality Division regarding this report.

Page 3-10 of the report has these sentences:

> 4. The USEPA (1998a) guidance further recommends that the sector surface roughness height calculated in Step 3 to be weighted based on the frequency of wind direction occurrences for each sector. The wind rose of Figure 3-2 presents the frequency of measured wind speeds and directions over the 5-year period, 1987-1991. This figure illustrates the bimodal nature of the winds in Midland. Winds are predominantly out of the west-northwest to west with southerly winds

> also occurring frequently. The wind direction frequency data for 1987-1991 are summarized in Table 3-7.

The commenter interpreted this to mean that samples and corrective actions should include the areas east and southeast of Midland, as well as to the north, northeast.

The commenter went on to say that they don't feel the plant should be licensed until there is a good understanding of the environment's effect on the people and they are adequately provided for. The commenter knows of at least two Dow employees with stomach cancer within the past two years. One died in 2001 -- a 40-year old woman. The other was apparently diagnosed in the summer. A former co-worker shared with the commenter that there is "a lot of breast cancer." Another co-worker had noticed not only the stomach cancer but also skin cancer. As for the citizens, the commenter related that they were aware of someone who was taking her pregnant niece to a specialist to make sure her melanoma wasn't acting up due to the pregnancy and another was seeing a doctor for another lump (believed to be in the brain stem). The commenter indicated that they were going to have a lump from their lower leg removed. The commenter's medical center indicated they were going to run some blood tests using the "Midland Profile." The commenter stated that they were going to ask what is included in the "Midland Profile."

The commenter stated that they would like a health assessment to be performed before the site is licensed properly. The commenter left Dow because they no longer trust Dow to keep the site within regulations or to notify employees or residents when there is a problem. Dow assures the public and employees through their policy that they will be in compliance, but they are not. In the case of dioxin -- only one substance and supposedly responsible for 40% of the risk -- they have been out of compliance for years. The commenter stated that their health is important and they will not play these games.

The commenter said they want to see some common sense applied now to both the site-specific standard for Midland (if there is one ultimately implemented) and to the site license. The commenter stated that we (the citizens) pay you to be the experts and expect our elected and appointed officials to take the expert opinions of their staff and make intelligent, balanced decisions.

Dow may be farther ahead to acknowledge the problem and clean it up, than to deny and bargain. This deny and bargain stuff will cost them employees and their reputation (who wants to do business with a sleaze-ball?). The cost for the "mechanical stomach" study and the rest of this nonsense is a waste. It would be cheaper to order a couple hundred dump trucks of dirt (Dow shouldn't have to dig and replace throughout if the soil can be neutralized by covering it with some clean soil and then letting it mix in over time) and address it than to call yourself a Science & Technology company while you deny science and refuse to acknowledge technical evidence of a problem.

**Response:** Soil samples have been collected from all sectors as you move away from the Incineration Complex. There is no question that dioxin/furans exist in all sectors. However, the highest concentrations of dioxins/furans have been in the northeast quadrant. The information cited by the commenter for the wind direction appears to be limited to the windrose for the four year period identified. Review of the long term windrose (e.g., that goes back to the 1960s) shows that the west, southwest winds prevail. The MDEQ believes that most of the dioxin/furan contamination airborne deposition occurred during the pre-1970s period. The MDEQ has never said that there is no impact to the southeast. Samples taken along Salzburg Road have

generally been below the industrial standard of 990 ppt. Soils with levels greater than this were removed by Dow during fall 2001.

Issuing the operating license will provide the state specific authority to require corrective action for on-site and off-site releases. Without issuing this operating license, the authority for corrective action remains in the federal hazardous waste permit issued in 1988. No action has been taken on many of the corrective action requirements in the 1988 federal hazardous waste permit. The state operating license includes specific deadlines for Dow that will require corrective action to be initiated and completed within a reasonable period of time considering the extent of contamination. The operating license has been revised to include language to set priorities for the areas where public health, safety and welfare may be impacted the most by adding a Scope of Work in Condition XI.B.3. The language includes public participation in setting these priorities and identifying interim measures necessary for immediate exposure control.

The MDEQ does not have the expertise or authority to conduct health studies on affected citizens. The ATSDR and MDCH (under ATSDR contract) is directed by congressional mandate to perform specific functions concerning the effect on public health of hazardous substances in the environment. These functions include public health assessments of waste sites, health consultations concerning specific hazardous substances, health surveillance and registries, response to emergency releases of hazardous substances, applied research in support of public health assessments, information development and dissemination, and education and training concerning hazardous substances.

**DOW COMMENTS ON PART XI - CORRECTIVE ACTION CONDITIONS**

**Dow Comment 2-5 on Condition XI.A.1 – Corrective Action at the Facility:** The first sentence does not take into account that corrective action has or is taking place at several of the WMU's listed.

Dow proposes the first sentence in Condition XI.A.1 should read: "The licensee shall implement corrective action **and/or continue corrective action** for all releases of a contaminant from any waste management units at the facility, …".

**Response:** The operating license was not revised in response to this comment. The language cited in this condition directly tracks R 299.9629(1)(a) of the Part 111 rules and correctly establishes the obligation for the licensee to implement or to continue implementing corrective action for all releases from any waste management units at the facility.

**Dow Comment 4-10C on Condition XI.A.1.(i) – Corrective Action at the Facility:** Item (i) in Condition XI.A.1 should be deleted because it appears not to connect with the rest of the Condition. Specifically, the Condition says Dow must ensure compliance with groundwater protection standards and other applicable standards, "including any of the following: (i) a list of the hazardous wastes and hazardous constituents." This does not appear to fit together; a list of wastes and constituents is not an applicable standard. Item (i) should be deleted.

**Response:** The operating license was not revised in response to this comment. The operating license language tracks the rule language in R 299.9629(3). The lists of hazardous wastes applicable to the Dow facility are those included in Attachment 8, List of Acceptable Waste Types for Management at the Michigan Operations, Midland Plant Site, and Attachment 21, List of Waste Types Managed in Closed Units, of the operating license. The hazardous constituents referred to by this condition are listed in 40 CFR Part 261, Appendix VIII, as referred to in

40 CFR 264.93. These hazardous constituents are included in the list of contaminants that all licensed hazardous waste facilities are required to evaluate for compliance with the applicable environmental protection standards. Identification and characterization of the uppermost aquifer(s) at the Dow facility have not yet been completed. The deep sand monitoring program for the uppermost aquifer(s) will be conducted as a high priority activity under the Compliance Schedule contained in Attachment 28 of the operating license. Shallow groundwater underlying the regulated units has not been completely characterized either, although some perimeter groundwater monitoring data from the RGIS is available. Therefore, Appendix VIII has been included in its entirety.

**Dow Comment 4-5 on Condition XI.B. - Corrective Action Beyond the Facility Boundary:** Condition XI.B should contain a mutual reservation of rights. Condition XI.B requires corrective action beyond the facility boundary, without recognizing that in some instances Dow's obligations may already have been resolved in binding agreements or adjudication. Dow submitted a comment on this issue on November 27, 2002. However, since then Dow has had further thoughts. We now request that the following be inserted in License Condition XI.B:

**The corrective action requirements set forth in this Condition XI.B are subject to, and shall be limited by, certain settlements between the licensee and the State of Michigan for various liability issues. These past settlements include, without limitation, the Boat Launch Closing Agreement between Dow and the State of Michigan dated May 22, 1985 and the Michigan Department of Environmental Quality Administrative Consent Order No. ACO-SW97-006 dated July 21, 1997. Neither the issuance of this license, nor any actual or alleged failure of the licensee to dispute or contest (formally or otherwise) any of the terms of this license, shall constitute a waiver or compromise of any prior settlement or any defense available to the licensee under those settlements.**

Additionally, Dow recognizes that MDEQ may need to reserve certain rights. The current state of knowledge does not support requiring corrective action in the Saginaw River, Saginaw Bay, or Saginaw Floodplain. Additionally, even in the Midland area and the Tittabawassee River and its floodplain, considerable investigative work may need to be completed before decisions can be made on the possible need for further action. The Agency may wish to insert text into License Condition XI.B to clarify that the Agency reserves all rights under applicable law to impose further requirements in the future if warranted.

