INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

TO: Interested Parties / Applicant

DATE: February 17, 2009

RE: Ashland, Inc. / 141-27460-00125

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Notice of Decision – Approval

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to 326 IAC 2, this approval was effective immediately upon submittal of the application.

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days from the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for considerations at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER-AM.dot12/3/07

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Linda Denison
Ashland, Inc.
5200 Blazer Parkway
Dublin, Ohio 43017

February 17, 2009

Re: Exempt Operation Status,
141-27460-00125

Dear Linda Denison:

The application from Ashland, Inc., received on January 23, 2009, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following stationary soil and groundwater remediation system at a former chemical and solvent storage and distribution source located at 1817 W. Indiana Avenue, South Bend, Indiana 46613 is classified as exempt from air pollution permit requirements:

(a) One (1) soil vapor extraction and air sparging system, identified as SVE-AS, with a capacity of six (6) wells.

(b) One (1) natural gas-fired boiler, constructed in 2005, heat input capacity: 0.245 million British thermal units per hour.

(c) Three (3) natural gas-fired water heaters, constructed in 1982, heat input capacity: 1.388 million British thermal units per hour, total.

(d) Two (2) natural gas-fired space heaters, capacity: 0.175 million British thermal units per hour, total.

(e) Paved and unpaved roads and parking lots with public access.

(f) Underground storm water tank.

(g) Blowdown for any of the following: sight glass; boiler; compressors; pumps; and cooling tower.

The following conditions shall be applicable:

1. Pursuant to 326 IAC 6-2-4(a), the PM emissions from the natural gas-fired boiler shall be limited to 0.6 pounds per million British thermal unit heat input.

A copy of the Exemption is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source. If you have any questions on this matter, please contact Anne-Marie C. Hart, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, at 317-234-5174 or at 1-800-451-6027 (ext 4-5174).

Sincerely,

Alfred C. Dumaual, Ph. D., Section Chief
Permits Branch
Office of Air Quality

ACD/ACH

cc: File - St. Joseph County
St. Joseph County Health Department
Air Compliance Section
IDEM Northern Regional Office
Compliance Data Section
Permits Administrative and Development
Billing, Licensing and Training Section

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a FESOP Transitioning to an Exemption

Source Description and Location

Source Name:	**Ashland, Inc.**
Source Location:	**1817 W. Indiana Ave., South Bend, IN 46613**
County:	**St. Joseph**
SIC Code:	**4959**
Exemption No.:	**141-27460-00125**
Permit Reviewer:	**Anne-Marie C. Hart**

On January 23, 2009, the Office of Air Quality (OAQ) received an application from Ashland, Inc. related to the transition of a FESOP to an Exemption and the revocation of the existing FESOP F141-23556-00125. The source has ceased operation of the chemical and solvent storage and distribution operation listed in the FESOP Renewal F141-23556-00125, issued December 26, 2007. The source will continue to operate a soil and groundwater remediation system.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

(a) FESOP No. F141-5525-00125, issued on December 9, 1996.

(b) Administrative Amendment No. 141-12345-00125, issued on July 7, 2000.

(c) FESOP Renewal No. F141-14139-00125, issued May 24, 2002.

(d) Administrative Amendment No. 141-18277-00125, issued November 5, 2003.

(e) Administrative Amendment No. 141-20144-00125, issued December 9, 2004.

(f) Administrative Amendment No. 141-20872-00125, issued March 18, 2005.

(g) FESOP Renewal No. 141-23556-00125, issued December 26, 2007.

Due to this application, the source is transitioning from a FESOP to an Exemption.

County Attainment Status

The source is located in St. Joseph County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Attainment effective July 19, 2007, for the 8-hour ozone standard.[1]
PM_{10}	Unclassifiable effective November 15, 1990.
NO_2	Cannot be classified or better than national standards.
Pb	Not designated.

[1]Attainment effective October 18, 2000, for the 1-hour ozone standard for the South Bend-Elkhart area, including St. Joseph County, and is a maintenance area for the 1-hour ozone National Ambient Air Quality Standards (NAAQS) for purposes of 40 CFR 51, Subpart X*. The 1-hour standard was revoked effective June 15, 2005.
Unclassifiable or attainment effective April 5, 2005, for PM2

(a) Ozone Standards
Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to ozone. St. Joseph County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) PM2.5
St. Joseph County has been classified as attainment for PM2.5. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM2.5 emissions, and the effective date of these rules was July 15, 2008. Indiana has three years from the publication of these rules to revise its PSD rules, 326 IAC 2-2, to include those requirements. The May 8, 2008 rule revisions require IDEM to regulate PM10 emissions as a surrogate for PM2.5 emissions until 326 IAC 2-2 is revised.

