073-48036-00035

MA 39600

June 27, 2024

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, IN 46204-2251

RE: ***FESOP Administrative Amendment***
Bayer Great Lakes Production Co., LLC – Remington, IN

To Whom It May Concern,

Bayer Great Lakes Production Co., LLC (Bayer) is proposing to remove a small lot bagging operation, increase the throughput capacity of some treaters, and correct permit language for Bayer's hybrid grain seed processing plant located at 15849 South U.S. Highway 231 in Remington, Indiana (Remington Plant). The Remington Plant currently operates under a Federally Enforceable State Operating Permit (FESOP) No. F073-44825-00035 issued by IDEM on June 14, 2022, and last modified on January 18, 2023 (SPR No. 073-45892-00035). Bayer is requesting the Indiana Department of Environmental Management process this change as an Administrative Amendment.

Bayer
15849 S US HWY 231/PO BOX 35
REMINGTON, IN 47977 USA
Tel. +1 219 261 2122
Fax +1 219 261 3681
www.bayer.com

The enclosed application includes a complete description of the facility, regulatory applicability analyses, and all required application forms.

If you have any questions regarding the information contained in this application, please feel free to contact Anthony Lanoue at (219) 261-4106 or Emily Stewart of Trinity Consultants at (317)-451-8102.

Sincerely,

Bayer Great Lakes Production Co., LLC

Melissa Wienke
Site Lead

Enclosure

CC: Anthony Lanoue (Bayer Great Lakes Production Co., LLC)
Emily Stewart (Trinity Consultants)

FESOP ADMINISTRATIVE AMENDMENT APPLICATION

Bayer Great Lakes Production Co., LLC / Remington, Indiana

Prepared By:

TRINITY CONSULTANTS
8900 Keystone Crossing
Suite 1070
Indianapolis, IN 46240
(317) 451-8100

June 2024

Project 241501.0069

Trinity Consultants

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1. SUMMARY

Bayer Great Lakes Production Co., LLC (Bayer) operates a hybrid grain seed processing plant located in Remington, Indiana (Remington Plant). The Remington Plant currently operates under a Federally Enforceable State Operating Permit (FESOP) No. F073-44825-00035 issued by IDEM on June 14, 2022, and last modified on January 18, 2023 (SPR No. 073-45892-00035). Bayer is proposing to remove a small lot bagging operation, increase the throughput capacity of some treaters, and update permit language for emission units at the Remington Plant. State forms are included in Appendix A and potential to emit (PTE) calculations are included in Appendix B.

1.1 Facility Description

The Remington Plant is a hybrid grain seed processing plant located at 15849 South U.S. Highway 231 in Remington, Indiana.

The Remington plant is located in Jasper County, which has been designated as attainment for all criteria pollutants[1]. The Remington Plant is an existing minor source under the Prevention of Significant Deterioration (PSD) permitting program and an area source of hazardous air pollutants (HAPs). The Remington Plant is not one of the 28 major stationary source categories specified in 326 IAC 2-2-1(ff)(1).

[1] 326 IAC 1-4-25.

2. FESOP PERMIT UPDATES

This section describes the updates Bayer's requests IDEM make to the Remington Plant's FESOP. Proposed language appears in bold and deleted language appears in strikethrough, as follows.

Bayer is proposing to replace the collars of the existing treaters at the Remington Plant, identified as Treaters 1, 2, and 3. This change will result in an increase of the maximum hourly throughput of these units. This will not change the limited throughput of the treaters currently permitted in the FESOP, nor will it affect limited or potential throughputs of any upstream or downstream emission units. Only the uncontrolled PTE of the treaters will be affected by this change. Bayer requests that IDEM change the following emission unit descriptions in section A.2(e)(2)-(3) as indicated below

> (2) One (1) treater, identified as Treater 3, constructed in 1994 and modified in 2005, with a maximum capacity of ~~500~~ **600** bushels (~~84,000~~ **33,600** pounds) of shelled grain per hour, using a baghouse, identified as Red Dust Collector, as control, and exhausting indoors.
>
> (3) Two (2) treaters, identified as Treater 1 and 2, constructed in 2007, with a maximum capacity of ~~1,000~~ **1,200** bushels (~~56,000~~ **67,200** pounds) of shelled grain per hour, total, using a baghouse, identified as Red Dust Collector, as control, and exhausting indoors

Bayer wants to correct the maximum capacities of emission units to be consistent with the current operations at the Remington Plant. Bayer is not making any physical modifications to these emission units. The emission unit is currently permitted at 78,000 pounds of seed grain per hour, thus the potential to emit will not change. Bayer requests that IDEM make the following corrections to section A.2(e) of the operating permit:

> (5) One (1) bagging machine, identified as EU12, approved in 2022 for construction, with a maximum capacity of ~~341,640~~ **78,000** pounds of seed grain per hour, using a baghouse, identified as CE14, as control, and exhausting to stack 14.

Bayer plans to remove the existing CBT-100 treater at the Remington Plant. Bayer requests that IDEM remove the following emission unit from section A.2(e)(10) as indicated below.

> (10) One (1) small lot bagging operation, constructed in 2005 and modified in 2013, and approved in 2022 for modification, consisting of a debagger, identified as small lot debagger EU106, ~~a CBT-100 treater, identified as EU102,~~ an aspirator, identified as EU103, and a bagging unit, identified as EU104, with a maximum capacity of 1,000 bushels (56,000 pounds) per hour, total, using a baghouse, identified as Small Lot Line Dust Collector, as control, and exhausting indoors.

Bayer currently has a Husk Chopper included in the emission calculations included in Appendix A of the permit. Bayer requests that IDEM add the Husk Chopper to Section A.2(e) of the permit as follows:

> (11) One (1) Husk Chopper with a maximum capacity of 500 bushels (28,000 pounds) of shelled grain per hour.

3. EMISSION CALCULATIONS

The proposed modification to increase the throughput capacity of Treaters 1-3 at the Remington Plant has the potential to emit particulate matter (PM), particulate matter with an aerodynamic diameter of less than 10 microns (PM_{10}), and particulate matter with an aerodynamic diameter of less than 2.5 microns ($PM_{2.5}$). Table 3-1 below outlines the increase in the potential to emit from the treaters after the proposed modification. Pursuant to 326 IAC 2-8-11.1(d), Bayer is requesting IDEM to include the proposed emission units in the FESOP as an administrative amendment

Table 3-1. Unlimited PTE from Proposed Emission Units

	Unlimited/Uncontrolled Potential to Emit (tons/year)		
Emission Unit	**PM**	**PM10**	**PM2.5**
Modified/Replaced Units			
Treaters 1-3	2.24	1.25	0.21
Total	2.24	1.25	0.21
Minor Modification Threshold[1]	5	5	5
Minor Modification Required?	No	No	No

[1] Minor Source Thresholds from 326 IAC 2-7-10.5(e)

Table 3-2 below shows the total facility-wide emissions after the proposed removal of the CBT-100 treater identified as EU102, increased capacity of Treaters 1-3, and correction to emission unit descriptions as requested in Section 2. The total emissions are below the Part 70 (Title V) Operating Permit thresholds; therefore, the Remington Plant will remain a FESOP after the proposed project.