**Response:** The operating license was not revised in response to this comment. A review of this comment was conducted by the Michigan Department of Attorney General. This review determined that Dow's proposed reservation of rights language is legally unjustified and inappropriate. The State of Michigan does not agree with Dow's characterization of the legal effect of the 1985 and 1997 agreements. Neither of those agreements was intended to, nor as a legal matter could they, relieve Dow of its corrective action obligations under RCRA and Part 111. More fundamentally, such reservations by a licensee simply do not belong in an operating license. Issuance of the operating license is an action by the MDEQ, not the licensee. In this respect, it is quite different from a negotiated consent order. If the license issues, and Dow fails to comply, an enforcement action will ensue. When and if such enforcement action is taken, Dow will have the opportunity to raise whatever legal defenses it claims exist, including the referenced agreements, and have the existence and effect of such defenses determined by the courts. To the extent that Dow claims to be concerned that if it does not contest the license, it will be legally barred from asserting certain defenses in a future enforcement action, Dow is free, once the license issues, to communicate its legal position to the agency and re-state whatever "reservations" it has.

**Dow Comment 2-6 on Condition XI.B.1. – Corrective Action Beyond the Facility Boundary:**

Also see the related Dow Comment 4-5 regarding Condition XI.B.1. below.

1. This special condition requires corrective action beyond the facility boundary, without recognizing that in some instances Dow's obligations may already have been resolved in binding agreements or adjudications.

2. The second sentence assumes cleanup is the appropriate response and/or only response, which omits steps and is inconsistent with the Part 201/Part 111 process.

Proposed Language/Resolution:

1. To address point #1 above, the Agency should add a provision: "Nothing in this Operating License requires Dow to take corrective action with respect to matters for which Dow has resolved its liability or has been released from obligations by any consent decree, consent order, judgment, agreement, or operation of law."

2. To address point #2 above, Dow proposes the second sentence in Condition XI.B.1 should read: The licensee shall not be relieved of all responsibility to clean up, **mitigate, contain or otherwise address** a release that has migrated or has been emitted beyond the facility boundary where off-site access is denied.

**Response:** The operating license was not revised in response to this comment. The licensee incorrectly refers to this standard operating license language as a "special" condition. The referenced language in this condition directly tracks the relevant language of R 299.9629 of the Part 111 rules. In addition, review of this issue by the Michigan Department of Attorney General's office indicates that the referenced May 22, 1985 and July 21, 1997 agreements do not limit Dow's corrective action obligations under RCRA or Part 111 and that there is no legal reason for the license to include language addressing the subject of those prior agreements.

**Dow Comment 4-6 on Condition XI.B.1. – Corrective Action at the Facility:** MDEQ should either revise the first sentence of License Condition XI.B.1 or clarify the interpretation. The first sentence of Condition XI.B.1 says Dow must implement corrective action if a contaminant may have migrated to other property. Taken literally, this could require corrective action even if the contaminant has not actually migrated, even if the Agency has no valid data indicative of migration, and even if the contaminant poses no real threat to human health or the environment.

As we have noted previously in these comments, to include an offsite Area of Concern in a corrective action permit, MDEQ must demonstrate at least two elements: (1) a sufficient nexus between the Dow facility and the off-site location (sediments or soils) in question, by showing that contaminants from the facility have migrated or are migrating to the off-site location; and (2) that the contaminants in the sediments or soils at that location pose a threat to human health and the environment sufficient to justify the imposition of offsite corrective action requirements. *See* In re Caribe General Electric Products, Inc., RCRA Appeal No. 98-3, 8 Envt'l Admin. Decisions 696, 708-712 (U.S. EPA, Feb. 4, 2000). As a matter of policy, the importance of this nexus is even greater if the off-site area of concern is more remote from the licensed facility.

Dow believes that MDEQ does not actually intend this Condition to require off-site corrective action where migration has not actually occurred, or where contaminant concentrations do not pose a threat. However, the first sentence of Condition XI.B.1 could be interpreted in that

manner. Therefore, Dow requests that MDEQ either (a) revise the sentence as shown below, or (b) provide a written response, clarifying that MDEQ interprets the Condition in a manner consistent with this comment. In the edited version that follows, *italics* is original language, additions are **bold underlined,** deletions are strikethrough:

*The license shall implement corrective action beyond the facility boundary if the release of a contaminant has or may have migrated* **or is migrating** *or has or may have been emitted, beyond the facility boundary* **and poses a threat to human health and the environment***, unless the licensee demonstrates to the satisfaction of the Chief of the Waste and Hazardous Materials Division that, despite the licensee's best efforts, the licensee was unable to obtain the necessary permission to undertake this corrective action.*

**Response:** The operating license was not revised in response to this comment. The general language in question is taken directly from the Part 111 rules, R 299.9629(2), governing corrective action. The specific corrective action requirements thereafter established in the license for certain areas are fully consistent with the U.S. EPA's interpretation of RCRA in the case cited by Dow.

**Dow Comment 3-4 on Conditions X.L. and XI.B.: Integration with Corrective Action Consent Order:** Dow and the Department propose to enter into a Corrective Action Consent Order ("CACO") that prescribes a program of corrective action for off-site residential soils in the "Midland Area," a term defined in Section 3.5 of the CACO. The CACO is intended to address corrective action with respect to Midland Area residential soils. As stated in Section XIX of the CACO:

> Nothing in this Consent Order shall depend on the reissuance or effectiveness of Operating License Number MID 000724724. The MDEQ shall not propose or impose any Special Condition or other provision for inclusion in Dow's Operating License No. MID 000724724 that is inconsistent with the terms of this Consent Order regarding residential soils off site in the Midland Area from Dow's Main Plant except as otherwise required by final judicial determination or as agreed to by Dow and the MDEQ. In the event of any inconsistency between the Operating License and this Consent Order, the latter shall control.

Conditions X.L. and XI.B. of the License are inconsistent with the CACO in several respects. While any and all inconsistencies are to be resolved in favor of the CACO, as provided in Section XIX quoted above, Dow believes that the interests of all parties are best served by avoiding such prominent inconsistencies in the first place. Accordingly, Dow proposes that the draft License be revised to reflect the mutual intent of Dow and the Department in entering into the CACO: that the CACO, and not the License, will cover Dow's corrective action obligations concerning off-site Midland Area soils for the Specified Pathways. Toward this end, Dow requests that Condition X.L. of the License be modified to include a new paragraph 10 providing as follows (additions are bolded, deletions are struck-through):

**10. The Department and the licensee have entered into a Corrective Action Consent Order (RRD-111-**-02) (the "CACO") providing for the licensee's implementation of corrective action for off-site residential soils in the "Midland Area," as that term is defined in Section 3.5 of the CACO. Nothing contained in this Condition X, including without limitation paragraphs 7., 8., and 9. above, shall be construed to require corrective action in relation to off-site residential soils in the Midland Area in addition to or in lieu of the requirements of the CACO.**

For the same reasons, Dow also requests that Condition XI.B. of the License be modified to provide as follows (additions are bolded, deletions are struck-through):

XI.B. Corrective Action Beyond the Facility Boundary

**1. The Department and the licensee have entered into a Corrective Action Consent Order (RRD-111-**-02) (the "CACO") providing for the licensee's implementation of corrective action for off-site residential soils in the "Midland Area," as that term is defined in Section 3.5 of the CACO. Nothing contained in this license, or in any other license, law, regulation or other authority, shall be construed to require corrective action in relation to off-site residential soils in the Midland Area in addition to or in lieu of the requirements of the CACO.**

2. **For off-site areas beyond the boundaries of the Midland Area,** the licensee shall implement corrective action beyond the facility boundary if the release of a contaminant has or may have migrated or has or may have been emitted beyond the facility boundary, unless the licensee demonstrates to the satisfaction of the Chief of the Waste and Hazardous Materials Division that, despite the licensee's best efforts, the licensee was unable to obtain the necessary permission to undertake this corrective action. **For such areas,** the licensee shall not be relieved of all responsibility to clean up a release that has migrated or has been emitted beyond the facility boundary where off-site access is denied. On-site measures to address such releases shall be addressed under this part of the license, as determined to be necessary on a case-by-case basis. Assurances of financial responsibility for such corrective action shall be provided as specified in Conditions XI.K. and XI.L. of this license. [Section 11115a of Act 451 and R 299.9629]