(c) Other Criteria Pollutants
St. Joseph County has been classified as attainment or unclassifiable in Indiana for all regulated criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

The fugitive emissions of criteria pollutants and hazardous air pollutants are counted toward the determination of 326 IAC 2-1.1-3 (Exemptions) applicability.

Background and Description of Emission Units and Pollution Control Equipment

The Office of Air Quality (OAQ) has reviewed an application, submitted by Ashland, Inc. on January 23, 2009, relating to the revocation of the FESOP Renewal F141-23556-00125, issued December 26, 2007, and the issuance of an Exemption. The source will continue to operate a soil and groundwater remediation system

The source consists of the following existing emission units:

(a) One (1) soil vapor extraction and air sparging system, identified as SVE-AS, with a capacity of six (6) wells.

(b) One (1) natural gas-fired boiler, constructed in 2005, heat input capacity: 0.245 million British thermal units per hour.

(c) Three (3) natural gas-fired water heaters, constructed in 1982, heat input capacity: 1.388 million British thermal units per hour, total.

(d) Two (2) natural gas-fired space heaters, capacity: 0.175 million British thermal units per hour, total.

(e) Paved and unpaved roads and parking lots with public access.

(f) Underground storm water tank.

(g) Blowdown for any of the following: sight glass; boiler; compressors; pumps; and cooling tower.

Enforcement Issues

There are no pending enforcement actions related to this source.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – Exemption

The following table reflects the unlimited potential to emit (PTE) of the entire source before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/ Emission Unit	Potential To Emit of the Entire Source (tons/year)								
	PM	PM10 *	PM2.5	SO_2	NOx	VOC	CO	Total HAPs	Worst Single HAP
Natural Gas Combustion	0.02	0.07	0.07	0.25	0.87	0.05	0.73	0.02	0.02 Hexane
Remediation System	0.00	0.00	0.00	0.00	0.00	7.14	0.00	5.43	2.21 1,1,1 - Trichloroethane
Paved and Unpaved Roads	0.14	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Total PTE of Entire Source	**0.16**	**0.11**	**0.11**	**0.25**	**0.87**	**7.19**	**0.73**	**5.45**	**2.21** 1,1,1 - Trichloroethane
Exemptions Levels	5	5	5	10	10	10	25	25	10
Registration Levels	25	25	25	25	25	25	100	25	10

* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant".

(a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of all regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3 (Exemptions).

(b) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-7.

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

(a) The requirements of the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc (326 IAC 12), are not included in the permit, since the boiler, constructed in 2005, has a maximum design rated heat capacity less than 10 MMBtu per hour.

(b) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

(c) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Site Remediation, 40 CFR 63, Subpart GGGGG (326 IAC 20-87), are not included in the permit, since the soil vapor extraction and air sparging system, identified as SVE-AS, is not located at a major source of HAPs.

(d) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

Compliance Assurance Monitoring (CAM)

(e) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, because the unlimited potential to emit of the source is less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

State Rule Applicability Determination

(a) 326 IAC 2-1.1-3 (Exemptions)
Exemption applicability is discussed under the Permit Level Determination – Exemption section above.

(b) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-4.1.

(c) 326 IAC 2-6 (Emission Reporting)
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.

(d) 326 IAC 5-1 (Opacity Limitations)
Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(1) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

(e) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

(f) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
The source is not subject to the requirements of 326 IAC 6-5, because the source does not have potential fugitive particulate emissions greater than 25 tons per year. Therefore, 326 IAC 6-5 does not apply.

(g) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Each of the emission units at this source is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each emission unit is less than twenty-five (25) tons per year.

Natural Gas-Fired Boiler

(h) 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating)
The natural gas-fired boiler, rated at 0.245 MMBtu per hour and constructed in 2005 is subject to 326 IAC 6-2-4. Pursuant to 326 IAC 6-2-4, for a total source maximum operating capacity rating less than 10 mmBtu per hour, Pt shall not exceed 0.6 pounds per MMBtu. The potential PM emissions from the natural gas-fired boiler are 0.002 lb/MMBtu. Therefore, the natural gas-fired boiler is able to comply with this limit.