Table 3-2. Facility Wide Limited Emissions

Emission Unit	Limited Potential to Emit (tons/year)									
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Single HAP	
Non-Fugitive Emissions										
Corn Receiving 1, 2, 3, & 4	3.15	0.70	0.12	-	-	-	-	-	-	-
New Direct Harvest Receiving				-	-	-	-	-	-	-
Husking 1, 2, 3 & 4	5.49	3.06	0.52	-	-	-	-	-	-	-
Dryers 3, 4, 5 & 6 (Grain Drying)	42.30	10.80	1.80	-	-	-	-	-	-	-
Dryers 3, 4, 5, and 6 (combustion)	1.07	4.28	4.28	0.34	56.35	3.10	47.33	1.06	1.01	Hexane
Sheller 1	0.96	0.96	0.96	-	-	-	-	-	-	-
Sheller 2	0.96	0.96	0.96	-	-	-	-	-	-	-
Sheller 3	0.96	0.96	0.96	-	-	-	-	-	-	-
Sheller Aspirators 1 & 2	3.66	2.04	0.35	-	-	-	-	-	-	-
Sheller Aspirators 3 & 4	3.66	2.04	0.35	-	-	-	-	-	-	-
248 Bulk Storage Bins	1.50	0.38	0.07	-	-	-	-	-	-	-
New Direct Harvest Storage (6)	2.25	0.57	0.10	-	-	-	-	-	-	-
Loadout Aspirator 1	3.66	2.04	0.35	-	-	-	-	-	-	-
Shelled Grain Loadout	5.16	1.74	0.29	-	-	-	-	-	-	-
4 Shelled Grain Loadout Bins	1.50	0.38	0.07	-	-	-	-	-	-	-
4 Cob Loadout Bins	1.50	0.38	0.07	-	-	-	-	-	-	-
Dust Bin	1.50	0.38	0.07	-	-	-	-	-	-	-
Shelled Grain Receiving	2.10	0.47	0.08	-	-	-	-	-	-	-
Cleaners Lines 1 and 2	22.50	5.70	0.96	-	-	-	-	-	-	-
Sorters Lines 1 and 2	22.50	5.70	0.96	-	-	-	-	-	-	-
Sizers Lines 1 and 2	3.66	2.04	0.35	-	-	-	-	-	-	-
Gravity Tables, Lines 1 & 2	22.50	13.73	13.73	-	-	-	-	-	-	-
Storage Bins, Lines 1 & 2	1.50	0.38	0.07	-	-	-	-	-	-	-
Aspirators 1-3	7.48	4.17	0.71	-	-	-	-	-	-	-
Treaters 1-3	11.22	6.25	1.07	-	-	75.00	-	0.13	-	-
Treating and Packing Storage Bins	1.50	0.38	0.07	-	-	-	-	-	-	-
Replaced Bagging Machine (EU12)	3.66	2.04	0.35	-	-	-	-	-	-	-
Main Line Bagging Scale (EU107)	3.66	2.04	0.35	-	-	-	-	-	-	-
Seed Pak Filler	11.22	6.25	1.07	-	-	-	-	-	-	-
Paper Line Refuge Scale 1	2.02	1.13	0.19	-	-	-	-	-	-	-
Refuge Scale 2	2.02	1.13	0.19							
Debagger EU34	7.48	4.17	0.71	-	-	-	-	-	-	-
Small Lot Bagging (EU103 through 104)	3.66	2.04	0.35	-	-	-	-	-	-	-
Debagger EU106	7.48	4.17	0.71							
Internal Handling	3.66	2.04	0.35	-	-	-	-	-	-	-
Dust Collector Loadouts	0.75	0.25	0.04	-	-	-	-	-	-	-
Insignificant Emissions										
Husk Chopper	1.37	0.77	0.13	-	-	-	-	-	-	
Sheller Central Vacuum System	0.45	0.45	0.45	-	-	-	-	-	-	
Tower Central Vacuum System	0.50	0.50	0.50	-	-	-	-	-	-	
Tanks (1 Diesel, 1 Gasoline)	-	-	-	-	-	1.00	-	-	-	-
NG Heaters	0.02	0.08	0.08	6.04E-03	1.01	0.06	0.85	0.02	0.02	Hexane
Talc Treatment Application Operation	0.06	0.06	0.06	-	-	-	-	-	-	
VMEK Bench Top Laboratory Units (3)	0.81	0.45	0.08	-	-	-	-	-	-	
Parts Washer PW1	-	-	-	-	-	0.49	-	-	-	-
Totals (Non-Fugitive)	**223.06**	**98.03**	**34.87**	**0.34**	**57.35**	**79.64**	**48.18**	**1.21**	**1.03**	**Hexane**
Title V Major Source Thresholds	NA	100	100	100	100	100	100	100	25	
PSD Major Source Thresholds	250	250	250	250	250	250	250	250	--	
Fugitive Emissions										
Paved Roads	3.07	0.61	0.15	0.00	0.00	0.00	0.00	0.00	0.00	-
Unpaved Roads	21.48	5.72	0.57	0.00	0.00	0.00	0.00	0.00	0.00	-
Totals (Fugitive)	**24.54**	**6.34**	**0.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	-

4. REGULATORY APPLICABILITY

Bayers operations are subject to state and federal air quality regulations. This section of the application highlights the applicability of state and federal requirements for the proposed project.

4.1 Source Classification

4.1.1 Prevention of Significant Deterioration Program

The Remington Plant is located in an attainment area for all pollutants[2]. The Remington Plant is not a major source under the PSD program as potential emissions of all PSD pollutants are less than 250 tpy.[3,4] As such, for PSD review to be triggered, the emissions increases from the proposed project would need to be compared to the major source threshold for each PSD pollutant. As potential emissions from the proposed project are less than 250 tpy for all PSD pollutants, there is no need to compare the project emissions increase to the PSD major source thresholds. Hence, PSD review is not triggered. The Remington Plant will remain a minor source under the PSD program after the proposed project.

4.1.2 HAP Emissions

The Remington Plant is an existing area source of hazardous air pollutants (HAPs). The source-wide potential emissions of HAPs will not exceed 10 tpy for any individual HAP or 25 tpy for any combination of HAPs after the proposed project; therefore, the Remington Plant will remain an area source of HAPs.

4.2 Federal Regulatory Applicability

4.2.1 New Source Performance Standards (NSPS)

New Source Performance Standards (NSPS) require new, modified, or reconstructed sources in applicable source categories to control emissions to the level achievable by the best demonstrated technology, as specified in the applicable provisions. Any source subject to an NSPS is also subject to the general provisions of NSPS Subpart A, except as noted. The proposed project will not result in any change to current NSPS applicability.

4.2.2 National Emission Standards for Hazardous Air Pollutants (NESHAP)

NESHAPs apply to sources in specifically regulated industrial source classifications (Clean Air Act Section 112(d)) or on a case-by-case basis (Clean Air Act Section 112(g)) for facilities not regulated as a specific industrial source type. Pollutant specific NESHAP may also be applicable. NESHAP are primarily developed for particular industrial source categories. Therefore, the potential applicability of a particular NESHAP to a facility can be readily ascertained based on the industrial source category covered. The proposed project will not result in any change to current NESHAP applicability.

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[2] 326 IAC 1-4-38.
[3] The Remington Plant is not of the "list of 28" as referenced under 40 CFR 52.21(b)(1)(i)(a) and is therefore subject to the major source PSD threshold of 250 tpy.
[4] FESOP Permit No. F073-44825-00035 shows that Permitted Emissions of Regulated Pollutants are less than 250 tons per year (tpy).

4.3 State Regulatory Applicability

4.3.1 FESOP (326 IAC 2-8)

The Remington Plant currently operates under a FESOP. For each modification at the plant, the facility wide emissions must be calculated to demonstrate emission levels are below the Title V Operating Permit thresholds to ensure Title V permitting is not triggered and the facility can retain FESOP status. As presented in Table 3-2 and in Appendix B, the facility wide potential emissions for all regulated pollutants at the Remington Plant will remain below the Title V Operating Permit thresholds after the proposed project; therefore, the facility can continue to operate under a FESOP.