3. The following off-site areas identified in the table below require further corrective action. The licensee shall submit a written Remedial Investigation (RI) Work Plan to the Chief of the Waste and Hazardous Materials Division within 60 days of the issuance of this license. Based upon the results of the RI, the Chief of the Waste and Hazardous Materials Division may require additional corrective action according to Conditions XI.F. through XI.J. of this license for the areas identified below.

| | |
|---|---|
| Releases beyond the facility boundary | Off-site areas that exceed the Environmental Protection Standards pursuant to Section 324.20120a(1)(a)and (17) of Act 451 |

4. The corrective action requirements set forth in this Condition XI.B. are subject to, and shall be limited by, certain settlements between the licensee and the State of Michigan for various liability issues. These past settlements include, without limitation, the Boat Launch Closing Agreement between Dow and the Michigan Department of Natural Resources dated May 22, 1985 and Michigan Department of Environmental Quality Administrative Consent Order No. ACO-SW97-006 dated July 21, 1997. Neither the issuance of this license, nor any actual or alleged failure of the licensee to dispute or contest (formally or otherwise) any of the terms of this license, shall constitute a waiver or compromise of any prior settlement or any defense available to the licensee under those settlements.

**Response:** The operating license was not revised in response to the portion of this comment that addresses the Corrective Action Consent Order. The Corrective Action Consent Order that is the subject of this comment has not been entered into and is no longer being considered by the MDEQ as an alternative to address corrective action at the Dow facility.

Condition XI.B.3. of the operating license was not revised as specifically requested by Dow. However, Condition XI.B. of the operating license has been revised as described in the response to U.S. EPA Comment 35 and other public comments (see the Summary of Changes Document) to specifically list those areas of concern where the MDEQ has reason to believe that there has been or may have been a release. The MDEQ believes that specifically listing known areas of concern will make the operating license more clear and enhance the enforceability of the operating license.

The license was not revised in response to Dow's request to add a new condition addressing the referenced May 22, 1985, and July 21, 1997, agreements. Review of this issue by the Michigan Department of Attorney General's office indicates that these agreements do not limit Dow's corrective action obligations under RCRA or Part 111 and that there is no legal reason for the operating license to include language addressing the subject of those prior agreements.

**Dow Comment 4-7 on Condition XI.B.1. - Corrective action Beyond the Facility Boundary:**
MDEQ should correct an error in the second sentence of License Condition XI.B.1. The second sentence of Condition XI.B.1 says Dow is not relieved of responsibility to "clean up" an off-site area, just because the owner refuses to grant access. The expression "clean up" assumes (incorrectly) that removal of contaminants is the only appropriate response to a potential off-site release. That assumption omits steps and is inconsistent with the Part 201/Part 111 process. MDEQ should revise the License Condition as follows, to accommodate other appropriate actions in response to addressing off-site releases. *Italics* is original language, additions are **bold underlined**:

*The licensee shall not be relieved of all responsibility to clean up,* **mitigate, contain or otherwise address** *a release that has migrated or has been emitted beyond the facility boundary where off-site access is denied.*

**Response:** The operating license was not revised in response to this comment. The general language in question is appropriately taken directly from R 299.9629(2) of the Part 111 rules governing corrective action.

**Dow Comment 4-8 on Condition XI.B.2. - Corrective action Beyond the Facility Boundary:**
Condition XI.B.2 should be revised for compatibility with site-specific criteria. Dow withdraws the comment on Condition XI.B.2 that it submitted on November 27, 2002 relating to the Corrective Action Consent Order, the Corrective Action Consent Order is no longer being pursued. Dow provides the following new comments with respect to Condition XI.B.2. Condition XI.B.2 of the draft license would require Dow to submit a written Remedial Investigation ("RI") Work Plan to MDEQ within sixty (60) days of the issuance of this license for certain identified offsite areas. As discussed elsewhere in these comments, this provision is impermissibly broad in that it would require Dow to investigate broad offsite geographical areas without, insofar as some areas are concerned, a clear factual finding by MDEQ that the contamination at individual locations is from Dow's facility and poses a cognizable human health or environmental threat. The provision is also inappropriate to the extent that it would require Dow, based upon the results of the RI, to undertake any "additional corrective action" that MDEQ "may require . . . according to Conditions XI.F through XI.J of this license" for the areas identified. Among other things, these enumerated conditions would require the conduct of interim response activities, the development of a remedial action plan ("RAP"), and implementation of the RAP approved by MDEQ. In the absence of approved site-specific cleanup criteria for residential Midland and Tittabawassee floodplain soils in this license, these references to additional corrective action could subject Dow to remedial measures based on generic cleanup criteria. For example, in light of the recently promulgated new administrative

rules for Part 201 of the Natural Resources and Environmental Protection Act ("Act 451") the license provisions could be interpreted to compel Dow, in the absence of site-specific criteria, to undertake both *immediate* interim and final corrective measures with respect to all residential Midland and Tittabawassee floodplain soils found to contain PCDD/Fs in excess of 90 parts per trillion ("ppt"). This concern is heightened by other terms of the license. For example, under Condition XI.G of the draft license, "Dow **shall** conduct interim response activities (IRAs) at the facility, if determined necessary by . . . [MDEQ], to cleanup or remove a released contaminant . . . as may be necessary to prevent, minimize or mitigate injury to the public health, safety or welfare or to the environment." (emphasis added). (*See also* Condition XI.H.1., which states that "the license shall continue . . . interim response activities to the extent necessary to ensure that . . . the applicable environmental protection standards established under Part 201 of Act 451 . . . are met.") Until a site-specific criterion has been approved, these provisions could be interpreted to mean that soil must be remediated to the generic residential criterion.

Even though the Part 201 rules provide Dow the right to demonstrate that site-specific cleanup criteria should apply in lieu of the otherwise applicable generic criterion, Condition XI.B.2 makes no provision for such a showing. This should be rectified by adding a sentence at the end of Condition XI.B.2 of the draft license to read as follows. . *Italics* is original language, additions are **bold underlined:**

*. . . Based upon the results of the RI, the Chief of the Waste and Hazardous Materials Division may require additional corrective action according to Conditions XI.F. through XI.J. of this license for the areas identified below.* **In determining whether additional corrective action is necessary, relevant information to be considered by the Chief of the Waste and Hazardous Materials Division shall include, but not be limited to, information submitted by the licensee seeking use of site-specific cleanup criteria, as authorized under the rules implementing Part 201 of Act 451.**

These modifications to the license would not deprive MDEQ, of course, of its authority to seek to require Dow to take offsite remedial or other corrective measures (subject to rights Dow has under settlement agreements with the State of Michigan) as necessary to protect human health or the environment, under either a subsequent modification to the license or independent statutory authority. This authority could be expressly preserved, for example, by addition of a provision to Condition XI of the license which provides that "[N]othing in this Condition XI shall be construed as limiting the authority available to the Chief of the Waste and Hazardous Materials Division to require additional corrective action as necessary to protect human health and the environment."

**Response:** The operating license was not revised in response to this comment. The Michigan Department of Attorney General has reviewed this issue and determined that the language proposed by Dow is unnecessary and inappropriate. The existing draft operating license conditions require Dow to perform corrective action as needed to protect human health and the environment and to meet the environmental protection standards established pursuant to Part 201. That is fully consistent with RCRA, Part 111, and R 299.9629(3). Contrary to Dow's assertions, nothing in the draft operating license either expressly or impliedly forecloses the possible application of site-specific cleanup criteria established pursuant to MCL 324.20120a(2), provided they satisfy the statutory and regulatory requirements and are approved by the MDEQ.

