Ambient Air Quality Services, Inc.

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March 18, 2014

Mr. Paul Foster
Delaware Department of Natural Resources and Environmental Control
Division of Air Quality
Blue Hen Corporate Center
655 S. Bay Road, Suite 5N
Dover, DE 19901

RE: Diamond Materials, LLC
Complete Revised Crusher Air Permit Application
200 Marsh Lane, New Castle, DE 19720

Dear Mr. Foster:

Enclosed are two copies of a complete revised permit application package that includes all AQM Forms and additional information related to the air permit application for the Diamond Materials portable crusher to be located at 200 Marsh Lane, New Castle, DE.

Diamond Material proposes to relocate a portable crusher from their 924 South Head Street facility to 200 Marsh Lane, New Castle, DE 19720. The crusher is currently permitted to operate under Air Permit No. APC-2000/0292 Construction/Operation (Amendment 2)/PTE. The crusher will be operated at 200 Marsh Lane to resize used concrete, stone, brick, block and recycled asphalt pavement (RAP) for reused or sale.

The air permit application package includes the following:

- Forms AQM 1, 2, 3.3, 3.9 and 5
- Location Map
- Process Flow Diagram
- Emission Calculations
- Caterpillar Engine Specification
- USEPA AP-42 Emission Factors tables
- Proof of Local Zoning
- Dust Control Plan

107 Hidden Fox Drive, Suite 101A, Lincoln University, PA 19352-1205
Telephone (484) 224-6218/Voice/Fax
www.aaqsinc.com

If you have any questions on the air permit application, please contact Mr. Louis M. Militana, Air Quality Consultant, AAQS, Inc., at (484) 224-6281 ext 101 or by email at lmilitana@aaqsinc.com.

Very truly yours,
AAQS Inc.

Louis M. Militana, QEP
Partner/Principal Consultant

Cc: Paul Lester/Diamond Materials, LLC
Email: Chandu Dalsania/DNREC

APPLICATION FORMS AND SUPPORTING DOCUMENTATION

FORM AQM - 1 ADMINISTRATIVE INFORMATION

Administrative Information

If you are using this form electronically, press F1 at any time for help
All Application Forms Should Be Mailed To:
Air Quality Management
Blue Hen Corporate Center
655 S. Bay Road, Suite 5 N
Dover, DE 19901

All Checks Should Be Made Payable To:
State of Delaware

For Department Use Only

Date Received Stamp | Assigned Permit Number

Company and Site Information

1.	Company Name: **Diamond Material, LLC**		
2.	Company Mailing Address: **924 South Head Street**		
	City: **Wilmington**	State: **DE**	Zip Code: **19801**
3.	Site Name: **200 Marsh Lane**		
4.	Site Mailing Address: *(if different from above)*		
	City:	State:	Zip Code:
5.	Physical Location of Site: **200 Marsh Lane** *(if different from above)*		
	City: **Wilmington**	State: **DE**	Zip Code: **19801**
6.	Air Quality Management Facility ID Number:		
7.	Site NAICS Code): *(list all that apply*		
8.	Site SIC Code: : *(list all that apply)*		
9.	Site Location Coordinates: **39 42 51 N , 75 34 14 W**		
10.	Is the Facility New or Existing?	☒ NEW	☐ EXISTING
If the Facility is an Existing Facility, Complete the Rest of Question 10. If Not, Proceed to Question 11.			
10.1.	Does the Facility Have Active Air Permits?	☐ YES	☒ NO

Company and Site Information

11. Is this Application For a New Source or Modification of an Existing Source?
☒ New Source
☐ Modification of Existing Source
☐ Other (Specify):

If the application is for the modification of an existing source, complete the rest of Question 11. If not, proceed to Question 12.

11.1. Does the Source Have an Active Air Permit? ☐ YES ☒ NO

If the source has an active air permit, complete the rest of Question 11. If not, proceed to Question 12.

11.2. Permit Number of Existing Source:

12. Status of Source Being Applied For: ☐ Natural Minor Source ☒ Synthetic Minor Source ☐ Major Source

13. Facility Status: ☐ Natural Minor Facility ☒ Synthetic Minor Facility ☐ Major Facility

If the source is a Major Source, complete the rest of Question 13. If not, proceed to Question 14.

13.1. Responsible Official Name:

13.2. Responsible Official Title:

Contact Information

14. Name of Owner or Facility Manager: **Paul Lester**

15. Title of Owner or Facility Manager: **Superintendent**

16. Permit Contact Name: **Paul Lester**

17. Permit Contact Title: **Superintendent**

18. Permit Contact Telephone Number: **(302) 420-5826 Mobile**

19. Permit Contact Fax Number: **(302) 655-1810**

20. Permit Contact E-Mail Address: **plester@diamondmaterials.com**

Proposed Operating Schedule

21. Proposed Operating Schedule: **10** hours/day **6** days/week **52** weeks/year

21.1. Is There Any Additional Information Regarding the Operating Schedule? ☒ YES ☐ NO

If YES, complete the rest of Question 21. If NO, proceed to Question 22.

21.2. Describe the Additional Information: **The facility will be open for business 10 hrs/day, 6 days/week, 52 weeks/year but the crusher will operate a maxium of 708 hour per year.**

Coastal Zone Information

22. Is the Facility Located in the Coastal Zone? ☐ YES ☒ NO

If the facility is located in the Coastal Zone complete the rest of Question 22. If not, proceed to Question 23.

22.1. Is a Coastal Zone Permit Required for Construction or Operation of the Source Being Applied for? ☐ YES ☐ NO

Attach a copy of the Coastal Zone Determination if it has not been previously submitted

If a Coastal Zone Permit is required complete the rest of Question 22. If not, proceed to Question 23.

22.2. Has a Coastal Zone Permit Been Issued? ☐ YES ☐ NO

Attach a copy of the Coastal Zone Permit if it has not been previously submitted

Local Zoning Information

23. Parcel Zoning: **IG-1 Heavy Industrial**

Attach Proof of Local Zoning if it has not been previously submitted

Application Information

24. Is the Appropriate Application Fee Attached? ☒ YES ☐ NO Previously Submitted

25. Is the Advertising Fee Attached? ☒ YES ☐ NO Previously Submitted

Attach the appropriate fees. Note that your Application will not be considered complete if the appropriate fees are not included.

26. Is a Cover Letter Describing the Process Attached? ☒ YES ☐ NO

Attach a brief cover letter describing your Application.

If the Facility is a New Facility complete Question 27. If not, proceed to Question 28.

27. Is a Copy of the Applicant Background Information Questionnaire on Record at the Department? ☒ YES ☐ NO

If NO, complete the rest of Question 27. If YES, process to Question 28.

27.1 Is a Copy of the Applicant Background Information Questionnaire Attached? ☐ YES ☐ NO

Attach a copy of the Applicant Background Information Questionnaire if applicable.

28. Check Which Application Forms are Attached:

☒ AQM-1	☐ AQM-3.4	☒ AQM-3.9	☐ AQM-3.14	☐ AQM-4.4	☐ AQM-4.9	☐ AQM-6
☒ AQM-2	☐ AQM-3.5	☐ AQM-3.10	☐ AQM-3.15	☐ AQM-4.5	☐ AQM-4.10	
☐ AQM-3.1	☐ AQM-3.6	☐ AQM-3.11	☐ AQM-4.1	☐ AQM-4.6	☐ AQM-4.11	
☐ AQM-3.2	☐ AQM-3.7	☐ AQM-3.12	☐ AQM-4.2	☐ AQM-4.7	☐ AQM-4.12	
☒ AQM-3.3	☐ AQM-3.8	☐ AQM-3.13	☐ AQM-4.3	☐ AQM-4.8	☒ AQM-5	

Application Information

29. Check Which Documents are Attached:

- ☐ Coastal Zone Determination
- ☐ Coastal Zone Permit
- ☒ Proof of Local Zoning
- ☐ Application Fee
- ☐ Advertising Fee
- ☐ Applicant Background Information Questionnaire
- ☐ Claim of Confidentiality
- ☒ Manufacturer Specification(s)
- ☐ Material Safety Data Sheets (MSDSs)
- ☒ Supporting Calculations
- ☒ Descriptive Cover Letter
- ☒ Other (Specify): **Attachment 1 - Aerial Location Map, Attchment 6 - Proof of Local Zoning, Attachment 7 - Dust Control Plan**

Confidentiality Information

30. Do You Consider Any of the Information Submitted With this Application Confidential? ☐ YES ☒ NO

If a Claim of Confidentiality is made it MUST meet the requirements of Section 6 of DNREC's Freedom of Information ("FOIA") Regulation at the time the Application is submitted.

