



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

NOV 09 2007

REPLY TO THE ATTENTION OF  
AE-17J

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

David Graham, Vice President  
Environment, Health & Safety and Sustainability  
The Dow Chemical Company  
2040 Dow Center  
Midland, Michigan 48674

Dear Mr. Graham:

This is to advise you that the U. S. Environmental Protection Agency (EPA) has determined that *The Dow Chemical Company's (Dow) facility in Midland, Michigan is in violation of the Clean Air Act (CAA)*. A list of the requirements violated is provided below. We are today issuing to you a Finding of Violation (FOV) for these violations.

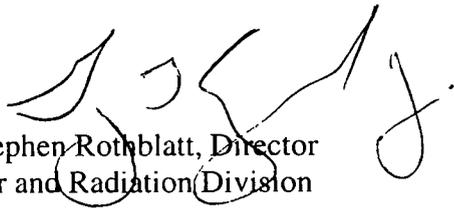
The CAA requires the development of standards for emissions of Hazardous Air Pollutants (HAP) to protect public health and welfare. To attain and maintain these standards, EPA promulgated Maximum Achievable Control Technology (MACT) standards set forth to address HAP emissions from various source categories. Of these MACT standards, Dow is in violation of the MACT standards that regulate HAP emissions from Polymer and Resin IV, Hazardous Organic National Emission Standards for Hazardous Air Pollutants (NESHAP), Pharmaceutical Productions, Pesticides Active Ingredient and Cellulose Ether Production.

Section 113 of the CAA gives us several enforcement options to resolve these violations, including: issuing an administrative compliance order, issuing an administrative penalty order, bringing a judicial civil action, and bringing a judicial criminal action. The option we select, in part, depends on the efforts taken by Dow to correct the alleged violations and the timeframe in which you can demonstrate and maintain continuous compliance with the requirements cited in the FOV.

Before we decide which enforcement option is appropriate, Section 113 of the CAA provides you with the opportunity to request a conference with us about the violations alleged in the FOV. This conference will provide you a chance to present information on the identified violations, any efforts you have taken to comply, and the steps you will take to prevent future violations. Please plan for your facility's technical and management personnel to take part in these discussions. You may have an attorney represent and accompany you at this conference.

The EPA contacts in this matter are Constantinos Loukeris and Kathy Memmos. You may call them at (312) 353-6198 and (312) 353-4293 respectively if you wish to request a conference. EPA hopes that this FOV will encourage Dow's compliance with the requirements of the CAA.

Sincerely yours,

  
Stephen Rothblatt, Director  
Air and Radiation Division

Enclosure

cc: Brad Fedorchak, The Dow Chemical Company  
Mark Reed, MDEQ  
Linda Tekrony, NEIC



## **Explanation of Violations**

### **National Emission Standards for Organic Hazardous Air Pollutants**

1. On April 22, 1994, EPA promulgated the National Emission Standards for Organic Hazardous Air Pollutants (NESHAP) for the Synthetic Organic Chemical Manufacturing Industry at 40 C.F.R. Part 63, Subpart F (59 Fed. Reg. 19454).
2. On April 22, 1994, EPA promulgated the NESHAP for the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater at 40 C.F.R. Part 63, Subpart G (59 Fed. Reg. 19468).
3. On April 22, 1994, EPA promulgated the NESHAP for Equipment Leaks at 40 C.F.R. Part 63, Subpart H (59 Fed. Reg. 19568).
4. On April 22, 1994, EPA promulgated the NESHAP for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks at 40 C.F.R. Part 63, Subpart I (59 Fed. Reg. 19587).
5. 40 C.F.R. Part 63, Subparts F, G, H, and I collectively are known as the Hazardous Organic NESHAP (HON). For the purposes of this FOV, the HON references will be specific to 40 C.F.R. Part 63, Subpart H.

### **Regulatory Requirements for the HON**

6. The following HON requirements are relevant to this FOV:
  - a. The HON, at 40 C.F.R. § 63.174(b)(1), states that the owner or operator shall monitor all connectors for each group of existing process units within an existing source, by no later than 12 months after the compliance date.
  - b. The HON, at 40 C.F.R. § 63.167(a)(1), states that each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve.
  - c. The HON, at 40 C.F.R. § 63.162(c), states that each piece of equipment in a process unit to which this subpart applies shall be identified such that it can be distinguished readily from equipment that is not subject to this subpart. Identification of the equipment does not require physical tagging of the equipment. For example, the equipment may be identified on a plant site plan, in log entries, or by designation of process unit boundaries by some form of weatherproof identification.
  - d. The HON, at 40 C.F.R. § 63.180(b)(1), states that monitoring shall comply with Method 21 of 40 C.F.R. Part 60, Appendix A.