**U.S. EPA Comment 37 on Condition XI.C. - Identification of Existing Waste Management Units and Areas of Concern:** Information included in this section of the Operating License offers only a general description of the known WMUs and AOCs at the Dow facility and adjacent

properties. Although Section XVI.C of the reapplication package provides additional detail, only the most basic corrective action plans and priorities have been noted. To facilitate a thorough and comprehensive evaluation of proposed environmental investigation and corrective action efforts, and to ensure that the overall scope of the planned corrective action program is sufficient, additional detail must be provided in both the Operating License and the associated attachments. To address this issue, it is recommended that tables in Part XI of the license be combined and expanded to note the specific history of the identified WMUs and AOCs, suspected or known contaminants, impacted media (actual or suspected), and specific plans for investigation and/or corrective action. For example, for Locally Elevated Levels Site 1, the table should present:

- A brief history of the WMU and an explanation of why the area is suspect (e.g., location of former chlorinated aromatic compound manufacturing facilities);
- The main constituents of concern (e.g., dioxins and furans);
- Corrective actions implemented to date (e.g., area closed as a landfill via capping; slurry wall installed to contain impacted groundwater; nature and extent of contamination fully delineated in soil and groundwater);
- Plans for further corrective action and/or investigation (e.g., ongoing cap maintenance; hydraulic monitoring); and
- The purpose of those actions (e.g., to minimize infiltration and ensure complete and effective capture of impacted groundwater within the slurry wall).

The table should also present facts justifying the necessity for initial preliminary assessment (RCRA Facility Investigation Phase I) investigations at the on- and off-site AOCs. Section XVI.C of the reapplication package provides extremely limited information on suspected sources, possible constituents of concern, and indicators that contamination may be present in these areas.

**Response:** The operating license was not revised in response to this comment. The level of detail presented in the operating license is consistent with other MDEQ issued operating licenses and consent orders that contain requirements for corrective action. This information is included in Condition XVI.C of the operating license reapplication. In addition, the Compliance Schedule investigation process requires an MDEQ approved Scope of Work and Remedial Investigation that will identify the details of the historical use, the existing contamination levels and the requirements for additional work for the WMUs and AOCs. Finally, it should be noted that the individual components of each corrective action phase are required to conform with or be substantially equivalent to the provisions of Part 201.

**Dow Comment 2-7 on Condition XI.E – Dispute Resolution:** While MDEQ maintains the right to require certain actions and/or activities based on their determinations, Dow equally has the right to negotiate such actions, or the need for such actions, with MDEQ.

The conditions listed below should be subject to conflict resolution because they all provide for the MDEQ to require actions based solely on "MDEQ's determination": Conditions VII.A.6, X.A.10, X.B.10, X.C.10, X.C.12.b.iv, X.D.5, X.F.11, X.J.6, X.L.7, X.L.8, X.L.9, XI.C.3, XI.R.2, XI.R.4, XII.A.1.

Dow's proposal would expand only the "first step" of dispute resolution (informal discussions) to ANY dispute.

Dow proposes the following two alternatives for Condition XI.E.1.:

Alternative 1:
The MDEQ and the licensee shall use their best efforts to informally, and in good faith, resolve any dispute that arises with respect to the implementation or administration **of this license, including but not limited to** Conditions XI.F.2, XI.G.2, XI.I.2, XI.J.2, XI.J.5. and XI.K.3. of this license. Upon request by the licensee, the MDEQ will provide the licensee a written statement of its decision on any matter that the parties are unable to resolve.

Alternative 2:
The MDEQ and the licensee shall use their best efforts to informally, and in good faith, resolve any dispute that arises with respect to the implementation or administration to Conditions **VII.A.6, X.A.10, X.B.10, X.C.10, X.C.12.b.iv, X.D.5, X.F.11, X.J.6, X.J.? (Condition dealing with comment #9), X.L.7, X.L.8, X.L.9, (note: the condition numbers for X.L. are based on the numbering in the current license and are subject to change if comment #4 is accepted), XI.C.3, XI.R.2, XI.R.4, XII.A.1,** XI.F.2, XI.G.2, XI.I.2, XI.J.2, XI.J.5. and XI.K.3. of this license. Upon request by the licensee, the MDEQ will provide the licensee a written statement of its decision on any matter that the parties are unable to resolve.

**Response:** The operating license was not revised in response to this comment. This comment proposes to subject any dispute that arises under the operating license to the dispute resolution procedures of the license. There is no legal requirement for such a provision. Moreover, there is no legal authority for Dow's assertion that Dow "has the right to negotiate such actions, or the need for such actions, with MDEQ." In addition, there are certain categories of MDEQ decisions referenced in the operating license, e.g., response to imminent and substantial endangerment of health or the environment, that could never lawfully be subject to delay through dispute resolution.

**Dow Comment 4-9 on Condition XI.G. - Interim Response Activities:** Condition XI.G should reference the new rules implementing Part 201. License Condition XI.G says Dow may be required to conduct interim response activities if necessary to prevent "injury to the public health, safety, or welfare, or to the environment." There is no indication, in this License Condition, as to how MDEQ will make these determinations. However, MDEQ has promulgated a regulation on precisely that topic. Specifically, Rule 526(1) of the new rules implementing Part 201 lists ten factors that the Agency will take into account in deciding whether an interim response activity is appropriate. The license should reference the new rule. This can be done by revising the first sentence of Condition XI.G as follows. *Italics* are original text and additions are **bold undlined** [sic]:

*The licensee shall conduct interim response activities (IRA) at the facility, if determined necessary* **pursuant to R 299.5526(1)** *by the licensee or the Chief of the Waste and Hazardous Materials Division, to clean up or remove a released contaminant or to take other actions, prior to the implementation of a remedial action, as may be necessary to prevent, minimize, or mitigate injury to the public health, safety, or welfare, or to the environment.*

If Dow has made other comments regarding Condition XI.G, this additional comment is intended to supplement, and not to waive or withdraw, the earlier comments.

**Response:** The operating license was not revised in response to this comment. It would not be appropriate to reference this Part 201 rule directly in the operating license because, as pointed out by the licensee in the operating license application, there is an exemption from Part 201 liability for treatment, storage and disposal facilities that are implementing corrective action under Part 111. However, to the extent that the Part 201 interim response activity

process is not less stringent than Part 111 or RCRA, that process will be used to frame and guide interim response corrective action activities at the Dow facility.

**Dow Comment 4-10B on Condition XI.H.1. - Determination of No Further Action:** License Condition XI.H.1 says Dow must "continue" remedial action, but does not say where. In context, Dow believes this is talking about remedial action at Waste Management Unites [sic] identified in License Condition XI.C.1 or XI.D.2. We base this on the fact that the very next paragraph (XI.H.2) provides for a written request to terminate the corrective action "for a specific WMU identified in Condition XI.C.1 or XI.D.2. of this license." To make the context clear, License Condition XI.H.1 should be revised to read as follows. *Italics* is original language, additions are **bold underlined**:

*The licensee shall continue remedial action and/or interim response activities* **for a specific WMU identified in Condition XI.C.1 or XI.D.2. of this license** *to the extent necessary to ensure that the requirements of R 299.9629 are satisfied, including that the applicable environmental protection standards established under Part 201 of Act 451, as adopted in Part 111 of Act 451, are met, if the limits are not less stringent than allowed pursuant to the provisions of RCRA.*

**Response:** The operating license was not revised in response to this comment. Condition XI.H.1. correctly refers to all of the licensee's corrective action obligations, on-site and off-site, without limitation.

**U.S. EPA Comment 38 on Condition XI.R. - Source Control:** The U.S. EPA strongly supports the requirements of section [sic]. Meeting the source control requirements of Part 111 or Part 201 of Act 451 is critical for the long-term success of corrective action activities.