4.3.2 Administrative Permit Amendments (326 IAC 2-8-10)

The potential emissions of the treater modifications are less than the exemption thresholds in 326 IAC 2-1.1-3(e)(1). All other proposed changes to the operating permit are corrections to reflect the operating conditions at the Remington Facility. Therefore, the modification of the treaters and corrections to the operating permit can be processed as an administrative amendment per 326 IAC 2-8-10(a)(2)(b) and 326 IAC 2-8-10(a)(9).

4.3.3 Permit Revisions (326 IAC 2-8-11.1)

A permit revision is not required for this application since the proposed project is subject 326 IAC 2-8-11.1(b)(1). The modification to Treaters 1-3 would not otherwise require an operating permit revision since the potential emissions for all regulated pollutants are less than the exemption threshold.

APPENDIX A. STATE FORMS

AIR PERMIT APPLICATION COVER SHEET

State Form 50639 (R4 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this cover sheet is to obtain the core information needed to process the air permit application. This cover sheet is required for all air permit applications submitted to IDEM, OAQ. Place this cover sheet on top of all subsequent forms and attachments that encompass your air permit application packet.
- Submit the completed air permit application packet, including all forms and attachments, to **IDEM Air Permits Administration** using the address in the upper right hand corner of this page.
- IDEM will send a bill to collect the filing fee and any other applicable fees.
- Detailed instructions for this form are available on the Air Permit Application Forms website.

FOR OFFICE USE ONLY
PERMIT NUMBER:
DATE APPLICATION WAS RECEIVED:

1. Tax ID Number:

PART A: Purpose of Application

Part A identifies the purpose of this air permit application. For the purposes of this form, the term "source" refers to the plant site as a whole and NOT to individual emissions units.

2. Source / Company Name: Bayer Great Lakes Production Co., LLC **3. Plant ID:** 073 – 0035

4. Billing Address: 15849 South U.S. Highway 231

City: Remington **State:** IN **ZIP Code:** 47977 –

5. Permit Level: ☐ Exemption ☐ Registration ☐ SSOA ☐ MSOP ☒ FESOP ☐ TVOP ☐ PBR

6. Application Summary: *Check all that apply. Multiple permit numbers may be assigned as needed based on the choices selected below.*

☐ Initial Permit ☐ Renewal of Operating Permit ☐ Asphalt General Permit
☐ Review Request ☐ Revocation of Operating Permit ☐ Alternate Emission Factor Request
☐ Interim Approval ☐ Relocation of Portable Source ☐ Acid Deposition (Phase II)
☐ Site Closure ☐ Emission Reduction Credit Registry

☐ Transition (between permit levels) *From:* *To:*

☒ Administrative Amendment: ☐ *Company Name Change* ☐ *Change of Responsible Official*
☒ *Correction to Non-Technical Information* ☐ *Notice Only Change*
☒ *Other (specify):* Removal of Emission Unit

☐ Modification: ☐ *New Emission Unit or Control Device* ☐ *Modified Emission Unit or Control Device*
☐ *New Applicable Permit Requirement* ☐ *Change to Applicability of a Permit Requirement*
☐ *Prevention of Significant Deterioration* ☐ *Emission Offset* ☐ *MACT Preconstruction Review*
☐ *Minor Source Modification* ☐ *Significant Source Modification*
☐ *Minor Permit Modification* ☐ *Significant Permit Modification*
☐ *Other (specify):*

7. Is this an application for an initial construction and/or operating permit for a **"Greenfield" Source**? ☐ Yes ☒ No

8. Is this an application for construction of a new emissions unit at an **Existing Source**? ☐ Yes ☒ No

Continued on Next Page

PART B: Pre-Application Meeting

Part B specifies whether a meeting was held or is being requested to discuss the permit application.

9. Was a meeting held between the company and IDEM prior to submitting this application to discuss the details of the project?

☒ No ☐ Yes: *Date:*

10. Would you like to schedule a meeting with IDEM management and your permit writer to discuss the details of this project?

☒ No ☐ Yes: *Proposed Date for Meeting:*

PART C: Confidential Business Information

Part C identifies permit applications that require special care to ensure that confidential business information is kept separate from the public file.

Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in the Indiana Administrative Code (IAC). To ensure that your information remains confidential, refer to the IDEM, OAQ information regarding submittal of confidential business information. For more information on confidentiality for certain types of business information, please review IDEM's Nonrule Policy Document Air-031-NPD regarding Emission Data.

11. Is any of the information contained within this application being claimed as **Confidential Business Information**?

☒ No ☐ Yes

PART D: Certification Of Truth, Accuracy, and Completeness

Part D is the official certification that the information contained within the air permit application packet is truthful, accurate, and complete. Any air permit application packet that we receive without a signed certification will be deemed incomplete and may result in denial of the permit.

For a Part 70 Operating Permit (TVOP) or a Source Specific Operating Agreement (SSOA), a "responsible official" as defined in 326 IAC 2-7-1(34) must certify the air permit application. For all other applicants, this person is an "authorized Individual" as defined in 326 IAC 2-1.1-1(1).

☒ *I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate, and complete.*

Melissa Wienke
Name *(typed)*

Site Lead
Title

Signature

4/27/24
Date

OAQ GENERAL SOURCE DATA APPLICATION
GSD-01: Basic Source Level Information

State Form 50640 (R5 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-01 is to provide essential information about the entire source of air pollutant emissions. GSD-01 is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

PART A: Source / Company Location Information

1. **Source / Company Name:** Bayer Great Lakes Production Co., LLC | **2. Plant ID:** 073 – 0035
3. **Location Address:** 15849 South U.S Highway 231
   City: Remington | **State:** IN | **ZIP Code:** 47977 –
4. **County Name:** Jasper | **5. Township Name:** Carpenter
6. **Geographic Coordinates:**
   Latitude: 40.78318 | **Longitude:** -87.15408
7. **Universal Transferal Mercadum Coordinates** *(if known)*:
   Zone: 16 | **Horizontal:** 487000 | **Vertical:** 4514700
8. **Adjacent States:** Is the source located within 50 miles of an adjacent state?
   ☐ No ☒ Yes – *Indicate Adjacent State(s):* ☒ Illinois (IL) ☐ Michigan (MI) ☐ Ohio (OH) ☐ Kentucky (KY)
9. **Attainment Area Designation:** Is the source located within a non-attainment area for any of the criteria air pollutants?
   ☒ No ☐ Yes – *Indicate Nonattainment Pollutant(s):* ☐ CO ☐ Pb ☐ NO_x ☐ O_3 ☐ PM ☐ PM_{10} ☐ $PM_{2.5}$ ☐ SO_2
10. **Portable / Stationary:** Is this a portable or stationary source? ☐ Portable ☒ Stationary

PART B: Source Summary

11. **Company Internet Address** *(optional)*: www.bayer.com
12. **Company Name History:** Has this source operated under any other name(s)?
    ☐ No ☒ Yes – *Provide information regarding past company names in Part I, Company Name History.*
13. **Portable Source Location History:** Will the location of the portable source be changing in the near future?
    ☒ Not Applicable ☐ No ☐ Yes – *Complete Part J, Portable Source Location History, and Part K, Request to Change Location of Portable Source.*
14. **Existing Approvals:** Have any exemptions, registrations, or permits been issued to this source?
    ☐ No ☒ Yes – *List these permits and their corresponding emissions units in Part M, Existing Approvals.*
15. **Unpermitted Emissions Units:** Does this source have any unpermitted emissions units?
    ☒ No ☐ Yes – *List all unpermitted emissions units in Part N, Unpermitted Emissions Units.*
16. **New Source Review:** Is this source proposing to construct or modify any emissions units?
    ☒ No ☐ Yes – *List all proposed new construction in Part O, New or Modified Emissions Units.*
17. **Risk Management Plan:** Has this source submitted a Risk Management Plan?
    ☒ Not Required ☐ No ☐ Yes → Date submitted: EPA Facility Identifier: – –

Continued on Next Page

PART C: Source Contact Information

IDEM will send the original, signed permit decision to the person identified in this section. This person MUST be an employee of the permitted source.