- e. The HON, at 40 C.F.R. § 63.163(b)(1), states that the owner or operator of a process unit subject to this subpart shall monitor each pump monthly to detect leaks by the method specified in § 63.180(b) of this subpart and shall comply with the requirements of paragraphs (a) through (d) of this section.
- f. The HON, at 40 C.F.R. § 63.163(b)(3), states that each pump shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal. If there are indications of liquids dripping from the pump seal, a leak is detected.
- g. The HON, at 40 C.F.R. § 63.163(c)(1), states that when a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in paragraph (c)(3) of this section or § 63.171.
- h. The HON, at 40 C.F.R. § 63.181(c), states that for visual inspections of equipment subject to the provisions of this subpart (e.g., § 63.163(b)(3), § 63.163(e)(4)(i)), the owner or operator shall document that the inspection was conducted and the date of the inspection. The owner or operator shall maintain records as specified in paragraph (d) of this section for leaking equipment identified in this inspection, except as provided in paragraph (e) of this section. These records shall be retained for 2 years.
- i. The HON, at 40 C.F.R. § 63.161 defines repaired as equipment that is adjusted, or otherwise altered, to eliminate a leak as defined in the applicable sections of this subpart, and is monitored as specified in §63.180 (b) and (c), as appropriate, to verify that emissions from the equipment are below the applicable leak definition.

### **NESHAP for Group IV Polymers and Resins**

- 7. On September 12, 1996, EPA promulgated the NESHAP for Group IV Polymers and Resins (P&R IV) at 40 C.F.R. Part 63, Subpart JJJ (61 Fed. Reg. 48229).

### **Regulatory Requirements NESHAP for P&R IV**

- 8. The following P&R IV requirements are relevant to this FOV:
  - a. The P&R IV, at 40 C.F.R. § 63.1333(a)(5), states that performance tests shall be performed no later than 150 days after the compliance dates specified in this subpart.
  - b. The P&R IV, at 40 C.F.R. § 63.1331(a), states that the owner or operator of each affected source shall comply with the requirements of subpart H of this part.

## **NESHAP for Pharmaceuticals Production**

9. The NESHAP for Pharmaceuticals Production (Pharma) was proposed on April 2, 1997 (62 Fed. Reg. 15754 to 15764) and became final on September 21, 1998 (63 Fed. Reg. 50280 to 50326).

### **Regulatory Requirements for Pharma**

10. The following Pharma requirements are relevant to this FOV:
  - a. The Pharma, at 40 C.F.R. § 63.1255(b)(4)(iii) states the Section 63.174 shall apply except: Section 63.174(f), (g), and (h) shall not apply. Instead of § 63.174(f), (g), and (h), the owner or operator shall comply with paragraph (f) of this section. Section 63.174(b)(3) shall not apply. Instead of § 63.174(b)(3), the owner or operator shall comply with paragraphs (b)(4)(ii)(B) through (F) of this section.

## **NESHAP for Pesticide Active Ingredient Production**

11. On June 23, 1999, EPA promulgated the NESHAP for Pesticide Active Ingredient Production (PAI) at 40 C.F.R. Part 63, Subpart MMM (64 Fed. Reg. 33589).

### **Regulatory Requirements for PAI**

12. The following PAI requirements are relevant to this FOV:
  - a. The PAI, at 40 C.F.R. § 63.1363(b)(3)(iii), states that § 63.174 shall apply for connectors.

## **NESHAP for Cellulose Products Manufacturing**

13. On June 11, 2002, EPA promulgated the NESHAP for Cellulose Products Manufacturing (Cellulose) at 40 C.F.R. Part 63, Subpart UUUU (67 Fed. Reg. 40055).

### **Regulatory Requirements for Cellulose**

14. The following Cellulose requirements are relevant to this FOV:
  - a. The Cellulose, at 40 C.F.R. § 63.5485(d)(1), states that for cellulose ether operation, the applicability provisions in §§ 63.100(a) through (f) and 63.160 apply if you are complying with the equipment leak provisions of subpart H of this part.