(i) 326 IAC 6-2-3 (Particulate Emission Limitations for Sources of Indirect Heating)
The three (3) natural gas-fired water heaters are subject to 326 IAC 6-2-3. Pursuant to 326 IAC 6-2-3(e), particulate emissions from each heater shall not exceed 0.6 pounds per MMBtu.

Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on January 23, 2009.

The operation of this source shall be subject to the conditions of the attached proposed Exemption No. 141-27460-00125. The staff recommends to the Commissioner that this Exemption be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Anne-Marie C. Hart at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate

Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5174 or toll free at 1-800-451-6027 extension 4-5174.

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

Appendix A: Emissions Calculations
Emissions Summary

Company Name: **Ashland Inc.**
Address City IN Zip: **1817 West Indiana Ave., South Bend, IN 46613**
Exemption Number: **141-27460-00125**
Reviewer: **Anne-Marie C. Hart**
Date: **February 5, 2009**

Process/Emission Unit	Tons/Year									
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Worst-Case Individual HAP	
Natural Gas Combustion	0.02	0.07	0.07	0.25	0.87	0.05	0.73	0.02	0.02	Hexane
Remediation System	0.00	0.00	0.00	0.00	0.00	7.14	0.00	5.43	2.21	1,1,1 - Trichloroethane
Unpaved Roads	0.11	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	
Paved Roads	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
Total	**0.02**	**0.07**	**0.07**	**0.25**	**0.87**	**7.19**	**0.73**	**5.45**		

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: Ashland Inc.
Address City IN Zip: 1817 West Indiana Ave., South Bend, IN 46613
Exemption Number: 141-27460-00125
Reviewer: Anne-Marie C. Hart
Date: February 5, 2009

Unit	Capacity
Boiler	0.245
Water Heater 1	1.308
Water Heater 2	0.04
Water Heater 3	0.04
Space Heaters	0.175
Space Heaters	0.175

Total Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
2.0	17.4

	Pollutant					
	PM*	PM10/PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	28.5	100 **see below	5.5	84
Potential Emission in tons/yr	0.02	0.07	0.25	0.87	0.05	0.73

*PM emission factor is filterable PM only. PM10/PM2.5 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.824E-05	1.042E-05	6.514E-04	1.563E-02	2.953E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	4.343E-06	9.554E-06	1.216E-05	3.301E-06	1.824E-05

Total HAPs: **0.02**

Methodology is the same as above.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
VOC and HAPs Emissions
Remediation Emissions
Company Name: Ashland Inc.
Address City IN Zip: 1817 West Indiana Ave., South Bend, IN 46613
Exemption Number: 141-27460-00125
Reviewer: Anne-Marie C. Hart
Date: February 5, 2009

Chemical Name	CAS No.	Worst-Case Emissions (lb/day)	Worst-Case Emissions (lb/year)	Worst-Case Emissions (tons/year)
Vinyl Chloride*	75-01-4	0.90	328.50	0.16
1,1-Dichloroethylene*	75-35-4	0.18	65.70	0.03
trans-1,2-Dichloroethylene	156-60-5	0.25	91.25	0.05
1,1-Dichloroethane*	75-34-3	1.48	540.20	0.27
cis-1,2- Dichloroethylene	156-59-2	9.11	3325.15	1.66
Chloroform*	67-66-3	0.16	58.40	0.03
1,1,1-Trichloroethane*	71-55-6	12.10	4416.50	2.21
Trichloroethylene*	79-01-6	0.32	116.80	0.06
Toluene*	108-88-3	6.97	2544.05	1.27
1,1,2-Trichloroethane*	79-00-5	0.42	153.30	0.08
Tretrachloroethylene*	127-18-4	1.01	368.65	0.18
Ethylbenzene*	100-41-4	3.02	1102.30	0.55
Xylene (mixed isomers)*	1330-20-7	3.19	1164.35	0.58
Total		**39.11**	**14,275.15**	**7.14**
Total HAPs		**29.75**	**10,858.75**	**5.43**

Worst-Case Emissions based on sample data provided by the Source
* Indicates HAP

Appendix A: Emission Calculations
Fugitive Dust Emissions - Unpaved Roads

Company Name: Ashland Inc.
Address City IN Zip: 1817 West Indiana Ave., South Bend, IN 46613
Exemption Number: 141-27460-00125
Reviewer: Anne-Marie C. Hart
Date: February 5, 2009

Unpaved Roads at Industrial Site

The following calculations determine the amount of emissions created by unpaved roads, based on 8,760 hours of use and AP-42, Ch 13.2.2 (12/2003).