18. Name of Source Contact Person: Anthony Lanoue

19. Title *(optional)*: Production Lead - Support Functions

20. Mailing Address: P.O. Box 35, 15849 South U.S. Highway 231

City: Remington	**State:** IN	**ZIP Code:** 47977 –

21. Electronic Mail Address *(optional)*: anthony.lanoue@bayer.com

22. Telephone Number: (219) 261 – 4106	**23. Facsimile Number** *(optional)*: ( ) –

PART D: Authorized Individual/Responsible Official Information

IDEM will send a copy of the permit decision to the person indicated in this section, if the Authorized Individual or Responsible Official is different from the Source Contact specified in Part C.

24. Name of Authorized Individual or Responsible Official: Melissa Wienke

25. Title: Site Lead

26. Mailing Address: P.O. Box 35, 15849 South U.S. Highway 231

City: Remington	**State:** IN	**ZIP Code:** 47977 –

27. Telephone Number: (219) 261 – 2122	**28. Facsimile Number** *(optional)*: ( ) –

29. Request to Change the Authorized Individual or Responsible Official: Is the source officially requesting to change the person designated as the Authorized Individual or Responsible Official in the official documents issued by IDEM, OAQ? *The permit may list the title of the Authorized Individual or Responsible Official in lieu of a specific name.*

☒ No ☐ Yes – ***Change Responsible Official to:***

PART E: Owner Information

30. Company Name of Owner: Bayer Great Lakes Production Co., LLC

31. Name of Owner Contact Person: Melissa Wienke

32. Mailing Address: P.O. Box 35, 15849 South U.S. Highway 231

City: Remington	**State:** IN	**ZIP Code:** 47977 –

33. Telephone Number: (219) 261 – 2122	**34. Facsimile Number** *(optional)*: ( ) –

34. Operator: Does the "Owner" company also operate the source to which this application applies?

☐ No – *Proceed to Part F below.*	☒ Yes – *Enter "SAME AS OWNER" on line 35 and proceed to Part G below.*

PART F: Operator Information

35. Company Name of Operator: SAME AS OWNER

36. Name of Operator Contact Person:

37. Mailing Address:

City:	**State:**	**ZIP Code:** –

38. Telephone Number: ( ) –	**39. Facsimile Number** *(optional)*: ( ) –

Continued on Next Page

PART G: Agent Information

40. Company Name of Agent: Trinity Consultants

41. Type of Agent: ☒ Environmental Consultant ☐ Attorney ☐ Other (specify):

42. Name of Agent Contact Person: Emily Stewart

43. Mailing Address: 8900 Keystone Crossing, Suite 1070

City: Indianapolis	**State:** IN	**ZIP Code:** 46240 –

44. Electronic Mail Address *(optional)*: estewart@trinityconsultants.com

45. Telephone Number: (317) 451 – 8102	**46. Facsimile Number** *(optional)*: ( ) –

47. Request for Follow-up: Does the "Agent" wish to receive a copy of the preliminary findings during the public notice period (if applicable) and a copy of the final determination? ☐ No ☒ Yes

PART H: Local Library Information

48. Date application packet was filed with the local library: Within 10 days of application submittal (if required)

49. Name of Library: Remington Public Library

50. Name of Librarian *(optional)*:

51. Mailing Address: 105 N Ohio Street

City: Remington	**State:** IN	**ZIP Code:** 47977 –

52. Internet Address *(optional)*:

53. Electronic Mail Address *(optional)*:

54. Telephone Number: (219) 261 – 2543	**55. Facsimile Number** *(optional)*: ( ) –

PART I: Company Name History *(if applicable)*

Complete this section only if the source has previously operated under a legal name that is different from the name listed above in Section A.

56. Legal Name of Company	**57. Dates of Use**
Monsanto Company	5/23/2000 to 8/19/2020
	to
	to
	to
	to
	to
	to
	to
	to
	to

58. Company Name Change Request: Is the source officially requesting to change the legal name that will be printed on all official documents issued by IDEM, OAQ?

☒ No ☐ Yes – ***Change Company Name to:***

Continued on Next Page

PART J: Portable Source Location History *(if applicable)*

Complete this section only if the source is portable and the location has changed since the previous permit was issued. The current location of the source should be listed in Section A.

59. Plant ID	60. Location of the Portable Source	61. Dates at this Location
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to

PART K: Request to Change Location of Portable Source *(if applicable)*

Complete this section to request a change of location for a portable source.

62. Current Location:

Address:

City: | **State:** | **ZIP Code:** –

County Name:

63. New Location:

Address:

City: | **State:** | **ZIP Code:** –

County Name:

Continued on Next Page

PART L: Source Process Description

Complete this section to summarize the main processes at the source.

64. Process Description	65. Products	66. SIC Code	67. NAICS Code
Grain (corn and soybean) Seed Plant	Cleaned grain seeds	0723	115114

PART M: Existing Approvals *(if applicable)*

Complete this section to summarize the approvals issued to the source since issuance of the main operating permit.

68. Permit ID	69. Emissions Unit IDs	70. Expiration Date
45892	FESOP Significant Permit Revision	6/14/2032
44825	FESOP Renewal	6/14/2032

PART N: Unpermitted Emissions Units *(if applicable)*

Complete this section only if the source has emission units that are not listed in any permit issued by IDEM, OAQ.

71. Emissions Unit ID	72. Type of Emissions Unit	73. Actual Dates		
		Began Construction	Completed Construction	Began Operation
	N/A			

PART O: New or Modified Emissions Units *(if applicable)*

Complete this section only if the source is proposing to add new emission units or modify existing emission units.

74. Emissions Unit ID	75. NEW	76. MOD	77. Type of Emissions Unit	78. Estimated Dates		
				Begin Construction	Complete Construction	Begin Operation
			See Application Narrative			

APPENDIX B. EMISSION CALCULATIONS

Appendix B: Emissions Calculations
Summary - Unlimited / Limited

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15845 S US Hwy 231, Remington, IN 47977
Source ID: 073-00015