## HON Violations

15. Based on a multimedia inspection conducted by EPA in October 2005 and July 25, 2006 through August 4, 2006 at Dow's facility and Dow's 2004, 2005 and 2006 Annual Renewable Operating Permit Deviation Reports, EPA has determined that Dow is in violation of the following HON requirements at its facility:
- a. Dow failed to cap, blind flange, plug or install a second valve on at least seven open-ended lines at the time of the July 2006 multimedia inspection, as required by 40 C.F.R. § 63.167(a)(1). This includes two open-ended lines in the HIPS process, one in the Low Gloss process, two in the Tyril process, and two in the 948 building.
  - b. From June 19, 2001 to the present, Dow failed to identify at least seventeen (17) valves at the Low Gloss AB process in its HON leak detection and repair (LDAR) program as required by 40 C.F.R. § 63.162(c) and 63.1331(a).
  - c. From June 13, 2005 to the present, Dow failed to identify at least three (3) valves and fifteen (15) connectors at the METHOCEL process located at V-1019 in its HON LDAR program as required by 40 C.F.R. § 63.162(c) and 63.5485(d)(1).
  - d. Dow failed to find the maximum leak rate during monitoring for leaks at connectors, valves and agitators and thus failed to comply with the monitoring requirements of Method 21 of 40 C.F.R. Part 60, Appendix A, and 40 C.F.R. § 63.180(b)(1). During the July 2006 inspection, EPA found component leak percentages in excess of three times Dow's recorded rates. Table 1 identifies the process unit equipment and compares the number and percentage of leaks found by Dow and EPA for the same components.

Table 1 Comparative Monitoring Analysis

Unit Description	Component Type	Dow Results (#Leaks/ #Monitored – Leak Percentage)	Dow Monitoring Month	NEIC Results (#Leaks/ #Monitored – Leak Percentage)
ABS Latex	Connectors	0/234 – 0%	Jan-06	2/485 – 0.41%
Ethocel	Valves	1/1140 – 0.09%	Jul-05	9/542 – 1.66%
LowGloss AB	Connectors	0/972 – 0%	Mar-05	2/656 – 0.3%
LowGloss AB	Valves	4/2337 – 0.17%	Jan-06	4/521 – 0.77%
Polystyrene	Agitators	0/5 – 0%	Jun-06	3/5 – 60%
Tyril	Connectors	0/1198 – 0%	Feb-05	10/692 – 1.45%

EPA identified numerous issues associated with Dow's LDAR monitoring program which may prevent the company from finding leaks including:

- i. Length of probe/water trap interference: Dow monitoring technicians use an external water trap on the analyzer probe tip to prevent moisture from entering the analyzer. However, the placement of the water trap is such

that the technicians are prevented from accessing the leak interface on many components for monitoring, as required by Method 21.

- ii. Access to leak interface on valves due to insulation: Dow has insulated many high- and low-temperature process lines, and has not provided access holes for monitoring technicians to perform monitoring at the component leak interface at many components.
  - iii. Method 21 monitoring: Method 21 requires the monitoring technician to find the location of the maximum leak, and remain at this location approximately twice the instrument response time. Dow's monitoring technicians may not spend enough time monitoring at each location where leakage could occur to determine if a leak is present.
- e. From 2004 to 2006, Dow failed to equip 74 open-ended lines with a cap, blind flange, plug or second valve, as required by 40 C.F.R. § 63.167(a)(1). See Attachment A.
  - f. During 2004, Dow failed to equip 1,581 open-ended lines, some of which may have been in HAP service, with a cap, blind flange, plug or second valve, as required by 40 C.F.R. § 63.167(a)(1).
  - g. For several months prior to January 1, 2006, Dow failed to monitor four pumps in HAP service using Method 21 to detect leaks at the METHOCEL Cellulose Ether Plant, as required by 40 C.F.R. § 63.5485(d)(1) and 40 C.F.R. § 63.163(b)(1).
  - h. Dow failed to monitor one pump from October 2005 through March 2006 at the METHOCEL Cellulose Ether Plant, as required by 40 C.F.R. § 63.5485(d)(1) and 40 C.F.R. § 63.163(b)(1).
  - i. On or about April 17, 2006, Dow failed to monitor and verify within 15 days that emissions from a repaired leak were below the applicable leak definition and thus failed to "repair" a leak within the meaning of 40 C.F.R. § 63.161 and as required by 40 C.F.R. § 63.163(c)(1).
  - j. Between January 1, 2006 and February 28, 2006, Dow failed to complete two weekly visual inspections of three pumps in the 477 Building, as required by 40 C.F.R. § 63.163(b)(3).
  - k. Dow has failed to document weekly visual inspections of at least one pump in the 954 Building and 599 Building for the weeks of January 15 through January 21, 2006, March 12 through March 18, 2006 and April 16 through April 22, 2006, as required by 40 C.F.R. § 63.181(c).

- l. Dow failed to monitor 6,698 screw connectors at the following Buildings: 1, 827, 1200, 963, 458, and the Pilot Plant (PHARMAPILO) within 12 months of October 21, 2002, as required by 40 C.F.R. § 63.1255(b)(4)(iii) and 40 C.F.R. § 63.174(b)(1). Dow performed initial monitoring of the 6,698 screw connectors in 2006.
- m. Dow failed to monitor 1,749 screw connectors at the following Buildings: Garlon, 1028, 680, 858, and 948 within 12 months past December 23, 2003, as required by 40 C.F.R. § 63.1363(b)(3)(iii) and 40 C.F.R. § 63.174(b)(1). Dow performed initial monitoring of the 1,749 screw connectors in 2006.

