



Corteva Agriscience  
Harbor Beach Operations  
305 N. Huron Ave  
Harbor Beach, MI 48441

August 26, 2021

CERTIFIED MAIL:  
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Mr. Chris Hare, District Supervisor  
EGLE Air Quality Division  
Saginaw Bay District  
401 Ketchum St., Suite B  
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Ms. Jenine Camilleri,  
Enforcement Unit Supervisor  
EGLE Air Quality Division  
PO Box 30260  
Lansing, MI 48909-7760

**RE: Corteva Harbor Beach Operations Violation Notice Corrective Actions**

Corteva Agriscience in Harbor Beach, Michigan is identified by State Registration Number (SRN) B4942. Attached, please find the written response and corrective actions to Violation Notice B4942\_VN\_20210805 and a signed copy of the Renewable Operating Permit Certification Form (EQP 5736, REV 4/30/2019).

If you have any questions regarding this submission, please contact me at (989) 479-5283 or by email at james.mcgee@corteva.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim McGee", written in a cursive style.

Jim McGee  
Environment, Health, Safety, & Security  
Corteva Agriscience, Harbor Beach Site  
office: (989) 479-5283  
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Enclosure:  
Document B4942 – Aug 25, 2021  
ROP Form EQP 5736



MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
AIR QUALITY DIVISION

**RENEWABLE OPERATING PERMIT  
REPORT CERTIFICATION**

Authorized by 1994 P.A. 451, as amended. Failure to provide this information may result in civil and/or criminal penalties.

Reports submitted pursuant to R 336.1213 (Rule 213), subrules (3)(c) and/or (4)(c), of Michigan's Renewable Operating Permit (ROP) program must be certified by a responsible official. Additional information regarding the reports and documentation listed below must be kept on file for at least 5 years, as specified in Rule 213(3)(b)(ii), and be made available to the Department of Environment, Great Lakes, and Energy, Air Quality Division upon request.

Source Name Corteva Agriscience LLC County Huron  
Source Address 305 North Huron Ave. City Harbor Beach  
AQD Source ID (SRN) B4942 ROP No. MI-ROP-B4942 ROP Section No. \_\_\_\_\_

Please check the appropriate box(es):

**Annual Compliance Certification (Pursuant to Rule 213(4)(c))**

Reporting period (provide inclusive dates): From \_\_\_\_\_ To \_\_\_\_\_

1. During the entire reporting period, this source was in compliance with **ALL** terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference. The method(s) used to determine compliance is/are the method(s) specified in the ROP.

2. During the entire reporting period this source was in compliance with all terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference, **EXCEPT** for the deviations identified on the enclosed deviation report(s). The method used to determine compliance for each term and condition is the method specified in the ROP, unless otherwise indicated and described on the enclosed deviation report(s).

**Semi-Annual (or More Frequent) Report Certification (Pursuant to Rule 213(3)(c))**

Reporting period (provide inclusive dates): From \_\_\_\_\_ To \_\_\_\_\_

1. During the entire reporting period, **ALL** monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred.

2. During the entire reporting period, all monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred, **EXCEPT** for the deviations identified on the enclosed deviation report(s).

**Other Report Certification**

Reporting period (provide inclusive dates): From NA To \_\_\_\_\_

Additional monitoring reports or other applicable documents required by the ROP are attached as described:  
B4942 written response to Violation Notice B4942\_VN\_20210805

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report and the supporting enclosures are true, accurate and complete

Lisa Callender Site Leader 989-479-5258  
Name of Responsible Official (print or type) Title Phone Number  
 \_\_\_\_\_  
Signature of Responsible Official Date

\* Photocopy this form as needed.