Signature Block

I, the undersigned, hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all of its attachments as to the truth, accuracy, and completeness of this information. I certify based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete. By signing this form, I certify that I have not changed, altered, or deleted any portions of this application. I acknowledge that I cannot commence construction, alteration, modification or initiate operation until I receive written approval (i.e. permit, registration, or exemption letter) from the Department. I acknowledge that I may be required to perform testing of the equipment to receive construction or operation approval, and that if I do not receive approval to construct or operate that I may appeal the decision.

Paul Lester
Owner or Authorized Agent

March 13, 2014
Date

Signature of Owner or Authorized Agent

All Application Forms Should Be Mailed To:
Air Quality Management
Blue Hen Corporate Center
655 S. Bay Road, Suite 5 N
Dover, Delaware 19901

All Checks Should Be Made Payable To:
State of Delaware

FORM AQM - 2 PROCESS FLOW DIAGRAM

Process Flow Diagram

Sketch the Process Flow Diagram for the equipment or process being applied for. Include each emission unit and control device (even existing emission units that will not be modified by this application). You may identify each emission unit with a simple shape. Label each emission unit and control device with a unique identifier. Show the relationship between each emission unit and/or control device by drawing arrows between them to indicate the flow of air pollutants. List which application forms are included for each emission unit or control device below the shape representing each emission unit or control device . See http://www.delaware.gov/reg2/default.htm for example Process Flow Diagrams for common processes. If you already have a Process Flow Diagram for the equipment or process being applied for, you may attach it to the application instead of using this form.

ATTACHMENT 2 - PROCESS FLOW DIAGRAM

FORM - 3.3 ENGINE APPLICATION

Generator/Engine Application

If you are using this form electronically, press F1 at any time for help

General Information

1. Facility Name: **Diamond Materials, LLC 200 Marsh Lane**
2. Equipment ID: **Crusher Engine**
3. Manufacturer: **Caterpillar**
4. Model: **3412**
5. Serial Number: **81Z21940**
6. Rated Heat Input: **5.7** MMBTU/hour
7. Maximum Power Output: **817 horsepower**
8. Date of Manufacture: **1997**
9. Installation Date: **2002**
10. Is the Equipment Being Applied For a Generator or an Engine? ☐ Generator ☒ Engine

If the equipment is a Generator, complete the rest of Question 10. If not, proceed to Question 11.

10.1. Is the Generator Existing or New? ☐ Existing ☐ New

10.2. Will the Generator Be Classified as an Emergency Generator or a Distributed Generator? ☐ Emergency ☐ Distributed

10.3. Has an Initial Notification Pursuant to 7 **DE Admin. Code** 1144 Been Submitted for this Generator? ☐ YES ☐ NO

If NO, include a copy of the Initial Notification with this application.

10.4. Have the Emissions From the Generator Been Certified to Meet the Currently Applicable US EPA Non-Road Emission Standards? ☐ YES ☐ NO

If YES, attach a copy of the Manufacturer's Certification. If NO, attach copies of any/all of the following: any maintenance or operating requirements/instructions provided by the generator manufacturer; the type, or a description, of any emission control equipment use; and/or emissions test data for the generator (such as a manufacturer's technical data sheet), any supporting documentation for any emission control equipment used, any supporting calculations, any quality control or assurance information, and any other information needed to demonstrate compliance with the requirements. Proceed to Question 11.

11. Primary Fuel: ☐ Natural Gas ☒ Diesel ☐ Propane ☐ Biodiesel ☐ Other (specify):

11.1. Maximum Annual Primary Fuel Consumption: **28,320 gal**

11.2. Heat Content of Primary Fuel: **140,000 BTU/CF**

11.3. Maximum Firing Rate: **40 gallons/hr**

11.4. Percent Sulfur of Primary Fuel: **0.0015** %

11.5. Percent Ash of Primary Fuel: %

General Information

12. Secondary Fuel: ☐ Natural Gas ☐ Diesel ☐ Propane ☐ Biodiesel ☐ Other (specify):

12.1. Maximum Annual Secondary Fuel Consumption: **MMCF**

12.2. Heat Content of Secondary Fuel: **BTU/CF**

12.3. Maximum Firing Rate: **MMCF/hr**

12.4. Percent Sulfur of Secondary Fuel: %

12.5. Percent Ash of Secondary Fuel: %

Stack Information

13. How Does the Process Equipment Vent:
(check all that apply)
☒ Directly to the Atmosphere
☐ Through a Control Device Covered by Forms AQM-4.1 through 4.12

If any of the process equipment vents directly to the atmosphere proceed to Question 14. If the process equipment vents through a control device, provide the stack parameters on the control device form and proceed to Question 15.

14. Emission Point Name: **Crusher Engine Stack**

14.1. Stack Height Above Grade: **8 feet**

14.2. Stack Exit Diameter: **0.667 feet**
(Provide Stack Dimensions If Rectangular Stack)

14.3. Is a Stack Cap Present? ☐ YES ☒ NO

14.4. Stack Configuration: ☒ Vertical ☐ Horizontal ☐ Downward-Venting
(check all that apply) ☐ Other (Specify):

14.5. Stack Exit Gas Temperature: **approximately 890 °F**

14.6. Stack Exit Gas Flow Rate: **approximately 4,620 ACFM**

14.7. Distance to Nearest Property Line: **200 ft**

14.8. Describe Nearest Obstruction:

14.9. Height of Nearest Obstruction: **ft**

14.10. Distance to Nearest Obstruction: **ft**

14.11. Are Stack Sampling Ports Provided? ☐ YES ☒ NO

Monitoring Information

15. Will Emissions Data be Recorded by a Continuous Emission Monitoring System? ☐ YES ☒ NO

If Yes, Attach a Copy of the Continuous Emission Monitoring System Manufacturer's Specification Sheets

If YES, complete the rest of Question 15. If NO, proceed to Question 16.

Monitoring Information

15.1. Pollutants Monitored: ☐ VOCs ☐ HAPs ☐ PM ☐ PM_{10} ☐ $PM_{2.5}$ ☐ NO_X ☐ SO_X ☐ Metals ☐ Other (Specify):

15.2. Describe the Continuous Emission Monitoring System:

15.3. Manufacturer:

15.4. Model:

15.5. Serial Number:

15.6. Will Multiple Emission Units Be Monitored at the Same Point? ☐ YES ☐ NO

If YES, complete the rest of Question 15. If NO, proceed to Question 16.

15.7. Emission Units Monitored:

15.8. Will More Than One Emission Unit be Emitting From the Combined Point At Any Time? ☐ YES ☐ NO

If YES, complete the rest of Question 15. If NO, proceed to Question 16.

15.9. Emission Units Emitting Simultaneously:

Visible Emissions Monitoring Information

For Primary Fuel

16. Proposed Technique Used to Monitor Visible Emissions:
☐ Opacity Monitor (COM)
☐ Manual (Method 9)
☐ Manual (Method 22)
☒ Other (Describe): **Operator will monitor the exhaust stack for excess visible emissions.**

If an Opacity Monitor (COM) is used, complete the rest of Question 16. If not, proceed to Question 17.

16.1. Describe the Continuous Opacity Monitoring System:

16.2. Manufacturer:

16.3. Model:

16.4. Serial Number:

17. Proposed Frequency of Opacity Monitoring: **Daily.**

For Secondary Fuel. If no Secondary Fuel is used, proceed to Question 20.

18. Proposed Technique Used to Monitor Visible Emissions:
☐ Opacity Monitor (COMs)
☐ Manual (Method 9)
☐ Manual (Method 22)
☐ Other (Describe):

If an Opacity Monitor (COMs) is used, complete the rest of Question 18. If not, proceed to Question 19.