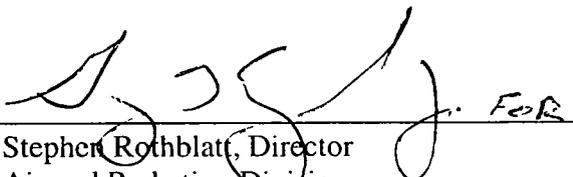
**P&R IV Violation**

16. Based on a March 2007 EPA Region 5 Air inspection at Dow's facility, EPA has determined that Dow is in violation of the following P&R IV requirement at its facility:
  - a. Dow has failed to perform a performance test at its ABS Latex's thermal incinerator 7101 which was due no later than 150 days of June 19, 2001 as required at 40 C.F.R. § 63.1333(a)(5).

**Environmental Impact of Violations**

13. Violation of the above MACT standards increases public exposure to HAP emissions, including, but not limited to, ethyl chloride, toluene, ethylene, perchloroethylene, methanol, and hydrogen chloride. Organic HAPs are major precursors in the formation of atmospheric level ozone, a photochemical oxidant associated with a number of detrimental health and environmental effects. In the presence of sunlight, and influenced by a variety of meteorological conditions, HAPs react with oxygen in the air to produce ozone.
14. Ozone is one of six listed criteria pollutants targeted for control under the Clean Air Act by the establishment of a National Ambient Air Quality Standard. Its human health impact is on respiratory function, even among healthy individuals. Accompanying symptoms from exposure may include sore throat, tightness or pain on breathing, coughing and headache. Aside from its human health impact, ozone can prove harmful to crops and vegetation and can cause materials such as rubber to prematurely degrade.

11/9/07  
Date

  
Stephen Rothblatt, Director  
Air and Radiation Division

## Attachment A

### 2004, 2005 and 2006 Annual Renewable Operating Permit Deviation Reports Open-Ended Lines

Year	Emission Unit or Building No. (Process)	Number of Open-Ended Lines
2004	EG85 (Cellulose)	3
2004	FGRULE290 (Renagel)	6
2004	EG77 (Polyglycol & Oxygenated Solvents)	2
2004	EG13 (Pesticides)	12
2004	EG11 (Pesticides)	1
2004	FGRULE290/599 Building	3
2004	EG49 (R&D)	3
2004	EGB1 (SB Latex)	2
2004	EG38 (SAN process)	4
2004	EG30 (ABS Latex)	2
2005	FGRULE290 (477 Building)	2
2005	EG77 (Oxide Derivates)	1
2005	EG49/684 Building (R&D)	1
2005	EG13 (Pesticides)	3
2005	EGB5 (Ethocel)	7
2005	EG32INCINERATOR	5
2005	EG49 (R&D)	5
2006	EGB2 (Methocel)	4
2006	EGB5 (Ethocel)	3
2006	EGB2 (Methocel)	1
2006	EG12 (Phenoxy Herbicides)	1
2006	EG31 (Low Gloss ABS)	1
2006	EG13 (Pesticides)	1
2006	EG30 (ABS Latex)	1
	<b>Total:</b>	<b>74</b>

## CERTIFICATE OF MAILING

I, Shanee Rucker, certify that I sent a Notice and Finding of Violation, No. EPA-5-08-MI-01, by Certified Mail, Return Receipt Requested, to:

David Graham, Vice President  
Environment, Health & Safety and Sustainability  
The Dow Chemical Company  
2040 Dow Center  
Midland, Michigan 48674

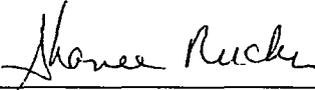
I also certify that I sent copies of the Finding of Violation and Notice of Violation by first class mail to:

Mark Reed, District Supervisor  
Michigan Department of Environmental Quality – Air Quality Division  
Saginaw Bay District Office  
503 N. Euclid Avenue  
Bay City, Michigan 48706-2965

Linda Tekrony  
National Enforcement Investigation Center  
Building 25 E  
Denver Federal Center  
Denver, Colorado 80225

Brad Fedorchak, EH&S Director  
Dow Chemical Company  
Michigan Operations  
1261 Building  
Midland, Michigan 48667

on the 9<sup>th</sup> day of November, 2007.

  
\_\_\_\_\_  
Shanee Rucker  
Administrative Assistant  
AECAS (MI/WI)

CERTIFIED MAIL RECEIPT NUMBER: 700103200006 0198 9123