	Unlimited/Uncontrolled Potential to Emit (tons/year)									
Emission Unit	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Single HAP	
Non-Fugitive Emissions										
Corn Receiving 1, 2, 3, & 4	4.20	0.99	0.15	-	-	-	-	-	-	-
New Direct Harvest Receiving	4.20	0.99	0.15	-	-	-	-	-	-	-
Husking 1, 2, 3 & 4	7.46	4.17	0.71	-	-	-	-	-	-	-
Dryers 3, 4, 5 & 6 (Grain Drying)	97.84	14.72	2.45	-	-	-	-	-	-	-
Dryers 3, 4, 5, and 6 (combustion)	0.86	27.43	27.43	2.17	360.91	19.85	303.17	6.81	6.56	Hexane
Shelter 1	45.99	28.05	28.05	-	-	-	-	-	-	-
Shelter 2	45.99	28.05	28.05	-	-	-	-	-	-	-
Shelter 3	45.99	28.05	28.05	-	-	-	-	-	-	-
Shelter Aspirators 1 & 2	37.41	20.85	3.56	-	-	-	-	-	-	-
Shelter Aspirators 3 & 4	37.41	20.85	3.56	-	-	-	-	-	-	-
248 Bulk Storage Bins	3.07	0.77	0.13	-	-	-	-	-	-	-
New Direct Harvest Storage (6)	3.07	0.77	0.13	-	-	-	-	-	-	-
Loadout Aspirator 1	18.70	10.42	1.78	-	-	-	-	-	-	-
Shelled Grain Loadout	26.17	8.69	1.58	-	-	-	-	-	-	-
4 Shelled Grain Loadout Bins	3.07	0.77	0.13	-	-	-	-	-	-	-
4 Cob Loadout Bins	3.07	0.77	0.13	-	-	-	-	-	-	-
Dust Bin	3.07	0.77	0.13	-	-	-	-	-	-	-
Shelled Grain Receiving	4.20	0.99	0.15	-	-	-	-	-	-	-
Cleaners Lines 1 and 2	49.28	12.48	2.30	-	-	-	-	-	-	-
Sorters Lines 1 and 2	103.48	26.31	4.42	-	-	-	-	-	-	-
Spurs Lines 1 and 2	8.02	4.47	0.76	-	-	-	-	-	-	-
Gravity Tables, Lines 1 & 2	45.99	28.05	28.05	-	-	-	-	-	-	-
Storage Bins, Lines 1 & 2	3.07	0.77	0.13	-	-	-	-	-	-	-
Aspirators 1-3	11.22	6.25	1.07	-	-	-	-	-	-	-
Treaters 1-3	13.47	7.51	1.28	-	-	369.78	-	0.13	-	-
Treating and Packing Storage Bins	3.07	0.77	0.13	-	-	-	-	-	-	-
Replaced Bagging Machine (EU12)	7.46	4.17	0.71	-	-	-	-	-	-	-
Main Line Bagging Scale (EU107)	7.46	4.17	0.71	-	-	-	-	-	-	-
Seed Pak Filler	11.22	6.25	1.07	-	-	-	-	-	-	-
Paper Line Refuse Scale 1	2.02	1.13	0.19	-	-	-	-	-	-	-
Refuse Scale 2	2.02	1.13	0.19	-	-	-	-	-	-	-
Debagger EU14	7.46	4.17	0.71	-	-	-	-	-	-	-
Small Lot Bagging (EU103 through 104)	7.46	4.17	0.71	-	-	-	-	-	-	-
Debagger EU106	7.46	4.17	0.71	-	-	-	-	-	-	-
Internal Handling	7.46	4.17	0.71	-	-	-	-	-	-	-
Dust Collector Loadouts	0.75	0.25	0.04	-	-	-	-	-	-	-
Insignificant Emissions										
Husk Chopper	1.87	1.04	0.18	-	-	-	-	-	-	
Shelter Central Vacuum System	0.45	0.45	0.45	-	-	-	-	-	-	
Tower Central Vacuum System	0.50	0.50	0.50	-	-	-	-	-	-	
Tanks (1 Diesel 1 Gasoline)	-	-	-	-	-	1.00	-	-	-	-
RG Heaters	0.02	0.08	0.08	5.04E-03	1.01	0.06	0.85	0.02	0.02	Hexane
Talc Treatment Application Operation	0.12	0.12	0.12	-	-	-	-	-	-	
VMEK Bench Top Laboratory Units	0.81	0.45	0.08	-	-	-	-	-	-	
Parts Washer PW1	-	-	-	-	-	0.49	-	-	-	-
Totals (Non-Fugitive)	**660.38**	**331.16**	**171.41**	**2.17**	**361.92**	**391.18**	**304.01**	**6.96**	**6.81**	**Hexane**
Fugitive Emissions										
Paved Roads	3.07	0.81	0.15	0.00	0.00	0.00	0.00	0.00	0.00	-
Unpaved Roads	21.45	5.72	0.57	0.00	0.00	0.00	0.00	0.00	0.00	-
Totals (Fugitive)	**24.51**	**6.34**	**0.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	-

	Limited Potential to Emit (tons/year)									
Emission Unit	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Single HAP	
Non-Fugitive Emissions										
Corn Receiving 1, 2, 3, & 4	3.15	0.70	0.12	-	-	-	-	-	-	-
New Direct Harvest Receiving				-	-	-	-	-	-	-
Husking 1, 2, 3 & 4	5.49	3.06	0.52	-	-	-	-	-	-	-
Dryers 3, 4, 5 & 6 (Grain Drying)	42.30	10.80	1.80	-	-	-	-	-	-	-
Dryers 3, 4, 5, and 6 (combustion)	1.07	4.28	4.28	0.34	56.35	3.10	47.33	1.06	1.01	Hexane
Shelter 1	0.56	0.56	0.56	-	-	-	-	-	-	-
Shelter 2	0.56	0.56	0.56	-	-	-	-	-	-	-
Shelter 3	0.56	0.56	0.56	-	-	-	-	-	-	-
Shelter Aspirators 1 & 2	3.68	2.04	0.35	-	-	-	-	-	-	-
Shelter Aspirators 3 & 4	3.68	2.04	0.35	-	-	-	-	-	-	-
248 Bulk Storage Bins	1.50	0.38	0.07	-	-	-	-	-	-	-
New Direct Harvest Storage (6)	2.25	0.57	0.10	-	-	-	-	-	-	-
Loadout Aspirator 1	3.66	2.04	0.35	-	-	-	-	-	-	-
Shelled Grain Loadout	5.16	1.74	0.29	-	-	-	-	-	-	-
4 Shelled Grain Loadout Bins	1.50	0.38	0.07	-	-	-	-	-	-	-
4 Cob Loadout Bins	1.50	0.38	0.07	-	-	-	-	-	-	-
Dust Bin	1.50	0.38	0.07	-	-	-	-	-	-	-
Shelled Grain Receiving	2.10	0.47	0.08	-	-	-	-	-	-	-
Cleaners Lines 1 and 2	22.50	6.70	0.96	-	-	-	-	-	-	-
Sorters Lines 1 and 2	22.50	5.70	0.96	-	-	-	-	-	-	-
Spurs Lines 1 and 2	3.68	2.04	0.35	-	-	-	-	-	-	-
Gravity Tables, Lines 1 & 2	22.99	13.73	13.73	-	-	-	-	-	-	-
Storage Bins, Lines 1 & 2	1.50	0.38	0.07	-	-	-	-	-	-	-
Aspirators 1-3	7.46	4.17	0.71	-	-	-	-	-	-	-
Treaters 1-3	11.22	6.25	1.07	-	-	75.00	-	0.13	-	-
Treating and Packing Storage Bins	1.50	0.38	0.07	-	-	-	-	-	-	-
Replaced Bagging Machine (EU12)	3.66	2.04	0.35	-	-	-	-	-	-	-
Main Line Bagging Scale (EU107)	3.68	2.04	0.35	-	-	-	-	-	-	-
Seed Pak Filler	11.22	6.25	1.07	-	-	-	-	-	-	-
Paper Line Refuse Scale 1	2.02	1.13	0.19	-	-	-	-	-	-	-
Refuse Scale 2	2.02	1.13	0.19	-	-	-	-	-	-	-
Debagger EU14	7.46	4.17	0.71	-	-	-	-	-	-	-
Small Lot Bagging (EU103 through 104)	3.68	2.04	0.35	-	-	-	-	-	-	-
Debagger EU106	7.46	4.17	0.71	-	-	-	-	-	-	-
Internal Handling	3.68	2.04	0.35	-	-	-	-	-	-	-
Dust Collector Loadouts	0.75	0.25	0.04	-	-	-	-	-	-	-
Insignificant Emissions										
Husk Chopper	1.37	0.77	0.13	-	-	-	-	-	-	
Shelter Central Vacuum System	0.45	0.45	0.45	-	-	-	-	-	-	
Tower Central Vacuum System	0.50	0.50	0.50	-	-	-	-	-	-	
Tanks (1 Diesel 1 Gasoline)	-	-	-	-	-	1.00	-	-	-	-
RG Heaters	0.02	0.08	0.08	5.04E-03	1.01	0.06	0.85	0.02	0.02	Hexane
Talc Treatment Application Operation	0.06	0.06	0.06	-	-	-	-	-	-	
VMEK Bench Top Laboratory Units (3)	0.81	0.45	0.08	-	-	-	-	-	-	
Parts Washer PW1	-	-	-	-	-	0.49	-	-	-	-
Totals (Non-Fugitive)	**223.65**	**98.93**	**51.87**	**0.34**	**57.35**	**79.64**	**48.18**	**1.21**	**1.03**	**Hexane**
Title V Major Source Thresholds	NA	100	100	100	100	100	100	100	25	
PSD Major Source Thresholds	250	250	250	250	250	250	250	250	–	
Fugitive Emissions										
Paved Roads	3.07	0.81	0.15	0.00	0.00	0.00	0.00	0.00	0.00	-
Unpaved Roads	21.45	5.72	0.57	0.00	0.00	0.00	0.00	0.00	0.00	-
Totals (Fugitive)	**24.51**	**6.34**	**0.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	-