18.1. Describe the Continuous Opacity Monitoring System:

18.2. Manufacturer:

18.3. Model:

Visible Emissions Monitoring Information

18.4. Serial Number:

19. Proposed Frequency of Opacity Monitoring:

Monitoring and Alarm Information

20. Are There Any Alarms You Would Like the Department to Consider When Drafting the Permit? ☐ YES ☒ NO

If YES, complete the rest of Question 20. If NO, proceed to Question 21.

20.1. Describe the System Alarm(s):

If there are more than five alarms, attach additional copies of this page as needed.

	Operating Parameter Monitored	Describe Alarm Trigger	Monitoring Device or Alarm Type	Does the Alarm Initiate an Automated Response?
20.1.1.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:
20.1.2.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:
20.1.3.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:
20.1.4.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:
20.1.5.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:

Emissions Information

21. Do You Plan to Take Any Emission Limitations to Avoid Major Source Status, Minor New Source Review, MACT, NSPS, etc.? ☐ YES ☒ NO

If YES, complete the rest of Question 21. If NO, proceed to Question 22.

Emissions Information

21.1. Describe Any Proposed Emission Limitations:

Operating Information

22. Do You Plan to Take Any Operating Limitations to Avoid Major Source Status, Minor New Source Review, MACT, NSPS, etc.? ☒ YES ☐ NO

If YES, complete the rest of Question 22. If NO, proceed to Question 23.

22.1. Describe Any Proposed Operating Limitations: **The hours of operation of the engine will be limited to 708 hours during any rolling 12-month period.**

Additional Information

23. Is There Any Additional Information Pertinent to this Application? ☐ YES ☒ NO

If YES, complete the rest of Question 23.

23.1. Describe:

FORM - 3.9 CRUSHED STONE EQUIPMENT APPLICATION

General Information

6.2. Feeder Power Provided By: ☐ Generator/Engine ☐ Utility ☐ Other (Specify):

If a Generator/Engine is used, include completed Form AQM-3.3 with this application.

Crusher Information

7. Number of Crushers: **1**

If there are more than two Crushers, attach additional copies of this page as needed.

For Primary Crusher

8. Primary Crusher Identification: **Crusher**

8.1. Primary Crusher Manufacturer: **Cedarapids**

8.2. Primary Crusher Model: **3054/5048**

8.3. Primary Crusher Serial Number: **PJF3339/PIS338**

8.4. Maximum Amount of Material Processed in Primary Crusher: **300 ton/hr**

8.5. Is a Wet Suppression System Used to Control Emissions from the Crusher? ☒ YES ☐ NO

8.6. Primary Crusher Power Provided By: ☒ Generator/Engine ☐ Utility ☐ Other (Specify):

If a Generator/Engine is Used, Include Completed Form AQM-3.3 With this Application

8.7. Is a Screen Used to Sort Crushed Material? ☐ YES ☒ NO

If YES, complete the rest of Question 8.7. If NO, proceed to Question 9.

8.7.1. Is a Wet Suppression System Used to Control Emissions from the Screen? ☐ YES ☐ NO

8.7.2. Screen Power Provided By: ☐ Generator/Engine ☐ Utility ☐ Other (Specify):

If a Generator/Engine is used, include completed Form AQM-3.3 with this application.

For the Secondary Crusher. If There is No Secondary Crusher, Proceed to Question 10.

9. Secondary Crusher Identification:

9.1. Manufacturer:

9.2. Model:

9.3. Serial Number:

9.4. Maximum Amount of Material Processed: **ton/hr**

9.5. Is a Wet Suppression System Used to Control Emissions from the Crusher? ☐ YES ☐ NO

9.6. Power Provided By: ☐ Generator/Engine ☐ Utility ☐ Other (Specify):

If a Generator/Engine is used, include completed Form AQM-3.3 with this application.

Crushed Stone Equipment Application

If you are using this form electronically, press F1 at any time for help

General Information

1. Facility Name: **Diamond Materials, LLC - 200 Marsh Lane**
2. Equipment ID Number:
3. Where Does the Stone Originate: ☐ On-Site ☒ Off-Site (Specify):
4. Locations Where Crusher Will Operate:

If the Crusher will operate at more than five locations, attach additional copies of this page as needed.

	Street Address	City	County	Zip Code	Condition of Roads at Location
4.1.	**200 Marsh Lane**	**New Castle**	**New Castle**	**19720**	☒ Paved ☐ Unpaved ☐ Both
4.2.					☐ Paved ☐ Unpaved ☐ Both
4.3.					☐ Paved ☐ Unpaved ☐ Both
4.4.					☐ Paved ☐ Unpaved ☐ Both
4.5.					☐ Paved ☐ Unpaved ☐ Both

Attach Proof of Local Zoning for each location.

5. Material Crushed:

If more than five Materials are crushed, attach additional copies of this page as needed.

	Material Name	Material Description
5.1.	**Concrete**	
5.2.	**Stone**	
5.3.	**Brick**	
5.4.	**Block**	
5.5.	**Recycled Asphalt Pavement (RAP)**	

6. Is a Feeder Used to Sort the Material Before Crushing? ☐ YES ☒ NO

If YES, complete the rest of Question 6. If NO, proceed to Question 7.

6.1. Is a Wet Suppression System Used to Control Emissions From the Feeder? ☐ YES ☐ NO

Crusher Information

9.7. Is a Screen Used to Sort Crushed Material? ☐ YES ☐ NO

If YES, complete the rest of Question 9.7. If NO, proceed to Question 10.

9.7.1. Is a Wet Suppression System Used to Control Emissions From the Screen? ☐ YES ☐ NO

9.7.2. Screen Power Provided By: ☐ Generator/Engine
☐ Utility
☐ Other (Specify):

If a Generator/Engine is used, include completed Form AQM-3.3 with this application.

Conveyor Information

10. Are Conveyors Used in the Process? ☒ YES ☐ NO

If YES, proceed to Question 11. If NO, proceed to Question 15.

11. Number of Conveyors in Process: **There are three discharge conveyors associated with the portable crusher.**

If more than three Conveyors are used, attach additional copies of this page as needed.

For the First Conveyor

12. Conveyor Identification: **36" x 40'**

12.1. Location: ☐ Before (Specify Equipment):
☒ After (Specify Equipment):
☐ Between (Specify Equipment):

12.2. Maximum Amount of Material Conveyed: **300 ton/hr**

12.3. Is a Wet Suppression System Used to Control Emissions? ☒ YES ☐ NO

12.4. Conveyor Power Provided By: ☐ Generator/Engine
☐ Utility
☐ Other (Specify):

If a Generator/Engine is used, include completed Form AQM-3.3 with this application.

For the Second Conveyor. If There Is No Second Conveyor, Proceed to Question 15.

13. Conveyor Identification: **36" x 40'**

13.1. Location ☐ Before (Specify Equipment):
☒ After (Specify Equipment):
☐ Between (Specify Equipment):

13.2. Maximum Amount of Material Conveyed: **300 ton/hr**

13.3. Is a Wet Suppression System Used to Control Emissions? ☒ YES ☐ NO

13.4. Conveyor Power Provided By: ☐ Generator/Engine
☐ Utility
☐ Other (Specify):

If a Generator/Engine is used, include completed Form AQM-3.3 with this application.

For the Third Conveyor. If There Is No Third Conveyor, Proceed to Question 15.

14. Conveyor Identification: **30" x 100'**

Conveyor Information

14.1. Location: ☐ Before (Specify Equipment):
☒ After (Specify Equipment):
☐ Between (Specify Equipment):

14.2. Maximum Amount of Material Conveyed: **300 ton/hr**

14.3. Is a Wet Suppression System Used to Control Emissions? ☒ YES ☐ NO

14.4. Conveyor Power Provided By: ☐ Generator/Engine
☐ Utility
☐ Other (Specify):

If a Generator/Engine is used, include completed Form AQM-3.3 with this application.

Fines Crushing Information

15. Do you perform any of the following activities at your facility: ☐ Pulverize Minerals
☐ Produce Sand
☐ Crush Stone Into a Fine Product

If you checked any of the boxes above, include complete Form AQM-3.10 with this application.