**Response**: The MDEQ acknowledges this comment.

**COMMENTS ON PART XII - COMPLIANCE SCHEDULES**

**Dow Comment 4-11 on Condition XII.A.1. - Compliance Schedule for Environmental Monitoring and Corrective Action for Units Other Than the 32 Incinerator:** One sentence of License Condition XII.A.1 should be limited to on-site corrective action. The second sentence of Condition XI.A.1 [sic - this should refer to Condition XII.A.1.] says that, under certain circumstances, MDEQ may require additional corrective action beyond what is specified in Attachment 28 (the compliance schedule). In context, Dow believes this is intended to refer to on-site corrective action. The sentence should be revised to read as follows. *Italics* is original language, additions are **bold underlined**:

*The MDEQ may require additional* **on-site** *corrective action other than that specified in the Compliance Schedule, Attachment 28 of this license, based upon the results of the Compliance Schedule work, other relevant information, or changed conditions which lead the MDEQ to determine that there is, or may have been, a release of a contaminant(s) from the WMU(s) or AOC(s).*

**Response:** The operating license was not revised in response to this comment. Condition XII.A.1. refers to the MDEQ's authority to require additional corrective action, on-site and off-site, without limitation, based upon the results of the Compliance Schedule work, other relevant information, or changed conditions which lead the MDEQ to determine that there is, or may have been, a release of a contaminant(s) from a WMU(s) or AOC(s). Therefore, it is not appropriate to limit this condition to on-site corrective action.

## COMMENTS ON OPERATING LICENSE ATTACHMENTS

### GENERAL COMMENTS

**U.S. EPA Comment 2 Regarding Preparedness and Prevention:** The Operating License does not provide detailed information on Preparedness and Prevention required under 40 C.F.R. 264 Subpart C and Michigan R 299.9606. Such information should be incorporated as an attachment to the Operating License. Specifically, the description in the Operating License of all the equipment in the hazardous waste management and treatment units is vague. This information should be revised to clearly describe the location of all alarms system and monitoring equipment at the storage and treatment units and indicate their position on a current, detailed and appropriate facility map.

**Response:** It is not the MDEQ's normal practice to include a Preparedness and Prevention attachment to operating licenses. The information regarding emergency equipment is contained in the Contingency Plan, Attachment 4 of the operating license.

**U.S. EPA Comment 3 Regarding Flood Plain Map:** It appears, from the information submitted in previous applications by Dow, that the facility is located within the 100 year floodzone. The floodplain map provided by Dow in Section J of the July 2002 revision of its application is unreadable. Dow should be required to provide MDEQ with a clear copy of the Federal Insurance Administration flood map and that map should be included as an attachment to the Operating License. In addition, the Operating License should contain information which identifies the 100-year flood level and any special flooding factors for maintaining the facility to withstand a washout from a 100-year flood. As required by Michigan R 299.9605 and 40 C.F.R. 264.18, the Operating License should be revised to include the following information:

- The timing of the movement of all units including the estimated time to move the waste, to show that such movement can be completed before floodwaters reach the facility;
- A description of the location(s) to which the waste will be moved and demonstration that those facilities will be eligible to receive hazardous waste;
- The planned procedures, equipment and personnel to be used and the means to ensure that such resources will be available in time for use; and
- The potential for accidental discharges during waste movement.

**Response:** The operating license was not revised in response to this comment because the hazardous waste management units are not located in the flood plain area. The extent of the flood plain is clearly shown on the topographic maps that are included in Section II.S of the application.

**U.S. EPA Comment 4 Regarding Traffic Information:** The Operating License should be revised to include an attachment which discusses the specific traffic information provided in the June 30, 2000 Permit Application as required by 40 C.F.R. 270.14(b)(10). This information should also be revised to indicate that wastes generated off site are transported to the facility for treatment. The traffic information should also: discuss the vehicles used for transport and how the movement of these vehicles are [sic] monitored at the facility; identify all vehicles used for the shipment of wastes; discuss the procedures from which wastes are transferred from the unloading area to the thermal treatment units; and discuss how and where the liquid wastes are unloaded and transferred into the process units for treatment.

**Response:** It is not the normal procedure of the MDEQ to include traffic information in the operating license. Therefore, the operating license is not being revised in response to this comment. Much of the cited information is included in the existing attachments to the operating license. Refer to the Waste Analysis Plan, Attachment 1 of the operating license, for information regarding off-site generator requirements and on-site movement of hazardous wastes. Waste acceptance by vehicle is tracked by the manifest system. Copies of manifests must be kept at the facility for at least three years and are maintained for a much longer period of time by the MDEQ.

A discussion of waste unloading at the incinerator is included on pages 15T to 17T of Attachment 14 of the operating license, 32 Incinerator Detailed Engineering and Process Information. In general, tanker trucks are pressure loaded or pumped directly to the incinerator or to the tank farm from the unloading spots. Dinos and dempsters are pressure off-loaded into tanks, and smaller 250-gallon tote tanks are pumped into tanks or direct burned.

**U.S. EPA Comment 6 Regarding Part A Application Form:** The Operating License does not include a Hazardous Waste Permit Application form [Form 8700-23] (Part A Application) as an attachment. To ensure completeness, the most recent Part A Application should be attached and included as part of the Operating License.

**Response:** The operating license was not revised to include the entire Part A Application form as an attachment in response to this comment because it is not the normal procedure of the MDEQ to do so. However, portions of the Part A Application form have been attached to the operating license. For example, the list of acceptable waste codes, Attachment 8 of the operating license, was taken from the Part A Application form. This is necessary so that pertinent information is included in the license to regulate units subject to Part 111.

**COMMENTS ON ATTACHMENT 1 - WASTE ANALYSIS PLAN**

**U.S. EPA Comment 44:** The second paragraph on page II. C-5 of Attachment 1 states that, "Only wastes meeting Environmental Operations' requirements will be accepted." The information provided in the attachment should be revised by Dow to clearly outline these 'Environmental Operations' requirements." The text should be revised to clarify exactly how the determination that requirements have been met is made. Michigan R 299.9605 and 40 CFR 264.13(a)

**Response:** To the extent that Dow Environmental Operations' internal requirements reflect regulatory provisions, they are already addressed in the operating license. Any additional internal requirements over and above regulatory requirements do not need to be included in the operating license. For example, if a waste could lawfully be received in any of several types and sizes of containers, but for the sake of convenience and efficiency Dow Environmental Operations imposes a requirement for generators to use a uniform type and size of container, this is a voluntary decision and does not need to be specified in the operating license. Inclusion of such voluntary internal requirements is subject to change over time and would pose a burden on the MDEQ to review and approve amendments to the operating license every time internal requirements change. Therefore, no revisions were made to the operating license in response to this comment.

**U.S. EPA Comment 46:** Page II. C-6 of Attachment 1 provides very general information of how Dow will comply with the waste analysis requirements. The text simply references the regulatory citations for the information. To ensure completeness and to verify that the facility is

in compliance with the referenced information, it is recommended that the Operating License be revised by MDEQ to include the facility-specific information.

**Response:** The referenced text in the WAP includes a statement that Dow "will review the waste profile information to ensure that the facility is authorized to receive the waste, and can manage the waste in compliance with" the series of cited regulations. Some of the cited regulations refer to other more detailed sections of the application or WAP. The MDEQ considers the commitment to comply with these regulations together with the information in the referenced sections of the application and WAP to be sufficient without further revision to the operating license.

**U.S. EPA Comment 47:** Page II. C-8 of Attachment 1 provides very general information regarding the waste screening of the wastes. The Operating License should be revised by MDEQ to clearly indicate the exact parameters and associated methods that may be used for testing. Specifically, discuss how compatibility is measured and ensure that incompatible wastes are not stored or treated together.

**Response:** For any given waste, key physical/chemical characteristics documented in Generator Waste Characterization Forms (GWCFs) can be used for waste screening/ fingerprinting. Due to the large number of wastes managed by Dow, it is impractical to indicate the exact parameters and associated methods that may be used for testing in the WAP. Physical/chemical characteristics information in the GWCFs can also be used to determine compatibility/reactivity of wastes to be managed in licensed storage and treatment units in accordance with Attachment 9, Special Requirements For Ignitable or Reactive Wastes and Incompatible Wastes and Materials, of the operating license. No revisions to the operating license were made in response to this comment. Refer to the Summary of Changes document regarding the revisions that were made to the operating license in response to U.S. EPA Comment 39.