Notes
The 1 diesel and 1 gasoline insignificant tanks, were conservatively estimated to emit 1 ton per year of VOC emissions.

Appendix B: Emissions Calculations
Modification Summary

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

	Unlimited/Uncontrolled Potential to Emit (tons/year)		
Emission Unit	**PM**	**PM10**	**PM2.5**
Modified/Replaced Units			
Treaters 1-3	2.24	1.25	0.21
Total	2.24	1.25	0.21
Minor Modification Threshold[1]	5	5	5
Minor Modification Required?	No	No	No

[1] Minor Source Thresholds from 326 IAC 2-7-10.5(e)

Appendix B: Emissions Calculations
Processing - Unlimited/Limited

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15649 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

Conditioning Tower Annual Bottleneck = 245,280 tons/year**

Facility Throughput (Wet Ear Corn) = 180,000 — 3,428,571 bushels (wet ear corn)
Facility Throughput Limit (dry shelled grain) = 120,000 — 4,285,714 bushels (dry shelled corn)

Unlimited Potential to Emit

Emission Unit	Unlimited Capacity		Throughput	Limited Capacity	Emission Factors (lbs/ton)			Limit (gr/dscf)	Uncontrolled/Unlimited PTE (tons/year)			326 IAC 6-3-2 PM Emission Limit	Control Efficiency	Limited PTE (tons/year)			Limited PTE (lb/hr)		
	(lbs/hr)	(tons/hr)	(tons/year)	(tons/yr)	PM	PM10	PM2.5	PM/PM10/PM2.5	PM	PM10	PM2.5	(lbs/hour)		PM	PM10	PM2.5	PM	PM10	PM2.5
Corn Receiving 1, 2, 3 & 4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dryers [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dryers [illegible]	[illegible]	[illegible]	[illegible]	[illegible]				NA				[illegible]	[illegible]						
Sheller 1[8] Baghouse [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
Sheller 2[8] Baghouse [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
Sheller 3[8] Baghouse [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
Sheller Aspirators 1 & 2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sheller Aspirators 3 & 4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cleaners Lines [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sorters [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Gravity Tables Lines 1 & 2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dust Collector [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	N/A	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	N/A	[illegible]	[illegible]	[illegible]	[illegible]			
Sheller General Vacuum System [illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	N/A	[illegible]	[illegible]	[illegible]	[illegible]			
Talc General Vacuum System [illegible]	[illegible]	N/A	NA	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	N/A	[illegible]	[illegible]	[illegible]	[illegible]			
Talc treatment application [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	N/A	[illegible]	[illegible]	[illegible]	[illegible]			
VMSK Bench Top Laboratory [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	N/A	[illegible]	[illegible]	[illegible]	[illegible]			
Total PTE									[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]			

Notes and Methodology:

**The maximum bottleneck throughput is based on the capacity of the conditioning tower (56,000 lbs/hour * ton/2000 lbs = 28 tons/hour)

*Shellers 1, 2, and 3 are limited to 2500 hours of operation, each, per twelve consecutive month period.

1. Assumes grain receiving is done by hopper truck.
2. Emission factors for the Cleaners, Sorters, and Gravity Tables is listed in AP-42 with a cyclone for controls; therefore an 80% capture rate was assumed to back out an uncontrolled emission factor.
3. Assumes all bins are controlled by a bin vent.
4. Emission factors are from US EPA's AP-42, Chapter 9.9.1, Table 9.9.1-1: Particulate Emission Factors for Grain Elevators (3/03).
5. Engineered estimate uncontrolled emissions factors from FESOP No. 073-25632-00035 (as provided by the applicant). These emission factors are a more conservative estimate than AP-42 for the gravity tables and shellers.
6. The AP-42 Table 11.26-1 emission factor for the Talc Treatment application is a controlled emission factor. It was conservatively assumed 99% control to get the uncontrolled emission factor.
7. Talc Treatment capacity (tons/yr) was based on the maximum throughput of seeds (120,000 ton/yr) x maximum application rate (36 oz/ton) / 16 (oz/lb) / 2000 (lbs/ton)
8. PM Emissions for each Sheller = Baghouse CF-15 air flow rate, 8[illegible] /min * cyclone grain loading, gr/ft3 * lb/7000gr * ton/2000 lb * 60 min/hr * 8760 hr/yr = 14,650 cuft/min * 0.006 gr/cuft * 1/7000 lb/gr * 1/2000 lb/ton * 60 min/hr * 8760 hr/yr

Appendix B: Emissions Calculations
Talc Treatment & Color Sorters

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

Seed Additive	Controlled Emission Factor (lb / 1,000 lb)	Uncontrolled Emission Factor (lb / 1,000 lb)	Maximum Throughput (tons seed/yr)	Application Rate (oz of treatment / cwt)	Application Rate (oz of treatment / tons)	Solid Application (lb/year)	Uncontrolled PTE PM (tons/yr)	Uncontrolled PTE PM10 (tons/yr)	Uncontrolled PTE PM2.5 (tons/yr)	Controlled PTE PM (tons/yr)	Controlled PTE PM10 (tons/yr)	Controlled PTE PM2.5 (tons/yr)	Potential PM Emissions (lb/day)	Potential PM10 Emissions (lb/day)	Potential PM2.5 Emissions (lb/day)
Talc Treatment Application	0.009	0.90	120,000	3.0	36	270,000	0.12	0.12	0.12	1.22E-03	1.22E-03	1.22E-03	0.67	0.67	0.67

Methodology
Note: Treaters are controlled by the Red Dust collector
Application rate and coating composition provided by source.
Controlled Emission Factor from AP-42 Table 11.25-1.
Uncontrolled Emission Factor (lb/1000lb) = Controlled Emission Factor / (1-control efficiency) = 0.009/(1-0.99) = 0.90
Annual Capacity in tons/year = Grain Throughput in tons/year.