Visible Emissions Monitoring Information

16. Proposed Technique Used to Monitor Visible Emissions: ☐ Opacity Monitor (COM)
☐ Manual (Method 9)
☐ Manual (Method 22)
☒ Other (Describe): **The operator wil monitor the crusher unit for excess fugitve dust emissions and to make sure wet suppression system is operating properly.**

If an Opacity Monitor (COM) is used, complete the rest of Question 16. If not, proceed to Question 17.

16.1. Describe the Continuous Opacity Monitoring System:

16.2. Manufacturer:

16.3. Model:

16.4. Serial Number:

17. Proposed Frequency of Opacity Monitoring:

Monitoring and Alarm Information

18. Are There Any Alarms You Would Like the Department to Consider When Drafting the Permit? ☐ YES ☒ NO

If YES, complete the rest of Question 18. If NO, proceed to Question 19.

18.1. Describe the System Alarm(s):

If there are more than five alarms, attach additional copies of this page as needed.

	Operating Parameter Monitored	Describe Alarm Trigger	Monitoring Device or Alarm Type	Does the Alarm Initiate an Automated Response?

Monitoring and Alarm Information

18.1.1.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:
18.1.2.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:
18.1.3.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:
18.1.4.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:
18.1.5.			☐ Visual ☐ Auditory ☐ Automatic (Remote Monitoring) ☐ Other	☐ NO ☐ YES Describe:

Emissions Information

19. Do You Plan to Take Any Emission Limitations to Avoid Major Source Status, Minor New Source Review, MACT, NSPS, etc.? ☐ YES ☒ NO

If YES, complete the rest of Question 19. If NO, proceed to Question 20.

19.1. Describe Any Proposed Emission Limitations:

Operating Information

20. Do You Plan to Take Any Operating Limitations to Avoid Major Source Status, Minor New Source Review, MACT, NSPS, etc.? ☒ YES ☐ NO

If YES, complete the rest of Question 20. If NO, proceed to Question 21.

Operating Information

20.1. Describe Any Proposed Operating Limitations: **The crusher will only operate a maximum of 708 hours during any rolling 12-month period.**

Additional Information

21. Is There Any Additional Information Pertinent to this Application? ☐ YES ☒ NO

If YES, complete the rest of Question 21.

21.1. Describe:

FORM AQM - 5 EMISSION INFORMATION APPLICATION

Emissions Information Application

If you are using this form electronically, press F1 at any time for help

Process Information

1. Number of Individual Pieces of Process Equipment in Process: **2**
2. Number of Individual Control Devices in Process: **1**

Emissions Information for First Emission Point/Stack

3. Emission Point Name: **Crusher and integral conveyors - fugitive emissions**
4. Equipment ID Number for all Process Equipment and Control Devices Venting Through Emission Point/Stack: **Crusher and integral conveyors**
5. Pollutant Emissions

If more than 15 pollutants are emitted at this Emission Point/Stack, attach additional copies of this page as needed.

	Pollutant Name (Specify VOCs and HAPs Individually in 5.10 through 5.18)	CAS Number (Not required for 5.1 through 5.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
5.1.	Particulate Matter (PM)		**2.52 lbs/hour**	**0.402 lbs/hour**	**1.76** tons/year	**0.142** tons/year
5.2.	PM_{10}		**1.05 lbs/hour**	**0.176 lbs/hour**	**0.770** tons/year	**0.066** tons/year
5.3.	$PM_{2.5}$		**1.05 lbs/hour**	**0.0339 lbs/hour**	**0.148** tons/year	**0.012** tons/year
5.4.	Sulfur Oxides (SO_X)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.5.	Nitrogen Oxides (NO_X)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.6.	Carbon Monoxide (CO)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.7.	Total Volatile Organic Compounds (VOCs)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.8.	Total Hazardous Air		**lbs/hour**	**lbs/hour**	tons/year	tons/year

Emissions Information for First Emission Point/Stack

	Pollutants (HAPs)					
5.9.	CO_2		**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.10.	CO_{2e}		**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.11.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.12.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.13.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.14.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
5.15.			**lbs/hour**	**lbs/hour**	tons/year	tons/year

6. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above:

Attach the Basis of Determination or Calculations for each Emission Rate provided above.

Emissions Information for Second Emission Point/Stack

7. Emission Point Name: **Crusher engine stack**

8. Equipment ID Number for all Process Equipment and Control Devices Venting Through Emission Point/Stack:

9. Pollutant Emissions

If more than 15 pollutants are emitted at this Emission Point/Stack, attach additional copies of this page as needed.

	Pollutant Name (Specify VOCs and HAPs Individually in 9.10 through 9.18)	CAS Number (Not required for 9.1 through 9.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
9.1.	Particulate Matter (PM)		**0.850 lbs/hour**	**0.850 lbs/hour**	**3.72** tons/year	**0.301** tons/year
9.2.	PM_{10}		**0.850 lbs/hour**	**0.850 lbs/hour**	**3.72** tons/year	**0.301** tons/year

Emissions Information for Second Emission Point/Stack

9.3.	$PM_{2.5}$		**0.850 lbs/hour**	**0.850 lbs/hour**	**3.72** tons/year	**0.301** tons/year
9.4.	Sulfur Oxides (SO_X)		**0.00991 lbs/hour**	**0.00991 lbs/hour**	**0.0434** tons/year	**0.00351** tons/year
9.5.	Nitrogen Oxides (NO_X)		**13.7 lbs/hour**	**13.7 lbs/hour**	**60.0** tons/year	**4.85** tons/year
9.6.	Carbon Monoxide (CO)		**0.490 lbs/hour**	**0.490 lbs/hour**	**2.15** tons/year	**0.173** tons/year
9.7.	Total Volatile Organic Compounds (VOCs)		**0.130 lbs/hour**	**0.130 lbs/hour**	**0.569** tons/year	**0.046** tons/year
9.8.	Total Hazardous Air Pollutants (HAPs)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
9.9.	CO_2		**lbs/hour**	**lbs/hour**	tons/year	tons/year
9.10.	CO_{2e}		**lbs/hour**	**lbs/hour**	tons/year	tons/year
9.11.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
9.12.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
9.13.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
9.14.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
9.15.			**lbs/hour**	**lbs/hour**	tons/year	tons/year

10. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above:

Attach the Basis of Determination or Calculations for each Emission Rate provided above.

Emissions Information for Third Emission Point/Stack

11. Emission Point Name:

12. Equipment ID Number for all Process Equipment and Control Devices Venting Through Emission Point/Stack:

Emissions Information for Third Emission Point/Stack

13. Pollutant Emissions

If more than 15 pollutants are emitted at this Emission Point/Stack, attach additional copies of this page as needed.

	Pollutant Name (Specify VOCs and HAPs Individually in 13.10 through 13.18)	CAS Number (Not required for 13.1 through 13.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
13.1.	Particulate Matter (PM)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.2.	PM_{10}		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.3.	$PM_{2.5}$		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.4.	Sulfur Oxides (SO_X)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.5.	Nitrogen Oxides (NO_X)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.6.	Carbon Monoxide (CO)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.7.	Total Volatile Organic Compounds (VOCs)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.8.	Total Hazardous Air Pollutants (HAPs)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.9.	CO_2		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.10.	CO_{2e}		**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.11.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.12.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.13.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.14.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
13.15.			**lbs/hour**	**lbs/hour**	tons/year	tons/year

Emissions Information for Third Emission Point/Stack

14. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above:

Attach the Basis of Determination or Calculations for each Emission Rate provided above.

Emissions Information for Fourth Emission Point/Stack

15. Emission Point Name:

16. Equipment ID Number for all Process Equipment and Control Devices Venting Through Emission Point/Stack:

17. Pollutant Emissions

If more than 15 pollutants are emitted at this Emission Point/Stack, attach additional copies of this page as needed.