**U.S. EPA Comment 48:** This section of the Operating License should be revised by MDEQ to clearly include the following information required by Michigan R 299.9605 and 40 C.F.R. 264.13(b)(1)-(4):

- The parameters for which each hazardous wastes will be analyzed;
- The rationale for selection (i.e. how analyses of these parameters will provide sufficient information on the waste's properties);
- The test methods which will be used to test for these parameters;
- The sampling method which will be used to obtain representative samples of the waste to be analyzed; and
- The frequency with which the initial analyses will be repeated.

**Response:** This comment is similar to previous comments that are responded to above or that the MDEQ believes are adequately addressed in the WAP.

**COMMENTS ON ATTACHMENT 3 - PERSONNEL TRAINING PROGRAM**

**U.S. EPA Comment 58:** Attachment 3 of the Operating License identifies various job titles at the various hazardous waste management areas; however, no specific personnel information has been provided, which is inconsistent with 40 C.F.R. 264.16. This section of the attachment must include the names, the requisite skills, education, or other qualifications of the employees assigned to each position which involves the handling of hazardous waste as required by 40 C.F.R. 264.16(d). At a minimum, Dow must ensure that all personnel that are identified in

the Contingency Plan have been included, and clearly indicate how each person is trained for his/her position. (Michigan R 299.9605 and 40 C.F.R. 264.16)

**Response:** The MDEQ disagrees that 40 CFR 264.16 requires that the specific names and qualifications of employees must be included in the personnel training program, Attachment 3 of the operating license. Page II.K-4 of the personnel training program includes general job titles and descriptions and has been revised to indicate that the specific names of people in the relevant positions and their qualifications will be kept on file at the facility and will be available for inspection. This is consistent with the MDEQ's administration of personnel training program requirements at other treatment, storage, and disposal facilities in a manner that does not necessitate updating of the program every time a personnel change occurs.

**U.S. EPA Comment 61:** The Operating License should include the amount of introductory and continuing training for each person in the positions at each of the hazardous waste storage and treatment areas. Figure II.K-1 of Attachment 3 provides the general topics of discussion in the introductory and annual training; however, the application should be expanded to provide the exact information to be covered under each topic. Page II.K-8 of Attachment 3 should include the instruction which teaches facility personnel hazardous waste management procedures (e.g., contingency plan implementation) relevant to the positions in which they are employed. This instruction should be given for each position at each of the Waste Storage areas and the treatment areas. (Michigan R 299.9605 and 40 C.F.R. 264.16)

**Response:** The MDEQ disagrees that 40 CFR 264.16(d) requires this information to be included in the application or operating license. The regulation specifically states that the owner or operator must maintain such documents *at the facility*.

**COMMENTS ON ATTACHMENT 4 - CONTINGENCY PLAN**

**U.S. EPA Comment 79:** The map submitted to outline the Dow Facility's evacuation routes is very difficult to read. Only the building numbers have been marked. However, the assembly points and actual routes are not readable in the diagram provided. Due to the many hazardous waste management areas, it is recommended that, for each building, Dow provide a separate evacuation route map is provided [sic] to clearly mark each building, each assembly point, the routes to be taken, and any alternate routes that are identified. Michigan R 299.9606 and 40 C.F.R. Subpart D

**Response:** The MDEQ disagrees that the evacuation route information contained in the Contingency Plan, Attachment 4 of the operating license, is inadequate. In addition to the map which shows the applicable gates and hazardous waste management facility building numbers, pages 22 and 23 of the Contingency Plan clearly list the evacuation routes and assembly points for each regulated unit. Visitors and emergency personnel are required to be escorted by and accounted for by Dow personnel who are trained in evacuation procedures and routes.

**COMMENTS ON ATTACHMENT 5 - CLOSURE PLAN**

**U.S. EPA Comment 81:** The Closure Plan provided in Attachment 5 of the Operating License repeatedly states that at the time of closure, plans will be submitted for approval, which is inconsistent with Michigan R 299.9613 and 40 C.F.R. 264.112 and 40 C.F.R. 270.32. The closure plan must be submitted with the permit application and the approved closure plan must be a condition of any RCRA permit under 40 C.F.R. § 264.112. Such information may be modified through an approval with the state at the time of closure; however, the detailed

complete Closure Plan, including all cleanup criteria, should be included with the Operating License.

**Response:** Since it is not anticipated that most of the hazardous waste management units will be closed in the near future, the MDEQ does not agree that its practice of requiring the submittal of detailed closure plans immediately prior to actual closure is inappropriate. The basic closure information is included in the closure plan in sufficient detail for licensing and closure cost estimation purposes. Environmental regulations are revised frequently. Requiring more detailed plans to be submitted prior to actual closure will ensure that the applicable regulatory requirements at the time of closure, including the current environmental protection standards under Parts 111 and 201 are incorporated. The regulated units at Dow that are closing soon are the 703 Building and 830 Building Incinerators. Pursuant to Condition VII.A.4. and Attachment 15 of the operating license, detailed partial closure plans for these incinerators and ancillary equipment will be submitted for review and approval by June 1, 2003. Waste Storage Area IIA as it currently exists may be closed after the upgrade of the Revetment Groundwater Interceptor System (expected prior to 2006) is completed.

The entire Dow site is designated as the "Facility Solid Waste Management Unit" because soil and groundwater contamination is known to be widespread across the facility. In addition, Dow's hazardous waste management units are constructed on the location of a historical disposal area, the 1925 Landfill Waste Management Unit, an area where old landfills and surface impoundments were closed with waste in place. Because of this, clean closure of the soils beneath the hazardous waste management units is impractical and, therefore, clean-up criteria for soils are not included in the closure plan. Procedures are in place, Excavation Soil and Groundwater Management Plan (E-1225), to govern excavations at the facility. Any contamination will ultimately be addressed as part of corrective action and post-closure activities. The Revetment Groundwater Interceptor System, located adjacent to the Tittabawassee River along the eastern facility boundary, is in place as a corrective measure to prevent contamination from venting to the river and to continuously collect contaminated groundwater for on-site treatment at Dow's Wastewater Treatment Plant.

**U.S. EPA Comment 82A:** [MDEQ Note: U.S. EPA Comment 82 contains multiple comments which require separate responses, so it was split into two parts, 82A and 82B (Refer to the Summary of Changes document for the response to this comment)]. The Closure Plan is inconsistent with Michigan R 299.9613 and 40 C.F.R. 264.112(b)(1) because it provides a very generic outline, but does not include a specific detailed description of how each hazardous waste management unit at the facility will be closed. The Closure Plan should be revised to identify the specific closure of each of the identified units for permitting. For example, it is unclear if the facility plans to perform clean closure on Waste Storage Area I and Waste Storage Area II. The Closure Plan should indicate the closure criteria that will be used for closure of each unit. If "clean closure" of the facility is to be performed, then the Closure Plan must be revised to address, in detail, how clean closure will be achieved.

The Closure Plan should include a listing of the exposure limits - to be used as standards at the time of closure for assessing whether or not removal and decontamination activities are complete - for all hazardous constituents that may have been treated at the unit; To demonstrate clean closure, the soils and groundwater surrounding the unit should be tested to document that the contaminants left in the subsoils will not impact the groundwater, surface water, or atmosphere in excess of the exposure limits that are to be specified in the closure plan; and, For surface impoundments and waste piles units to be clean closed, the facility must also include a contingent closure plan in case not all contaminated subsoils or structures can be removed at closure. (Michigan R299.9616 and 40 C.F.R. 264.228)

**Response:** In the technical judgment of the MDEQ, the closure plan contains sufficient information for licensing and closure cost estimation purposes for all of the regulated hazardous waste management units. As described above in the response to U.S. EPA Comment 81, clean closure of the soils beneath the hazardous waste management units (i.e., Waste Storage Areas I and II) is impractical and, therefore, clean-up criteria for soils are not included in the closure plan. Site-wide contamination, including the evaluation and elimination of exposure pathways, will be addressed as part of corrective action and, to a limited extent, post-closure activities.

It was determined by Dow, and the MDEQ concurs with this determination, that it is unlikely that the Tertiary Pond will be able to be clean closed. Therefore, instead of preparing a closure plan for clean closure, and a contingent closure plan for closure of the surface impoundment with waste in place, the worst case option was chosen and the closure plan included in Attachment 5 of the operating license is the contingent closure plan (even though it is not labeled as such). Based upon the size of the Tertiary Pond, the known nature of the solids, and because the surface impoundments are unlined, it is expected to be difficult to remove all of the waste and contaminated subsoils at closure. The MDEQ concurs with this common sense approach of only including the contingent closure plan in Attachment 5 of the operating license.