Equipment	Associated Control Equipment	Equipment Rate (ton/hr)	Emission Factor (lb/ton)	Emission Factor (lb/ton)	Emission Factor (lb/ton)	Potential Emissions (lb/hr)	Potential Emissions (lb/hr)	Potential Emissions (lb/hr)	Potential Emissions (ton/yr)	Potential Emissions (ton/yr)	Potential Emissions (ton/yr)	Potential Emissions (lb/day)	Potential Emissions (lb/day)	Potential Emissions (lb/day)
			PM	PM-10	PM-2.5	PM	PM-10	PM-2.5	PM	PM-10	PM-2.5	PM	PM-10	PM-2.5
(1) VMek Color Sorter Small	N/A	1.12	0.06	0.03	0.01	0.07	0.04	0.01	0.30	0.17	0.03	1.64	0.91	0.16
(1) VMek Color Sorter Small	N/A	0.9	0.06	0.03	0.01	0.05	0.03	0.01	0.24	0.13	0.02	1.32	0.73	0.13
								Total of VMEK	0.54	0.30	0.05			
								Total All:	**0.66**	**0.42**	**0.17**			

Methodology
Emission factors are taken from AP-42 Table 9.9.1-1, 2003.
PTE (ton/yr) = Throguhput Rate (ton/hr) x Emission Factor (lb/ton) x 8760 (hr/yr) / 2000 (lb/ton)

Appendix B: Emissions Calculations
Processing - Unlimited Potential to Emit Loadout Aspirator 1

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

Facility Throughput (Wet Ear Corn) = 180,000 tons/year*
Facility Throughput Limit (dry shelled grain) = 120,000 tons/year*

Unlimited/Uncontrolled Potential to Emit

Emission Unit	Unlimited Capacity (lbs/hr)	Unlimited Capacity (tons/hr)	Unlimited Capacity (tons/year)	Pollutant	Emission Factor (lbs/ton)	PM (TPY)	PM-10 (TPY)	PM-2.5 (TPY)
Loadout Aspirator 1	140,000	70	613,200	PM	0.061	18.70	10.42	1.78
	lbs/hr	tons/hr	tons/yr	PM10	0.034			
	total	total		PM2.5	0.0058			
Total Emissions						**18.70**	**10.42**	**1.78**

Limited Potential to Emit Before Controls

Emission Unit	Unlimited Capacity (lbs/hr)	Unlimited Capacity (tons/hr)	Limited Capacity (tons/year)	Pollutant	Emission Factor (lbs/ton)	PM (TPY)	PM-10 (TPY)	PM-2.5 (TPY)
Loadout Aspirator 1	140,000	70	120,000	PM	0.061	3.66	2.04	0.35
	lbs/hr	tons/hr	tons/yr	PM10	0.034			
	total	total	Limit*	PM2.5	0.0058			
Total Emissions						**3.66**	**2.04**	**0.35**

Notes
*Facility throughput limit
Emission factors are taken from the AP-42 Table 9.9.1-1 (3/03).

Appendix B: Emissions Calculations
Emissions From Seed Coating Operations
Treater 1, 2, 3 and CBT 100

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

Dry Shelled grain source-wide throughput limit = 120,000 tons/year*

Unlimited

Material	Density (lb/gal)	VOC Content (lb VOC /gallon of coating)	Gallons of Mat. (gal/ton of seed)	Maximum (tons seed/yr)	Potential VOC (tpy)	Glycol Ether Content (%)	HAP Emissions (tpy)
Apron XL LS	9.3	6.32	0.00656	120,000	2.488	1.00%	0.02
Poncho Medium**	10.6	1.80	0.35313	0	0.000	0%	0.0
Poncho High	10.6	1.80	1.96870	120,000	212.620	0%	0.0
Precise Medium**	10.5	2.94	0.31250	0	0.000	0%	0.0
Precise High	10.5	2.94	0.46870	120,000	82.679	0%	0.0
MaximXL	9.2	0.55	0.02625	120,000	0.866	12.00%	0.10
Red Colorant**	9.9	0.18	0.03906	0	0.000	0%	0.0
Green Colorant**	11	0.20	0.04688	0	0.000	0%	0.0
Blue Colorant	9.9	0.18	0.07813	120,000	0.844	0%	0.0
Seed Gloss	10.1	0.00	0.00000	120,000	0.000	0%	0.0
Dynasty	8.673	0.52	0.02206	120,000	0.689	0%	0.0
Trilex	9.1	1.82	0.08791	120,000	9.600	0%	0.0
Total					**309.78**		**0.13**

*The maximum bottleneck throughput is based on the capacity of the conditioning tower (56,000 lbs/hour * ton/2000 lbs = 28 tons/hour)
**Throughputs for certain materials set at 0 since these would not represent the maximum potential emissions for these chemicals

Limited

Unit ID	VOC Limit (tons/year)
Treater 1	25.0
Treater 2	25.0
Treater 3	25.0
Totals	**75.0**

Appendix B: Emissions Calculations
Natural Gas Combustion (≤ 100 MMBtu/hr)
Unlimited Potential to Emit
Dryers 3, 4, 5, 6

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

Unit ID	Unlimited Heat Input Capacity MMBtu/hr	
Dryer 3	160	(18 burners @ 8.89 MMBtu/hr each)
Dryer 4	160	(18 burners @ 8.89 MMBtu/hr each)
Dryer 5	252	(28 burners @ 8.89 MMBtu/hr each)
Dryer 6	252	(28 burners @ 8.89 MMBtu/hr each)
Total	824.0	

HHV mmBtu/mmscf	Unlimited Throughput MMCF/yr
1000	7218.2

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100 **see below	5.5	84
Potential Emission in tons/yr	6.86	27.43	27.43	2.17	360.91	19.85	303.17

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 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	7.579E-03	4.331E-03	2.707E-01	6.496	1.227E-02

	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	1.805E-03	3.970E-03	5.053E-03	1.371E-03	7.579E-03

Total HAP's = 6.81

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 B: Emissions Calculations
Natural Gas Combustion (≤ 100 MMBtu/hr)
Limited Potential to Emit
Dryers 3, 4, 5, 6

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

Limited Throughput MMCF/yr
1,126.90

	Pollutant						
Emission Factor in lb/MMCF	PM* 1.9	PM10* 7.6	direct PM2.5* 7.6	SO2 0.6	NOx 100 **see below	VOC 5.5	CO 84
Limited Emission in tons/yr	1.07	4.28	4.28	0.34	56.35	3.10	47.33

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 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				
Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.183E-03	6.761E-04	4.226E-02	1.014	1.916E-03

	HAPs - Metals				
Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	2.817E-04	6.198E-04	7.888E-04	2.141E-04	1.183E-03

Total HAP's = 1.06

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 B: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
HEATERS

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

Heat Input Capacity MMBtu/hr	HHV mmBtu/mmscf	Potential Throughput MMCF/yr
2.3	1000	20.1

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100 **see below	5.5	84
Potential Emission in tons/yr	0.02	0.08	0.08	6.04E-03	1.01	0.06	0.85

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 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	2.12E-05	1.21E-05	7.56E-04	0.02	3.43E-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	5.04E-06	1.11E-05	1.41E-05	3.83E-06	2.12E-05
				Total HAP's =	**0.019**
				Highest Single HAP	**0.02**