	Pollutant Name (Specify VOCs and HAPs Individually in 17.10 through 17.18)	CAS Number (Not required for 17.1 through 17.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
17.1.	Particulate Matter (PM)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.2.	PM_{10}		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.3.	$PM_{2.5}$		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.4.	Sulfur Oxides (SO_X)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.5.	Nitrogen Oxides (NO_X)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.6.	Carbon Monoxide (CO)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.7.	Volatile Organic Compounds (VOCs)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.8.	Total Hazardous Air Pollutants (HAPs)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.9.	CO_2		**lbs/hour**	**lbs/hour**	tons/year	tons/year

Emissions Information for Fourth Emission Point/Stack

17.10. CO_{2e}		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.11.		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.12.		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.13.		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.14.		**lbs/hour**	**lbs/hour**	tons/year	tons/year
17.15.		**lbs/hour**	**lbs/hour**	tons/year	tons/year

18. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above:

Attach the Basis of Determination or Calculations for each Emission Rate provided above.

If there are more than four Emission Points/Stacks, attach additional copies of this form as needed.

Overall Process Emissions

19. Pollutant Emissions

If more than 15 pollutants are emitted from this Process, attach additional copies of this page as needed.

Pollutant Name (Specify VOCs and HAPs Individually in 19.10 through 19.18)	CAS Number (Not required for 19.1 through 19.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
19.1. Particulate Matter (PM)		**3.37 lbs/hour**	**1.25 lbs/hour**	**5.48** tons/year	**0.443** tons/year
19.2. PM_{10}		**1.90 lbs/hour**	**1.03 lbs/hour**	**4.49** tons/year	**0.363** tons/year
19.3. $PM_{2.5}$		**1.90 lbs/hour**	**0.884 lbs/hour**	**3.87** tons/year	**0.313** tons/year
19.4. Sulfur Oxides (SO_X)		**0.00991 lbs/hour**	**0.00991 lbs/hour**	**0.0434** tons/year	**0.00351** tons/year
19.5. Nitrogen Oxides (NO_X)		**13.71 lbs/hour**	**13.7 lbs/hour**	**60.0** tons/year	**4.85** tons/year

Overall Process Emissions

19.6.	Carbon Monoxide (CO)		**0.49 lbs/hour**	**0.49 lbs/hour**	**2.15** tons/year	**0.173** tons/year
19.7.	Total Volatile Organic Compounds (VOCs)		**0.13 lbs/hour**	**0.130 lbs/hour**	**0.569** tons/year	**0.046** tons/year
19.8.	Total Hazardous Air Pollutants (HAPs)		**lbs/hour**	**lbs/hour**	tons/year	tons/year
19.9.	CO_2		**lbs/hour**	**lbs/hour**	tons/year	tons/year
19.10.	CO_{2e}		**lbs/hour**	**lbs/hour**	tons/year	tons/year
19.12.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
19.13.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
19.14.			**lbs/hour**	**lbs/hour**	tons/year	tons/year
19.15.			**lbs/hour**	**lbs/hour**	tons/year	tons/year

20. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above: **See Attached emission calculations and supporting documentation from AP-42 and Caterpillar Engine Specification.**

Attach the Basis of Determination or Calculations for each Emission Rate provided above.

Minor New Source Review Information

21. Does the Process Have the Potential to Emit More Than Five Tons Per Year of Any Pollutant? ☒ YES ☐ NO

22. Is the Source New or Existing? ☒ NEW ☐ EXISTING
See Question 11 of AQM-1

If the Process has the Potential to Emit more than five tons per year of any pollutant, and is a New Source, a Control Technology Analysis pursuant to Regulation No. 1125 Section 4 must be conducted and attached to this application.

Major New Source Review Information

23. Does the Process Have the Potential to Emit More Than the Significance Level for Any Pollutant? *(Check All That Apply)*

- ☐ Greater Than 25 Tons Per Year of Particulate Matter (PM)
- ☐ Greater Than 15 Tons Per Year of PM_{10}
- ☐ Greater Than 10 Tons Per Year of $PM_{2.5}$
- ☐ Greater Than 40 Tons Per Year of Sulfur Dioxide(SO_2)
- ☐ Greater Than 25 Tons Per Year of Nitrogen Oxides (NO_X) in New Castle and Kent County
- ☐ Greater Than 100 Tons Per Year of Nitrogen Oxides (NO_X) in Sussex County
- ☐ Greater Than 100 Tons Per Year of Carbon Monoxide (CO)
- ☐ Greater Than 25 Tons Per Year of Total Volatile Organic Compounds (VOCs) in New Castle and Kent County
- ☐ Greater Than 50 Tons Per Year of Total Volatile Organic Compounds (VOCs) in Sussex County
- ☐ Greater Than 75,000 Tons Per Year of Equivalent Carbon Dioxide (CO_{2e})

If the Process has the Potential to Emit greater than any of the amounts listed above 7 DE Admin. Code 1125 Sections 2 and/or 3 apply. Contact the Department at (302) 323-4542 or (302) 739-9402 for additional information

Additional Information

24. Is There Any Additional Information Pertinent to this Application? ☒ YES ☐ NO

If YES, complete the rest of Question 24.

24.1. Describe: **Process will be limited to 708 hours/year of operation to limit the emission to less than 5 ton/year of NOx and avoid New Source Review.**

ATTACHMENT 1 – LOCATION MAP

Figure 1
Diamond Materials, LLC
200 Marsh Lane
New Castle, DE 19720

ATTACHMENT 2 - PROCESS FLOW DIAGRAM

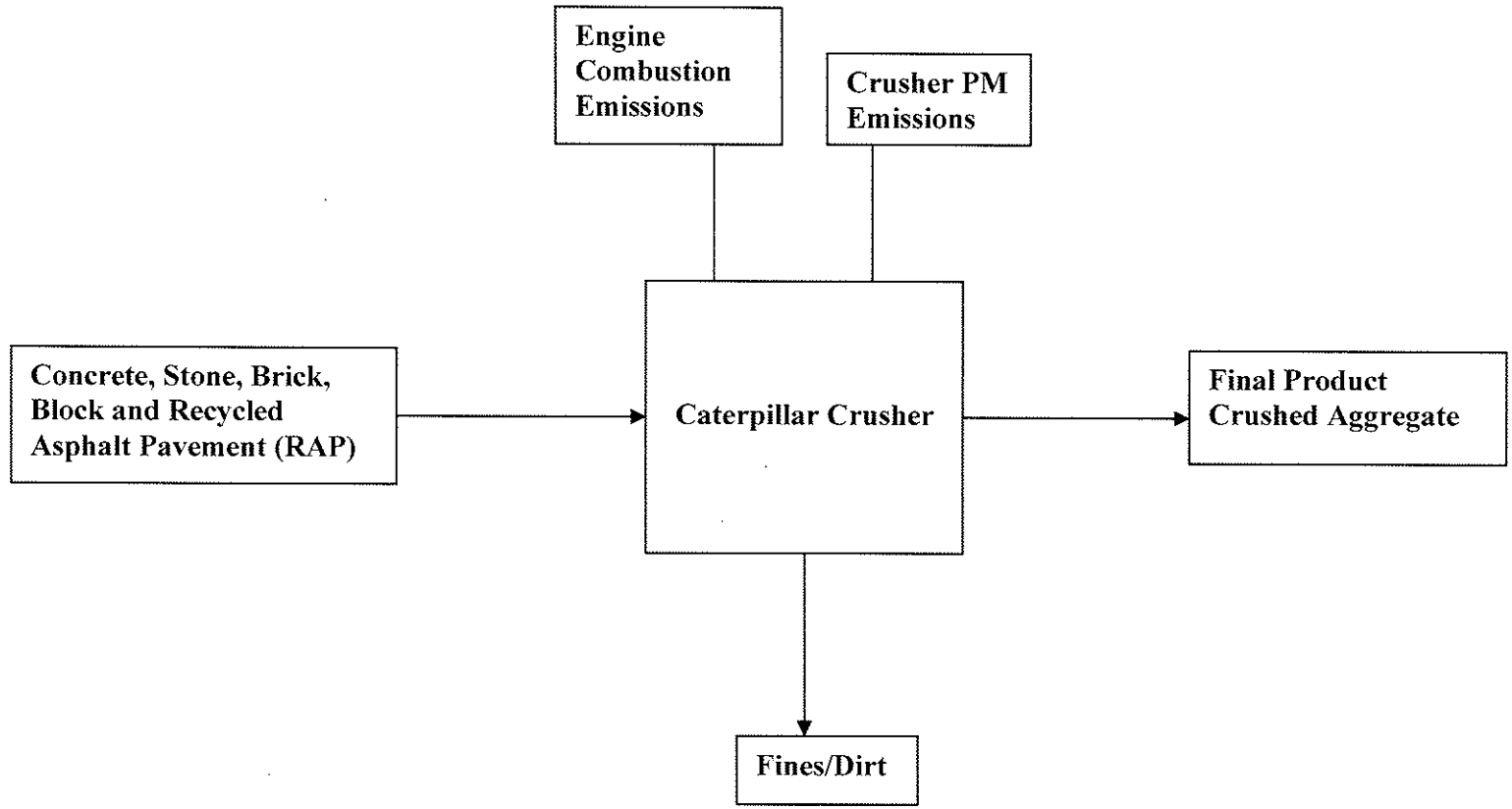

Figure 2
Diamond Materials, LLC
Process Flow Diagram
Concrete, Stone, Brick, Block and Recycled Asphalt Pavement (RAP) Processing