**U.S. EPA Comment 84:** Attachment 2 of the Operating License does not provide detail on the sampling and analysis methods for the soil that will be removed from around the units. Dow should detail how the excavated soil will be stored and ensure that all soils are stored on site for less than 90 days prior to offsite shipment to a permitted hazardous waste facility. Dow should indicate whether any background samples will be taken. If so, the Closure Plan should provide a detailed discussion of the proposed background sampling locations. Dow should propose and justify all background sampling locations, depths, and procedures. The discussion of the analytical and sampling methods to be used for closure must be expanded to include more detailed information. Dow should ensure that the most recent U.S. EPA approved methods are used and provide a thorough discussion of the sampling and analytical techniques, including background samples, for each of the units, including any wastewaters collected from decontamination activities. (Michigan R 299.9613 and 40 C.F.R. Subpart G).

**Response:** As described above in the responses to U.S. EPA Comments 81 and 82, clean closure of the soils beneath the hazardous waste management units is impractical and, therefore, clean-up criteria for soils are not included in the closure plan. Site-wide contamination will be addressed as part of corrective action and, to a limited extent, post-closure activities. Procedures are in place, Excavation Soil and Groundwater Management Plan (E-1225), to govern excavations at the facility.

**U.S. EPA Comment 85:** The Closure Plan must be revised by Dow to identify the hazardous constituents and analytical methods to be used for the closure of the facility. Dow should provide the exact test method number to be used for the procedure, as well as the associated method for the analysis of each parameter listed and ensure that all methods identified in the Closure Plan are the most current. (Michigan R 299.9613 and 40 C.F.R. Subpart G).

**Response:** Since clean closure of the soils beneath the hazardous waste management units is impractical and will be addressed as part of corrective action/post-closure activities as described in the responses to U.S. EPA Comments 81, 82, and 84 above, and clean-up criteria for soils are not included in the closure plan, it follows that it is not appropriate to list the hazardous constituents and analytical methods in the closure plan in Attachment 5 of the operating license.

**U.S. EPA Comment 86:** Dow should be required to demonstrate that any hazardous constituents (i.e., Part 261 Appendix VIII) left at the unit will not impact any environmental media in excess of Agency-established exposure levels and that direct contact will not pose a threat to human health and the environment. (Michigan R 299.9613 and 40 C.F.R. Subpart G).

**Response:** Site-wide contamination and exposure controls for direct contact will be addressed as part of corrective action and, to a limited extent, post-closure activities, rather than in the closure plan.

**COMMENTS ON ATTACHMENT 9 - SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES AND INCOMPATIBLE WASTES AND MATERIALS**

**U.S. EPA Comment 93:** The discussion of the unloading operations for wastes to be treated by incineration should be expanded. Specifically, Dow should indicate if wastes are treated immediately upon unloading or if they are "held" for any length of time prior to treatment. If wastes are held, Dow should indicate how long wastes are stored prior to going to the treatment unit. Dow should revise the application to include specific loading/unloading information regarding the wastes treated at the Incinerator Complex as well as stored in the tanks and Container Storage Areas. Dow should ensure that all loading/unloading for each of the units are inspected at regular intervals and included in the inspection schedule. Michigan R 299.9605 and 40 C.F.R. 264.17.

**Response:** The operating license was not revised in response to this comment. The unloading spots are direct burn locations that are licensed to store hazardous wastes for up to one year prior to treatment on-site, or shipment off-site for treatment and/or disposal. However, it is unlikely that lengthy storage would occur at these locations. Attachment 9 of the operating license, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, already indicates that most bulk liquid containers are directly burned in the incinerator upon receipt. Inspection schedules are included in Attachment 2 of the license. In addition, the operating license enables Dow to store hazardous wastes at many other locations at the facility for up to one year before treatment or disposal in the event that a particular waste requires alternate storage as specified in Conditions III.E.5., IV.E.6., V.E.5. and VI.D.5.

**U.S. EPA Comment 95:** Dow should revise its application to include the documentation of compliance that wastes are protected from sources of ignitions or reactions. To meet this requirement, such documentation may be based on references to published scientific or engineering literature, data from trial tests, wastes analysis or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions. Michigan R 299.9605 and 40 C.F.R. 264.17.

**Response:** This comment is a repeat of U.S. EPA Comment 90 and has been addressed in the Summary of Changes document.

**U.S. EPA Comment 97:** Dow should provide sketches, drawings, or data demonstrating that the tank of ignitable wastes is located at least 20 feet from the facility's property line. Additionally, the Operating License should include sketches, drawings, or data demonstrating that containers of ignitable wastes are located at least 50 feet from the facility's property line. Michigan R 299.9615 and 40 C.F.R. 264.176.

**Response:** The facility topographic maps and other drawings in the operating license application clearly show that all tanks are located more than 50 feet from the facility property line. No revisions were made to the operating license in response to this comment.

**COMMENTS ON ATTACHMENT 10 - TANK SYSTEM DRAWINGS**

**U.S. EPA Comment 99:** Tank system drawings in Attachment 10 detail the proposed placement and sloping of soil in Waste Storage Area IIA. As shown on Sketch Number 6, waste can be placed across the floor of the entire unit, including on the access ramp into and out of the unit. To allow for safe operation of dump trucks and front end loading equipment in Waste Storage Area IIA, the license and attachments should be revised to indicate that the entire access ramp and immediately adjacent areas must be kept clear. Based on specifications presented in Sketch Number 4 of Attachment 10, this would call for placement of contaminated soil no closer than 25 feet from the southeastern wall of the unit. Michigan R 299.9615 and 40 C.F.R. Subpart J.

**Response:** The MDEQ does not agree with this comment. It has no regulatory basis. Placing waste on and adjacent to the portion of the access ramp that is located inside Waste Storage Area IIA does not pose safety or operational problems and would render a large portion of the licensed storage capacity unusable. The soils that are typically placed within this tank system have sufficient structural integrity to be driven upon. The operating license was not revised in response to this comment.

**COMMENTS ON ATTACHMENT 24 - GROUNDWATER MONITORING PROGRAM SAMPLING AND ANALYSIS PLAN**

**U.S. EPA Comment 110:** Page 2 of Appendix A of Attachment 24 states that "A complete description of the quality assurance and quality control policies and procedures followed by the laboratory is provided in Appendix C to the SOP." However, the information provided in Appendix C is very generic and does not provide the level of detail necessary for a laboratory to understand and fulfill the QA/QC objectives required for a sampling and analysis event. Overall, the DOW Quality Assurance Program (QAP) document is very general and does not provide sufficiently detailed information. For example, Section 3.0 of the document states that, "For non-standard field information which is not found in the method work instructions or SOP should be documented." Then Section 4.0 has been provided to discuss the "work instructions and SOPs." However this section provides very general statements such as, "Work instructions or SOPs are documents which will require modifications or be discontinued due to matrix, instrument and method changes. In order to assure ourselves that the proper work instructions or SOPs is being used, each document will have an effective date printed on them." Dow should revise the document to include the most recent versions of the "work instructions or SOPs". The entire QAP should be modified to be more specific to the current sampling and analytical requirements for the parameters specified in the wastes of the Operating License.