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

Natuarl Gas Heater Data	Maximum Heat Input Capacity (Btu/hr)	Maximum Heat Output Capacity (Btu/hr)
Shop 1-Forced Air	225,000	182,300
Shop 2-Forced Air	125,000	100,000
Shop 3-Forced Air	125,000	100,000
Battery Area-Radiant	125,000	N/A
Small Lot Line 1-Radiant	125,000	N/A
Small Lot Line 2-Radiant	125,000	N/A
Palletizer 1-Radiant	300,000	N/A
Palletizer 2-Radiant	250,000	N/A
Bagger 1-Radiant	40,000	N/A
Bagger 2-Radiant	60,000	N/A
Bagger 3-Radiant	60,000	N/A
Seed Pak Filler 1-Radiant	40,000	N/A
Seed Pak Filler 2-Radiant	60,000	N/A
Seed Pak Filler 3-Radiant	60,000	N/A
Seed Pak Filler 4-Radiant	60,000	N/A
New Office HVAC 1	50,000	N/A
New Office HVAC 2	50,000	N/A
North Dock Heater	200,000	N/A
South Dock Heater	200,000	N/A
	2,300,000	Btu/hr
	2.30	MMBtu/hr

Appendix B: Emissions Calculations
Parts Washer

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

Parts Washer

Material	Density (lbs/gal)	Maximum Usage (gal/yr)	Weight % VOC	PTE VOC (tons/yr)
Safety-Kleen Solvent	6.70	145	100%	0.485
				0.485

Methodology
PTE VOC (tons/yr) = Density (lbs/gal) x Maximum Usage (gal/yr) x Weight % VOC x 1 ton/2,000 lbs

Appendix B: Emissions Calculations
Fugitive Dust Emissions - Paved Roads

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

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 (1/2011).

Vehicle Information (provided by source)

Type	Maximum number of vehicles per day	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight of Loaded Vehicle (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)	16.8	1.0	16.8	40.0	672.0	771	0.146	2.5	895.4
Vehicle (leaving plant) (one-way trip)	16.8	1.0	16.8	40.0	672.0	771	0.146	2.5	895.4
		Totals	**33.6**		**1344.0**			**4.9**	**1790.8**

Average Vehicle Weight Per Trip = 40.0 tons/trip
Average Miles Per Trip = 0.15 miles/trip

Unmitigated Emission Factor, Ef = [k * (sL)^0.91 * (W)^1.02] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/VMT = particle size multiplier (AP-42 Table 13.2.1-1)
W =	40.0	40.0	40.0	tons = average vehicle weight
sL =	9.7	9.7	9.7	g/m^2 = silt loading value for paved roads at iron and steel production facilities - Table 13.2.1-3

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [1 - (p/4N)] (Equation 2 from AP-42 13.2.1)
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	PM2.5	
Unmitigated Emission Factor, Ef =	3.745	0.749	0.1836	lb/mile
Mitigated Emission Factor, Eext =	3.424	0.685	0.1681	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Mitigated PTE of PM (Before Control) (tons/yr)	Mitigated PTE of PM10 (Before Control) (tons/yr)	Mitigated PTE of PM2.5 (Before Control) (tons/yr)	Mitigated PTE of PM (After Control) (tons/yr)	Mitigated PTE of PM10 (After Control) (tons/yr)	Mitigated PTE of PM2.5 (After Control) (tons/yr)
Vehicle (entering plant) (one-way trip)	1.53	0.31	0.08	0.77	0.15	0.04
Vehicle (leaving plant) (one-way trip)	1.53	0.31	0.08	0.77	0.15	0.04
Totals	**3.07**	**0.61**	**0.15**	**1.53**	**0.31**	**0.08**

Methodology
Total Weight driven per day (ton/day) = [Maximum Weight of Loaded Vehicle (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 (Before Control) (tons/yr) = [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (After Control) (tons/yr) = [Mitigated PTE (Before Control) (tons/yr)] * [1 - Dust Control Efficiency]

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particle Matter (<2.5 um)
PTE = Potential to Emit

Appendix B: Emissions Calculations
Fugitive Dust Emissions - Unpaved Roads

Company Name: Bayer Great Lakes Production Co., LLC
Source Address: 15849 S US Hwy 231, Remington, IN 47977
Source ID: 073-00035

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 (11/2006).

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 of Loaded Vehicle (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) REC	25.0	1.0	25.0	40.0	1000.0	1590	0.301	7.5	2747.9
Vehicle (leaving plant) (one-way trip) REC	25.0	1.0	25.0	20.0	500.0	995	0.188	4.7	1719.6
Vehicle (entering plant) (one-way trip) Loadout	18.0	1.0	18.0	20.0	360.0	1590	0.301	5.4	1978.5
Vehicle (leaving plant) (one-way trip) Loadout	18.0	1.0	18.0	40.0	720.0	995	0.188	3.4	1238.1
		Totals	86.0		2580.0			21.1	7684.0

Average Vehicle Weight Per Trip = 30.0 tons/trip
Average Miles Per Trip = 0.24 miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	6.0	6.0	6.0	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-1 Iron and Steel Production)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2 for Industrial Roads)
W =	30.0	30.0	30.0	tons = average vehicle weight
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2 for Industrial Roads)

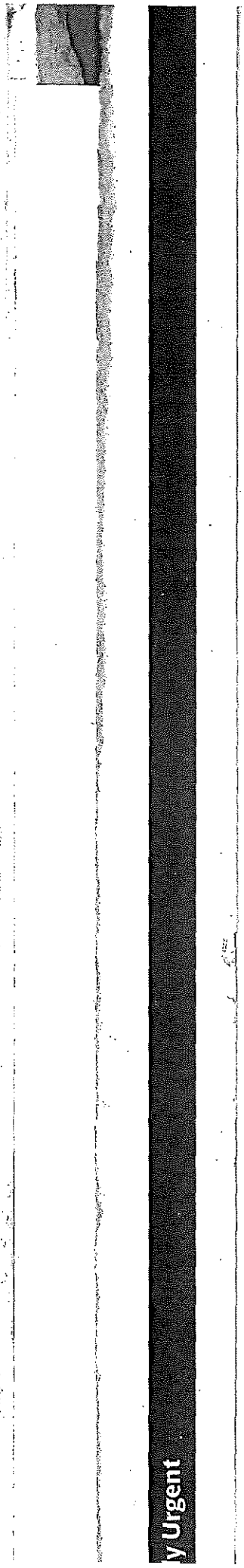
Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [(365 - P)/365] (Equation 2 from AP-42 13.2.2)
Mitigated Emission Factor, Eext = E * [(365 - P)/365]
where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	6.50	2.27	0.23	lb/mile
Mitigated Emission Factor, Eext =	5.59	1.49	0.15	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Mitigated PTE of PM (Before Control) (tons/yr)	Mitigated PTE of PM10 (Before Control) (tons/yr)	Mitigated PTE of PM2.5 (Before Control) (tons/yr)	Mitigated PTE of PM (After Control) (tons/yr)	Mitigated PTE of PM10 (After Control) (tons/yr)	Mitigated PTE of PM2.5 (After Control) (tons/yr)
Vehicle (entering plant) (one-way trip) REC	7.68	2.05	0.20	3.84	1.02	0.10
Vehicle (leaving plant) (one-way trip) REC	4.81	1.28	0.13	2.40	0.64	0.06
Vehicle (entering plant) (one-way trip) Loadout	5.53	1.47	0.15	2.76	0.74	0.07
Vehicle (leaving plant) (one-way trip) Loadout	3.46	0.92	0.09	1.73	0.46	0.05
Totals	21.48	5.72	0.57	10.74	2.86	0.29

Methodology
Total Weight driven per day (ton/day) = [Maximum Weight of Loaded Vehicle (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)]
Mitigated PTE (Before Control) (tons/yr) = [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (After Control) (tons/yr) = [Mitigated PTE (Before Control) (tons/yr)] * (1 - Dust Control Efficiency)

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PTE = Potential to Emit



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