ATTACHMENT 3 - EMISSION CALCULATIONS

Diamond Materials
200 Marsh Land, New Castle, DE
Crusher Emission Calculations

Equipment	Crusher Engine	
Make/Model	Catepilar/DM1910	
Rating	817	HP
Rating	612	KW
Hours of Operation	708	hr/yr
Fuel	Diesel	ULSD
Fuel Sulfur Content	15	ppm
Fuel Sulfur Content	1.50E-03	%

Pollutant		Maximum Uncontrolled Emissions (lb/hr)		Maximum Controlled Emissions (lb/hr)	Annual Potential to Emit (tons/yr)	Hours of Operation (hr/yr)	Expected Annual Emissions (tons/yr)
PM		0.850		0.850	3.72	708	0.301
PM_{10}		0.850		0.850	3.72	708	0.301
$PM_{2.5}$		0.850		0.850	3.72	708	0.301
SO_2		0.00991		0.00991	0.0434	708	0.00351
NO_x		13.7		13.7	60.0	708	4.85
CO		0.490		0.490	2.15	708	0.173
VOC as HC		0.130		0.130	0.569	708	0.046

Emission factors from Catepilar Gen Set Package Performance Data (See attached sheet) for all pollutants except SO2. SO2 emission factor based on AP-42 Table 3.4-1 (8.09 E-03)S 817 HP, where S_s is percent sulfur in fuel)

Equipment	Crusher	
Make/Model	Cedar Rapids/JPR 3054	
Rating	300	tons/hr

Pollutant	Uncontrolled Emission Factor (lb/ton)	Maximum Uncontrolled Emissions (lb/hr)	Controlled Emission Factor (lb/ton)	Maximum Controlled Emissions (lb/hr)	Annual Potential to Emit (tons/yr)	Hours of Operation (hr/yr)	Expected Annual Emissions (tons/yr)
PM	5.40E-03	1.62E+00	1.20E-03	3.60E-01	1.58E+00	708	0.127
PM10	2.40E-03	7.20E-01	5.40E-04	1.62E-01	7.10E-01	708	0.0573
PM2.5	2.40E-03	7.20E-01	1.00E-04	3.00E-02	1.31E-01	708	0.0106

Emission factors from USEP AP-42 Table 11.19.2-2 (8/04), Tertiary Crushing.

Equipment	DischargeConveyor	
Make/Model	Cedar Rapids/JPR 3054	
Rating	300	tons/hr

Pollutant	Uncontrolled Emission Factor (lb/ton)	Maximum Maximum Uncontrolled Emissions (lb/hr)	Controlled Emission Factor (lb/ton)	Maximum Maximum Controlled Emissions (lb/hr)	Annual Potential to Emit (tons/yr)	Hours of Operation (hr/yr)	Expected Annual Emissions (tons/yr)
PM	3.00E-03	9.00E-01	1.40E-04	4.20E-02	1.8E-01	708	0.0149
PM10	1.10E-03	3.30E-01	4.60E-05	1.38E-02	6.0E-02	708	0.00489
PM2.5	1.10E-03	3.30E-01	1.30E-05	3.90E-03	1.7E-02	708	0.00138

Emission factors from USEP AP-42 Table 11.19.2-2 (8/04), Conveyor Transfer Point

Total PM Emissions

Pollutant		Total Max Uncontrolled Emissions (lb/hr)		Total Max Controlled Emissions (lb/hr)	Annual Potential to Emit (tons/yr)	Hours of Operation (hr/yr)	Total Expected Annual Emissions (tons/yr)
PM		2.52		4.02E-01	1.76E+00	708	0.142
PM10		1.05		1.76E-01	7.70E-01	708	0.0622
PM2.5		1.05		3.39E-02	1.48E-01	708	0.0120

Overall Process Emissions

Pollutant		Total Max Uncontrolled Emissions (lb/hr)		Total Max Controlled Emissions (lb/hr)	Annual Potential to Emit (tons/yr)	Hours of Operation (hr/yr)	Total Expected Annual Emissions (tons/yr)
PM		3.37		1.25	5.48	708	0.443
PM10		1.90		1.03	4.49	708	0.363
PM2.5		1.90		0.884	3.87	708	0.313
SO2		0.00991		0.00991	0.0434	708	0.00351
NOx		13.71		13.7	60.0	708	4.85
CO		0.49		0.490	2.15	708	0.173
VOC as HC		0.13		0.130	0.569	708	0.046

ATTACHMENT 4 - CATERPILLAR ENGINE SPECIFICATION

CATERPILLAR®

GEN SET PACKAGE PERFORMANCE DATA [81Z21940]

FEBRUARY 25, 2014

For Help Desk Phone Numbers Click here

Performance Number: DM1910

Change Level: 01

Sales Model: 3412CDITA **Combustion:** DI **Aspr:** TA

Engine Power:

545 W/F EKW 569 W/O F EKW

817 HP

Speed: 1,800 RPM **After Cooler:** JWAC

Manifold Type: DRY **Governor Type:** HYDRA **After Cooler Temp(F):** --

Turbo Quantity: 2 **Engine App:** GP **Turbo Arrangement:**

Hertz: 60 **Application Type:** PACKAGE-DIE **Engine Rating:** PGS **Strategy:**

Rating Type: PRIME **Certification:**

General Performance Data

GEN W/F EKW	PERCENT LOAD	ENGINE POWER BHP	ENGINE BMEP PSI	FUEL BSFC LB/BHP-HR	FUEL RATE GPH	INTAKE MFLD TEMP DEG F	INTAKE MFLD P IN-HG	INTAKE AIR FLOW CFM	EXH MFLD TEMP DEG F	EXH STACK TEMP DEG F	EXH GAS FLOW CFM
545	100	817	217.85	0.35	40.31	193.28	48.86	1,744.55	1,134.86	892.22	4,619.16
490.5	90	740	197.4	0.34	36.46	190.76	42.55	1,620.94	1,098.14	878.54	4,248.36
436	80	663	176.8	0.35	32.78	188.42	36.25	1,497.34	1,062.5	864.68	3,874.02
408.8	75	625	166.51	0.35	30.99	187.52	33.05	1,430.25	1,045.58	857.66	3,679.79
381.5	70	586	156.21	0.35	29.22	186.44	29.88	1,359.62	1,028.3	850.46	3,482.03
327	60	508	135.47	0.35	25.68	184.64	23.51	1,225.42	993.92	835.34	3,090.04
272.5	50	430	114.58	0.36	22.16	183.02	17.38	1,091.22	955.94	815.9	2,698.04
218	40	355	94.57	0.37	18.81	181.58	12.82	974.69	894.2	772.16	2,330.77
163.5	30	278	74.12	0.39	15.4	180.32	8.85	865.21	815	711.86	1,967.03
136.3	25	239	63.67	0.4	13.68	179.78	7.11	815.77	768.38	675.32	1,786.92
109	20	199	53.08	0.42	11.94	179.24	5.54	773.39	715.82	633.74	1,628.01
54.5	10	118	31.47	0.5	8.45	178.52	2.84	716.89	592.52	535.1	1,356.08