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 Revision Date:  
 Aug 25, 2021

 Facility:  
 Harbor Beach Operations  
 B4942

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 B4942 Violation Notice Corrective Actions

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### 1. Response to Violation Notice:

Corteva has been working closely with EGLE since April to resolve the performance issues for the catalytic thermal treatment units (TTUs) and to implement corrective actions to address the formaldehyde emissions generated as a combustion product in these TTUs. We appreciate the support EGLE has provided toward resolution of these issues as it is Corteva's desire to operate in compliance with all regulatory requirements.

Corteva agrees with most of the violations outlined in the August 5, 2021 violation notice and certainly agrees that resolving these violations in a timely manner is critical. Every effort is being made to ensure a quick resolution.

EGLE identified five violations within the notice. The corrective actions taken by Corteva address all these violations collectively; therefore, the corrective actions outlined below are in response to all the violations within this notice.

There is one violation that Corteva does not agree with. Although we agree that formaldehyde emissions need to be permitted, Corteva disagrees that formaldehyde emissions generated from combustion are regulated under the 40CFR63, Subpart MMM-Pesticide Active Ingredient MACT (PAIP MACT) as stated in violation #1. We are providing our rationale for our position in section 4 of this response.

### 2. Background

- 2.1 Alternative Monitoring Parameter Request – On July 1, 2011, Dow Agrosiences (now Corteva) received approval from EPA Region V Brach Chief George T. Czerniak to operate under an alternative monitoring parameter plan. This plan included periodic emission monitoring using 40CFR60, Appendix A, Method 25A - Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer (Method 25A).
- 2.1.1 The B4942 process unit generates methanol as an aerobic fermentation byproduct. Methanol is an organic hazardous air pollutant (OHAP) regulated by PAIP MACT. The process vents concentration is approximately 300 ppmv. These vents are sent to five thermal treatment units (TTUs) to control methanol emissions. Methanol is the only significant combustible material that is sent to the TTUs.
  - 2.1.2 TTU-850, TTU-855, TTU-860, and TTU-865 are catalytic incinerators. These TTUs use Clariant® EnviCat® 2201 platinum-aluminum oxide catalyst. The PAIP MACT requires monitoring of the temperature differential across the catalyst bed to demonstrate on-going compliance with the control requirements for process vents.
  - 2.1.3 Due to the low organic inlet concentration, the BTU loading is not sufficient to allow for the measurement of a meaningful temperature differential. B4942 often sees temperature differentials that are negative. As a result, a meaningful temperature differential operating parameter was not feasible, necessitating the proposal of an alternative operating parameter.
  - 2.1.4 Derenzo and Associates, Inc. conducted compliance testing from November 9 – 11, 2010. This testing included methanol spiking to maximize the process vent inlet rate. Stack emissions were measured using EPA Method 25A and EPA Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography. Method 25A data establish a total hydrocarbon emission profile and Method 18 establish a methanol emission profile. This information was used to support the alternative monitoring parameter request belief that Method 25A would provide an acceptable catalytic performance indicator.

**B4942 – Aug 25, 2021**



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- 3.3 On July 19, 2021, Corteva submitted a request to update their current alternative monitoring plan to request approval to use EPA Method 320 instead of Method 25A.
  - 3.3.1 Method 320 will provide additional data that can be used to more accurately determine when the catalyst change out is needed.
  - 3.3.2 Method 320 will also detect formaldehyde emissions which will allow the site to verify emissions against permit limits.
- 3.4 On July 19, 2021, Corteva submitted an updated Catalyst Inspection & Maintenance Plan and Compliance Assurance Monitoring Plan.
- 3.5 On or before October 15, 2021, Corteva will submit an air use permit application to update air permit 107-18B to include:
  - 3.5.1 Formaldehyde emissions compliant with R 336.1225 - Health-based screening level requirements for new or modified sources of air toxics. AERMOD will be used to demonstrate compliance with health-based screening level per R 336.1227.
  - 3.5.2 Revised combustion air to fuel ratio to a target range of 7.5:1 – 14:1 based on performance test data.
- 3.6 Corteva will submit periodic reports which will include methanol and formaldehyde concentration data as measured for the alternative monitoring plan. Here is an example of the data that will be provided:

**Aug-21**

Monthly Summary Table		TTU-850	TTU-855	TTU-860	TTU-865
Sample Collection Start		8/18/2021 9:42	8/17/2021 8:08	8/17/2021 15:19	8/17/2021 8:31
Sample Collection End		8/18/2021 13:42	8/17/2021 12:05	8/17/2021 19:09	8/17/2021 12:35
Avg THC (ppmv) by EPA 25A		6.8	3.2	N/A	10.2
Avg. Methane (ppmv) by EPA 320 FTIR		5.56	5.67	11.64	22.80
Avg. CH20 (ppmv) by EPA 320 FTIR		23.94	5.28	1.17	2.77
Avg. MeOH (ppmv) by EPA 320 FTIR		17.20	2.80	0.84	3.04
Catalyst Inlet Temp.	Device 1 Tag No.#	TI-IN850-1.pv	TI-IN855-1.pv	TI-IN860-1.pv	TI-IN865-1.pv
	Avg. Temp (F)	900.1	674.8	674.9	675.2
	Device 2 Tag No.#	TI-IN850-8.pv	TI-IN855-8.pv	TI-IN860-8.pv	TI-IN865-8.pv
	Avg. Temp (F)	898.2	672.8	656.3	673.4
	Device 3 Tag No.#	TI-IN850-5.pv	TI-IN855-5.pv	TI-IN860-5.pv	TI-IN865-5.pv
	Avg. Temp (F)	894.2	670.4	669.2	673.5
	Device 4 Tag No.#	TI-IN850-6.pv	TI-IN855-6.pv	TI-IN860-6.pv	TI-IN865-6.pv
	Avg. Temp (F)	895.6	677.7	652.9	672.4
Average Catalyst Inlet Temperature		897.1	674.0	663.3	673.6
Catalyst Outlet Temp.	Device 1 Tag No.#	TI-IN850-2.pv	TI-IN855-2.pv	TI-IN860-2.pv	TI-IN865-2.pv
	Avg. Temp (F)	903.5	682.7	679.1	688.4
	Device 2 Tag No.#	TI-IN850-12.pv	TI-IN855-12.pv	TI-IN860-12.pv	TI-IN865-12.pv
	Avg. Temp (F)	897.6	678.4	671.4	686.6
	Device 3 Tag No.#	TI-IN850-9.pv	TI-IN855-9.pv	TI-IN860-9.pv	TI-IN865-9.pv
	Avg. Temp (F)	892.9	669.1	662.6	672.1
	Device 4 Tag No.#	TI-IN850-10.pv	TI-IN855-10.pv	TI-IN860-10.pv	TI-IN865-10.pv
	Avg. Temp (F)	896.0	682.9	660.9	681.9
Average Catalyst Outlet Temperature		897.5	678.3	668.5	682.3
Temp Delta		0.4	4.3	5.2	8.6


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**Discussion:**
**EUPROCESS**

The emission limitation specified in the Title V permit conditions 1.1, 1.3, and 1.4 apply to EUPROCESS. The Title V permit defines EUPROCESS as being emissions from various process equipment in the production process that "are vented to the thermal treatment units." The permit does not include emissions from the TTU as being subject to the 20 ppmv emission limitation. The description of EUPROCESS from the permit is as follows:

Insect management product production process. The manufacturing process consists of fermentation, extraction, crystallization, evaporation, continuous belt filter, centrifuge, vacuum, and steam dryer equipment. The emission group also includes a raw material storage tank for glucose, one organic oil tank, and two solvent tanks. Emissions from the production process are vented to the thermal treatment units. Emissions from the bioreactor are controlled by an enclosed flare. This emission unit is subject to 40 CFR Part 63, Subpart MMM – National Emission Standards for Hazardous Air Pollutants for Pesticide Active Ingredient Production, and 40 CFR Part 64 – Compliance Assurance Monitoring. (PTI No. 107-18B)

**2. Uncontrolled Emissions from the Process as defined in PAIP MACT**

§63.1361 of the PAIP MACT Clearly defines "Uncontrolled emissions" to be emission prior to a control device and imposes limitations on these "uncontrolled emissions" from "process vents".