**Response:** In the technical judgment of the MDEQ, the Appendix C QAP, included in Attachment 24 of the operating license, is adequate. The purpose of Dow's QAP is to provide a summary of the laboratory and the procedures that the laboratory follows to analyze samples and to maintain satisfactory quality assurance/quality control. As noted in the QAP, the laboratory has formalized instructions (SW-846 procedures and standard operating procedures/SOPs) that they are required to follow when doing their analytical work. There are hundreds of these procedures and they are very detailed in nature. In addition, to keep pace with technical improvements, SOPs are constantly changing. For these reasons, copies of SOPs need not be included in the QAP. The facility is required to maintain copies of these detailed procedures in their laboratory and these records are available for review upon request from State and/or federal inspectors. The Dow laboratory has been used for several years to analyze environmental samples collected pursuant to permit requirements. The MDEQ has split

samples with Dow on numerous occasions so that the quality of Dow's sampling and analytical data could be audited. These audits have shown that the Dow sampling team uses good field practices to collect samples and that split sample results have been in close agreement. For ease of reference during inspections and audits, the MDEQ does agree that Dow needs to maintain an index to identify each of the SOPs that the lab uses for analyses and QA/QC. The index should reference, at a minimum, the name of the SOP, the identification number of the SOP, and a description of the SOP. Dow has revised the QAP to reference the index. Due to the ever-changing nature of the SOPs, the MDEQ will not request Dow to incorporate the index into the operating license as a formalized attachment. The MDEQ has requested, and Dow has agreed, to house a copy of the index in Dow's laboratory and in other critical locations where copies of their QAP are kept and to update the index on a reasonable frequency so that it remains relatively current.

**U.S. EPA Comment 115:** This section of the QAP references "work instructions or SOP." Dow should provide any such examples of work instructions or SOPs within the attachment.

**Response:** The MDEQ does not agree that SOP documents need to be included as attachments in Dow's QAP. Refer to the response to U.S. EPA Comment 110 above and the revision that was made in response to U.S. EPA Comment 111 that is described in the Summary of Changes document.

**U.S. EPA Comment 119:** Dow should clarify how long the personnel records are maintained on file.

**Response:** The MDEQ does not agree that Dow needs to identify the length of time personnel records are required to be kept on file in their QAP. Although the retention time for personnel records is not discussed in the QAP, Dow is required to comply with applicable state and federal hazardous waste management laws. In particular, 40 CFR 264.16(4)(e) requires that training records on current staff be kept until closure of the facility and that training records on former employees be kept for at least three years from the date the employee last worked for the facility. If a question arises on personnel records retention, the company's procedure could be requested and a review conducted to verify compliance with applicable laws.

**COMMENTS ON ATTACHMENT 25 - ENVIRONMENTAL MONITORING TABLES AND FIGURES**

**U.S. EPA Comment 120:** This attachment should be expanded to document background concentrations already established for any of the WMUs or AOCs to be monitored pursuant to Part X of the draft license. Dow should provide such detail at least for those areas at which chemical groundwater monitoring has been ongoing. In addition, it is recommended that this attachment highlight those environmental standards to be used in evaluating ongoing monitoring data or investigation results at the site and adjacent off-site areas of concern. Formalization of these standards in the license will allow for a clear understanding of environmental compliance and corrective action goals both on- and off-site. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

**Response:** The operating license was not revised in response to this comment. The environmental standards that are used in evaluating the ongoing monitoring data are detailed in Table 2 of the SAP, Attachment 24 of the operating license. For corrective action investigations, the standards are provided in the general corrective action language and in the associated Area of Concern and Waste Management Unit tables that are present in Part XI of the operating license. As an example, for off-site corrective action, the standards are described as "Areas

that Exceed the Environmental Protection Standards Pursuant to Section 324.20120a(1)(a) and (17) of Act 451."

**COMMENTS ON ATTACHMENT 26 - AMBIENT AIR MONITORING PROGRAM**

**U.S. EPA Comment 124:** The last paragraph of this section identifies the eleven compounds to be monitored and states that the selection of these parameters is based on the criteria outlined in Appendix A. However Appendix A, Section A.6 identifies 13 parameters. Dow should clarify why toluene, which has been identified in Appendix A, is not included in Section 1.0. Also, Appendix A, Section A.6 includes vinyl chloride as a parameter for the monitoring. However, Section A.7 identifies constituents which were considered as rejected due to "insufficient justification to include them" in the ambient air monitoring program. In this list, vinyl chloride is listed. Dow should clarify these discrepancies and include one comprehensive list of parameters for the ambient air monitoring program.

**Response:** As described on page 4 of the current, approved version of the Revision 4, May 31, 2002, Ambient Air Monitoring Program (AAMP), found in Attachment 26 of the operating license, Appendix A contains an earlier approved version of the AAMP (Revision 2, November 16, 1994) and several historical letters approving revisions to the AAMP. The November 16, 1994, version of the AAMP includes a great deal of historical information on parameter selection, rationale and regulatory requirements that was not carried forward to the current, approved, "stream-lined" version of the AAMP. The purpose of Appendix A is to show the changes that have been made to the AAMP over the past several years (e.g., deletion of monitoring parameters, reductions in monitoring frequency, etc.). Although Dow attempted to justify not monitoring for vinyl chloride in a request dated August 12, 1993 (referenced, but not included in Appendix A), in a letter dated March 31, 1994, (included in Appendix A), the Department of Natural Resources required Dow to add this volatile organic compound (VOC) to the AAMP since it is a carcinogen. The list of VOCs and metals that are required to be monitored is located on page 7 of 21 of the current, approved AAMP (Revision 4, May 31, 2002). Therefore, no revision to the operating license is required in response to this comment.

**U.S. EPA Comment 125:** The cover page to Figure 5.1 has been included, however the actual figure with the ambient air sample collection sites has not been included. Dow should revise the attachment to include this figure.

**Response:** The MDEQ's copy of the application and Attachment 26 of the draft operating license include Figure 5.1 that shows the ambient air sample collection sites, even though the U.S. EPA's copy apparently does not include this figure. Therefore, no revision to the operating license is required in response to this comment.

**U.S. EPA Comment 126:** The last paragraph of this section states that, "For metals analysis, approved "SOPs" will be used." However, these SOPs have not been included for review. Dow should provide these SOPs in the attachments.

**Response:** These SOPs are on file and available for review at the facility, upon request. In addition, the MDEQ may obtain copies upon request. The MDEQ does not agree that it is necessary to include these SOPs as attachments to the AAMP in Attachment 26 of the operating license. Therefore, no revision to the operating license is required in response to this comment.

**COMMENTS ON ATTACHMENT 28 - COMPLIANCE SCHEDULE**

**U.S. EPA Comment 33:** A new attachment should be developed or the reapplication package should be modified by Dow to present as much detail as possible on planned sampling parameters, procedures, and sampling locations. Based on the compliance schedule presented in Attachment 28 of the Operating License, it is understood that these details are still to be determined for many of the WMUs and AOCs, and Dow has committed to preparation and submittal of work plan documentation for full review by appropriate MDEQ staff. However, even basic information on planned investigation or corrective action coverage areas would be helpful in assessing overall scope of planned environmental actions site-wide and off site. For example, indicating whether future surface water sampling will be limited to the Tittabawassee River and Bullock Creek or will also include the Saginaw River and Saginaw Bay would allow for a more complete assessment of corrective action plans for the facility and identification of possible data gaps. MDEQ should modify the Operating License accordingly. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

**Response:** The operating license has not been revised in response to this comment. The information requested is to be developed by the licensee and submitted to the MDEQ for review and approval prior to initiation of investigation activities as part of the compliance schedule process. This process will allow for timelier issuance of the operating license which in turn will result in greater overall environmental protection.

**U.S. EPA Comment 128:** In addition to presenting proposed schedules for investigation and corrective action, this attachment should detail timing of environmental monitoring activities. Specifically, for each WMU being monitored, the attachment should indicate when sampling events are to be conducted (i.e., general time frames for upcoming sampling events repeatedly quarterly, annually, and every four years). This will ensure that the monitoring requirements are completed as outlined in the draft license, and will allow for timely allocation of resources needed for sampling, surveying, laboratory analysis, and regulatory agency review. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

**Response:** The operating license was not revised in response to this comment. Table 2 of the Sampling and Analysis Plan, Attachment 24 of the operating license contains the information requested by this comment.

**Dow Comment 4-13 on Attachment 28:** Dow is willing to promptly make any revisions to Attachment 28 that may be necessary to address these comments. If these comments require any changes to the Compliance Schedule (Attachment 28), Dow will work with the MDEQ to promptly make the appropriate revisions.

**Response:** The MDEQ acknowledges this comment and notes that Dow was cooperative in making the necessary revisions to Attachment 28.