Engine Heat Rejection Data

GEN W/F EKW	PERCENT LOAD	REJ TO JW BTU/MN	REJ TO ATMOS BTU/MN	REJ TO EXHAUST BTU/MN	EXH RCOV TO 350F BTU/MN	FROM OIL CLR BTU/MN	FROM AFT CLR BTU/MN	WORK ENERGY BTU/MN	LHV ENERGY BTU/MN	HHV ENERGY BTU/MN
545	100	20,075.1	6,312.6	31,790.3	17,515.9	2,809.4	4,094.6	34,633.8	87,067.8	92,754.8
490.5	90	18,198.4	5,459.5	28,889.9	15,809.8	2,655.8	3,173.3	31,392.2	78,764.8	83,940.0
436	80	16,378.5	4,833.9	26,103.3	14,217.5	2,485.2	2,337.4	28,150.6	70,803.0	75,466.3
408.8	75	15,525.5	4,663.3	24,681.5	13,364.4	2,399.9	1,939.3	26,501.4	66,935.9	71,314.8
381.5	70	14,615.6	4,492.7	23,259.8	12,511.4	2,314.6	1,569.6	24,852.1	63,068.7	67,220.2
327	60	12,909.5	4,151.5	20,473.2	10,919.0	2,144.0	909.9	21,553.7	55,448.1	59,030.9
272.5	50	11,203.4	3,867.1	17,686.5	9,269.8	1,973.4	358.3	18,198.4	47,827.6	50,955.4

218	40	9,554.1	3,924.0	14,786.2	7,450.0	1,785.7	-45.5	15,070.5	40,605.1	43,278.0
163.5	30	7,848.0	3,867.1	11,942.7	5,630.1	1,563.9	-346.9	11,772.1	33,268.9	35,429.9
136.3	25	6,995.0	3,810.3	10,520.9	4,720.2	1,444.5	-466.3	10,122.8	29,515.5	31,449.0
109	20	6,085.1	3,696.5	9,212.9	3,924.0	1,325.1	-563.0	8,473.6	25,762.1	27,468.2
54.5	10	4,322.1	3,298.4	6,824.4	2,331.7	1,074.8	-699.5	5,004.5	18,198.4	19,392.6

EXHAUST Sound Data: 4.92 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
545	100	109	98	108	109	108	101	99	97	88
490.5	90	108	97	107	108	107	100	98	97	87
436	80	107	97	107	107	107	100	97	96	86
408.8	75	107	96	106	107	106	99	97	96	86
381.5	70	106	96	106	106	106	99	96	95	85
327	60	106	95	105	106	105	98	96	94	85
272.5	50	105	94	104	105	104	97	95	94	84
218	40	104	93	103	104	103	96	94	93	83
163.5	30	103	92	102	103	102	95	93	92	82
136.3	25	102	92	102	103	102	95	93	91	82
109	20	102	91	101	102	101	94	92	91	81
54.5	10	101	90	100	101	100	93	91	90	80

EXHAUST Sound Data: 22.97 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
545	100	95	89	98	93	93	88	87	87	79
490.5	90	94	88	98	93	92	87	86	86	78
436	80	94	87	97	92	92	86	85	85	77
408.8	75	93	87	96	91	91	86	85	85	77
381.5	70	93	86	96	91	91	85	84	84	77
327	60	92	86	95	90	90	85	84	84	76
272.5	50	91	85	94	89	89	84	83	83	75
218	40	90	84	94	89	88	83	82	82	74
163.5	30	90	83	93	88	87	82	81	81	73
136.3	25	89	83	92	87	87	82	81	81	73
109	20	89	82	92	87	86	81	80	80	72
54.5	10	87	81	91	86	85	80	79	79	71

EXHAUST Sound Data: 49.21 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
545	100	89	82	92	87	86	81	80	80	72
490.5	90	88	81	91	86	86	80	79	79	71
436	80	87	81	90	85	85	80	79	79	71
408.8	75	87	80	90	85	85	79	78	78	70
381.5	70	86	80	89	84	84	79	78	78	70
327	60	86	79	89	84	83	78	77	77	69
272.5	50	85	78	88	83	83	77	76	76	68
218	40	84	77	87	82	82	76	75	75	67
163.5	30	83	77	86	81	81	76	75	75	67
136.3	25	82	76	86	81	80	75	74	74	66
109	20	82	76	85	80	80	75	74	74	66
54.5	10	81	74	84	79	79	73	72	72	64

MECHANICAL Sound Data: 3.28 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
545	100	105	104	113	104	101	99	97	82	78
490.5	90	105	104	113	104	101	99	97	82	78
436	80	105	104	113	104	101	99	97	82	78
408.8	75	105	104	113	104	101	99	97	82	78
381.5	70	105	104	113	104	101	99	97	82	78
327	60	105	104	113	104	101	99	97	82	78
272.5	50	105	104	113	104	101	99	97	82	78
218	40	105	104	113	104	101	99	97	82	78
163.5	30	105	104	113	104	101	99	97	82	78
136.3	25	105	104	113	104	101	99	97	82	78
109	20	105	104	113	104	101	99	97	82	78
54.5	10	105	104	113	104	101	99	97	82	78

MECHANICAL Sound Data: 22.97 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCJ 8000HZ DB
545	100	92	92	100	92	87	86	86	79	70
490.5	90	92	92	100	92	87	86	86	79	70
436	80	92	92	100	92	87	86	86	79	70
408.8	75	92	92	100	92	87	86	86	79	70
381.5	70	92	92	100	92	87	86	86	79	70
327	60	92	92	100	92	87	86	86	79	70
272.5	50	92	92	100	92	87	86	86	79	70
218	40	92	92	100	92	87	86	86	79	70
163.5	30	92	92	100	92	87	86	86	79	70
136.3	25	92	92	100	92	87	86	86	79	70
109	20	92	92	100	92	87	86	86	79	70
54.5	10	92	92	100	92	87	86	86	79	70

MECHANICAL Sound Data: 49.21 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
545	100	86	86	94	87	82	80	79	74	63
490.5	90	86	86	94	87	82	80	79	74	63
436	80	86	86	94	87	82	80	79	74	63
408.8	75	86	86	94	87	82	80	79	74	63
381.5	70	86	86	94	87	82	80	79	74	63
327	60	86	86	94	87	82	80	79	74	63
272.5	50	86	86	94	87	82	80	79	74	63
218	40	86	86	94	87	82	80	79	74	63
163.5	30	86	86	94	87	82	80	79	74	63
136.3	25	86	86	94	87	82	80	79	74	63
109	20	86	86	94	87	82	80	79	74	63
54.5	10	86	86	94	87	82	80	79	74	63

EMISSIONS DATA

Certification:

To properly apply this data you must refer to performance parameter DM1176 for additional information...

REFERENCE EXHAUST STACK DIAMETER	8 IN
WET EXHAUST MASS	7,998.4 LB/HR
WET EXHAUST FLOW (892.40 F STACK TEMP)	4,626.23 CFM
WET EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	1,656.00 STD CFM
DRY EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	1,517.47 STD CFM
FUEL FLOW RATE	40 GAL/HR

RATED SPEED "Potential site variation"

GEN PWR EKW	PERCENT LOAD	ENGINE POWER BHP	TOTAL NOX (AS NO2) LB/HR	TOTAL CO LB/HR	TOTAL HC LB/HR	PART MATTER LB/HR	OXYGEN IN EXHAUST PERCENT	DRY SMOKE OPACITY PERCENT	BOSCH SMOKE NUMBER
545	100	817	13.7100	.4900	.1300	.8500	10.0000	4.8000	1.5600
408.8	75	625	11.1600	.2900	.1600	.4200	10.5000	3.5000	1.3600
272.5	50	430	8.5000	.1600	.1900	.3200	11.2000	2.6000	1.2800
136.3	25	239	5.7400	.1400	.1800	.2600	13.4000	1.7000	1.2800
54.5	10	118	3.6700	.1500	.2700	.2200	15.8000	1.4000	1.2900

RATED SPEED "Nominal Data"