**§63.1361**

*Uncontrolled HAP emissions* means a gas stream containing HAP which has exited the process (or process condenser, if any), but which has not yet been introduced into an air pollution control device to reduce the mass of HAP in the stream. If the process vent is not routed to an air pollution control device, uncontrolled emissions are those HAP emissions released to the atmosphere.

*Air pollution control device or control device* means equipment installed on a process vent, storage vessel, wastewater treatment exhaust stack, or combination thereof that reduces the mass of HAP emitted to the air. The equipment may consist of an individual device or a series of devices. Examples include incinerators, carbon adsorption units, condensers, flares, boilers, process heaters, and gas absorbers. Process condensers are not considered air pollution control devices or control devices.

*"Process vent* means a point of emission from processing equipment to the atmosphere or a control device..."

Similarly, the definition states that these emissions have "exited the process" which is defined as:

*Process* means a logical grouping of processing equipment which collectively function to produce a product. For the purpose of this subpart, a PAI process includes all, or a combination of, reaction, recovery, separation, purification, treatment, cleaning, and other activities or unit operations which are used to produce a PAI or integral intermediate. Ancillary activities are not considered a PAI process or any part of a PAI process. Ancillary activities include boilers and incinerators (not used to comply with the provisions of §63.1362), chillers or refrigeration systems, and other equipment and activities that are not directly involved (i.e., they operate within a closed system and materials are not combined with process fluids) in the processing of raw materials or the manufacturing of a PAI. A PAI process and all integral intermediate processes for which 100 percent of the annual production is used in the production of the PAI may be linked together and defined as a single PAI process unit.

The PAIP MACT rule does not include the air pollution control device in the definition of process.

When specifying the control requirements that must be met in §63.1362(b), the rule clearly states that the process vent control requirements apply to "uncontrolled HAP emissions" from any "process vent". The control requirements for Organic HAP emissions as specified in the rule do not include emissions generated from the combustion of process emissions.

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**The "General duty" clause states that once the standard is met, there is no obligation to further control the stream.**

The General duty clause is as follows:

§1360(e)(4) *General duty*. At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source

Corteva is compliant with the 20 ppmv standard when considering emissions from the process. During the testing, the outlet concentration from the reduction of methanol in the process vents was less than 10 ppmv as methanol. The additional emissions from the combustion in the control devices are not from the process and therefore are not subject to and should not be considered when determining compliance with the 20ppmv limitation in the regulation. As stated above, once the 20 ppmv level is achieved, the PAIP MACT rule does not require that Corteva reduce emissions further.

**EPA specifically included requirements for HCL and chlorine from the combustion of halogenated vent streams to be considered as uncontrolled emissions, but did not include similar requirements for Organic HAPS**

In 63.1362(b)(3):

*HCl and Cl<sub>2</sub> emissions from existing sources.*

For each process, the owner or operator of an existing source shall comply with the requirements of either paragraph (b)(3)(i) or (ii) of this section.

- (i) The uncontrolled HCl and Cl<sub>2</sub> emissions, including HCl generated from the combustion of halogenated process vent emissions, from the sum of all process vents within a process shall not exceed 6.8 Mg/yr.
- (ii) HCl and Cl<sub>2</sub> emissions, including HCl generated from combustion of halogenated process vent emissions, from the sum of all process vents within a process shall be reduced by 94 percent or greater or to outlet concentrations less than or equal to 20 ppmv.

In contrast, for Organic HAP, the standard only addresses emissions from the process vents within the process. If EPA intended to control emissions from the combustion process, they could have included similar language within both provisions.

**§63.1362 Standards.**

(b) *Process vents.*