Vehicle Information (provided by source)

Type	Maximum number of vehicles	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle (entering plant) (one-way trip	1.0	1.0	1.0	40.0	40.0	300	0.057	0.1	20.7
Vehicle (leaving plant) (one-way trip)	1.0	1.0	1.0	40.0	40.0	300	0.057	0.1	20.7
		Total	**2.0**		**80.0**			**0.1**	**41.5**

Average Vehicle Weight Per Trip = 40.0 tons/trip
Average Miles Per Trip = 0.06 miles/trip

Unmitigated Emission Factor, Ef = k*[(s/12)^a]*[(W/3)^b] (Equation 1a from AP-42 13.2.2)

	PM	PM10	
where k =	4.9	1.5	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant Road)
a =	0.7	0.9	= constant (AP-42 Table 13.2.2-2)
W =	40.0	40.0	tons = average vehicle weight (provided by source)
b =	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [(365 - P)/365]
Mitigated Emission Factor, Eext = E * [(365 - P)/365]
where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	
Unmitigated Emission Factor, Ef =	8.28	2.11	lb/mile
Mitigated Emission Factor, Eext =	5.44	1.39	lb/mile
Dust Control Efficiency =	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)
Vehicle (entering plant) (one-way trip	0.09	0.02	0.06	0.01	0.03	0.01
Vehicle (leaving plant) (one-way trip)	0.09	0.02	0.06	0.01	0.03	0.01
	0.17	**0.04**	**0.11**	**0.03**	**0.06**	**0.01**

Methodology

Total Weight driven per day (ton/day)	= [Maximum Weight Loaded (tons/trip)] * [Maximum trips per day (trip/day)]
Maximum one-way distance (mi/trip)	= [Maximum one-way distance (feet/trip) / [5280 ft/mile]
Maximum one-way miles (miles/day)	= [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip)	= SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
Average Miles Per Trip (miles/trip)	= SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
Unmitigated PTE (tons/yr)	= (Maximum one-way miles (miles/yr)) * (Unmitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Mitigated PTE (tons/yr)	= (Maximum one-way miles (miles/yr)) * (Mitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Controlled PTE (tons/yr)	= (Mitigated PTE (tons/yr)) * (1 - Dust Control Efficiency)

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PTE = Potential to Emit

Appendix A: Emission Calculations
Fugitive Dust Emissions - Paved Roads

Company Name: Ashland Inc.
Address City IN Zip: 1817 West Indiana Ave., South Bend, IN 46613
Exemption Number: 141-27460-00125
Reviewer: Anne-Marie C. Hart
Date: February 5, 2009

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (12/2003).

Vehicle Information (provided by source)

Type	Maximum number of vehicles	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle (entering plant) (one-way trip	1.0	1.0	1.0	40.0	40.0	300	0.057	0.1	20.7
Vehicle (leaving plant) (one-way trip)	1.0	1.0	1.0	40.0	40.0	300	0.057	0.1	20.7
		Total	**2.0**		**80.0**			**0.1**	**41.5**

Average Vehicle Weight Per Trip = 40.0 tons/trip
Average Miles Per Trip = 0.06 miles/trip

Unmitigated Emission Factor, Ef = [k * (sL/2)^0.65 * (W/3)^1.5 - C] (Equation 1 from AP-42 13.2.1)

	PM	PM10	
where k =	0.082	0.016	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	40.0	40.0	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	0.6	0.6	g/m^2 = Ubitiguous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer months)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [1 - (p/4N)]
Mitigated Emission Factor, Eext = Ef * [1 - (p/4N)]
where p = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N = 365 days per year

	PM	PM10	
Unmitigated Emission Factor, Ef =	1.82	0.36	lb/mile
Mitigated Emission Factor, Eext =	1.67	0.33	lb/mile
Dust Control Efficiency =	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)
Vehicle (entering plant) (one-way trip	0.02	0.00	0.02	0.00	0.01	0.00
Vehicle (leaving plant) (one-way trip)	0.02	0.00	0.02	0.00	0.01	0.00
	0.04	**0.01**	**0.03**	**0.01**	**0.02**	**0.00**

Methodology

Total Weight driven per day (ton/day) = [Maximum Weight Loaded (tons/trip)] * [Maximum trips per day (trip/day)]
Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip) / [5280 ft/mile]
Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
Unmitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Unmitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Controlled PTE (tons/yr) = [Mitigated PTE (tons/yr)] * [1 - Dust Control Efficiency]

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PTE = Potential to Emit