GEN PWR EKW	PERCENT LOAD	ENGINE POWER BHP	TOTAL NOX (AS NO2) LB/HR	TOTAL CO LB/HR	TOTAL HC LB/HR	TOTAL CO2 LB/HR	PART MATTER LB/HR	OXYGEN IN EXHAUST PERCENT	DRY SMOKE OPACITY PERCENT	BOSCH SMOKE NUMBER
545	100	817	11.3300	.2600	.0700	903.9	.4300	10.0000	4.8000	1.5600
408.8	75	625	9.2200	.1600	.0900	693	.2200	10.5000	3.5000	1.3600
272.5	50	430	7.0300	.0900	.1000	494.1	.1600	11.2000	2.6000	1.2800
136.3	25	239	4.7400	.0800	.1000	309	.1300	13.4000	1.7000	1.2800
54.5	10	118	3.0300	.0800	.1400	191.4	.1100	15.8000	1.4000	1.2900

Altitude Capability Data(Corrected Power Altitude Capability)

Ambient Operating Temp. / Altitude	50 F	68 F	86 F	104 F	122 F	NORMAL
0 F	816.68 hp	816.68 hp	816.68 hp	816.68 hp	816.68 hp	816.68 hp
984.25 F	816.68 hp	816.68 hp	816.68 hp	816.68 hp	816.68 hp	816.68 hp
1,640.42 F	816.68 hp	816.68 hp	816.68 hp	816.68 hp	816.68 hp	816.68 hp
3,280.84 F	816.68 hp	816.68 hp	816.68 hp	816.68 hp	816.68 hp	816.68 hp
4,921.26 F	816.68 hp	816.68 hp	816.68 hp	797.91 hp	773.77 hp	816.68 hp
6,561.68 F	816.68 hp	801.93 hp	775.11 hp	750.97 hp	726.83 hp	808.64 hp
8,202.1 F	779.13 hp	753.65 hp	728.17 hp	705.38 hp	682.58 hp	768.4 hp
9,842.52 F	732.2 hp	706.72 hp	683.92 hp	662.46 hp	641.01 hp	729.51 hp
11,482.94 F	686.6 hp	663.8 hp	641.01 hp	620.89 hp	602.12 hp	691.97 hp
13,123.36 F	643.69 hp	622.23 hp	600.78 hp	582 hp	564.57 hp	657.1 hp
14,763.78 F	603.46 hp	582 hp	563.23 hp	544.45 hp	528.36 hp	622.23 hp
16,404.2 F	564.57 hp	544.45 hp	527.02 hp	509.59 hp	493.5 hp	588.71 hp
18,044.62 F	527.02 hp	509.59 hp	492.15 hp	476.06 hp	461.31 hp	557.86 hp
19,685.04 F	492.15 hp	474.72 hp	458.63 hp	445.22 hp	430.47 hp	528.36 hp

The powers listed above and all the Powers displayed are Corrected Powers

Identification Reference and Notes

Engine Arrangement:	7E0159	**Lube Oil Press @ Rated Spd(PSI):**	67.9
Effective Serial No:	81Z21911	**Piston Speed @ Rated Eng SPD(FT/Min):**	1,773.6
Primary Engine Test Spec:	2T7566	**Max Operating Altitude(FT):**	6,151.6
Performance Parm Ref:	TM5739	**PEEC Elect Control Module Ref**	
Performance Data Ref:	DM1910	**PEEC Personality Cont Mod Ref**	
Aux Coolant Pump Perf Ref:			
Cooling System Perf Ref:		**Turbocharger Model**	TV8112-1.08
Certification Ref:		**Fuel Injector**	4W7020
Certification Year:		**Timing-Static (DEG):**	30.00
Compression Ratio:	14.5	**Timing-Static Advance (DEG):**	3.50
Combustion System:	DI	**Timing-Static (MM):**	13.00
Aftercooler Temperature (F):	--	**Unit Injector Timing (MM):**	--
Crankcase Blowby Rate(CFH):	--	**Torque Rise (percent)**	--
Fuel Rate (Rated RPM) No Load(Gal/HR):	--	**Peak Torque Speed RPM**	--
Lube Oil Press @ Low Idle Spd(PSI):	65.0	**Peak Torque (LB.FT):**	--

Reference Number: DM1910

THIS DATA CURVE IS APPLICABLE TO BASIC ENGINE ARRANGEMENTS 7E0160 WITH SPEC 2T-7568 (PSG GOV)

Parameters Reference: TM5739

GEN SET - PACKAGED - DIESEL

TOLERANCES:
AMBIENT AIR CONDITIONS AND FUEL USED WILL AFFECT THESE VALUES. EACH OF THE VALUES MAY VARY IN ACCORDANCE WITH THE FOLLOWING TOLERANCES.

Power	+/- 3%
Exhaust Stack Temperature	+/- 8%
Generator Power	+/- 5%
Inlet Airflow	+/- 5%
Intake Manifold Pressure-gage	+/- 10%
Exhaust Flow	+/- 6%
Specific Fuel Consumption	+/- 3%
Fuel Rate	+/- 5%
Heat Rejection	+/- 5%
Heat Rejection - Exhaust Only	+/- 10%

T4i Tolerance Exceptions

C15: Power Tolerance	+4% , -0%
C27: Power Tolerance	+0% , -4%

CONDITIONS:
ENGINE PERFORMANCE IS CORRECTED TO INLET AIR STANDARD CONDITIONS OF 99 KPA (29.31 IN HG) AND 25 DEG C (77 DEG F).

THESE VALUES CORRESPOND TO THE STANDARD ATMOSPHERIC PRESSURE AND TEMPERATURE IN ACCORDANCE WITH SAE J1349. ALSO INCLUDED IS A CORRECTION TO STANDARD FUEL GRAVITY OF 35 DEGREES API HAVING A LOWER HEATING VALUE OF 42,780 KJ/KG (18,390 BTU/LB) WHEN USED AT 29 DEG C (84.2 DEG F) WHERE THE DENSITY IS 838.9 G/L (7.002 LB/GAL).

THE CORRECTED PERFORMANCE VALUES SHOWN FOR CATERPILLAR ENGINES WILL APPROXIMATE THE VALUES OBTAINED WHEN THE OBSERVED PERFORMANCE DATA IS CORRECTED TO SAE J1349, ISO 3046-2 & 8665 & 2288 & 9249 & 1585, EEC 80/1269 AND DIN70020 STANDARD REFERENCE CONDITIONS.

ENGINES ARE EQUIPPED WITH STANDARD ACCESSORIES; LUBE OIL, FUEL PUMP AND JACKET WATER PUMP. THE POWER REQUIRED TO DRIVE AUXILIARIES MUST BE DEDUCTED FROM THE GROSS OUTPUT TO ARRIVE AT THE NET POWER AVAILABLE FOR THE EXTERNAL (FLYWHEEL) LOAD. TYPICAL

AUXILIARIES INCLUDE COOLING FANS, AIR COMPRESSORS, AND CHARGING ALTERNATORS.

RATINGS MUST BE REDUCED TO COMPENSATE FOR ALTITUDE AND/OR AMBIENT TEMPERATURE CONDITIONS ACCORDING TO THE APPLICABLE DATA SHOWN ON THE PERFORMANCE DATA SET.

ALTITUDE:
ALTITUDE CAPABILITY - THE RECOMMENDED REDUCED POWER VALUES FOR SUSTAINED ENGINE OPERATION AT SPECIFIC ALTITUDE LEVELS AND AMBIENT TEMPERATURES.

COLUMN "N" DATA - THE FLYWHEEL POWER OUTPUT AT NORMAL AMBIENT TEMPERATURE.

AMBIENT TEMPERATURE - TO BE MEASURED AT THE AIR CLEANER AIR INLET DURING NORMAL ENGINE OPERATION.

NORMAL TEMPERATURE - THE NORMAL TEMPERATURE AT VARIOUS SPECIFIC ALTITUDE LEVELS IS FOUND ON TM2001.

THE GENERATOR POWER CURVE TABULAR DATA REPRESENTS THE NET ELECTRICAL POWER OUTPUT OF THE GENERATOR.

GENERATOR SET RATINGS

EMERGENCY STANDBY POWER (ESP)

OUTPUT AVAILABLE WITH VARYING LOAD FOR THE DURATION OF AN EMERGENCY OUTAGE. AVERAGE POWER OUTPUT IS 70% OF THE ESP RATING. TYPICAL OPERATION IS 50 HOURS PER YEAR, WITH MAXIMUM EXPECTED USAGE OF 200 HOURS PER YEAR.

STANDBY POWER RATING

OUTPUT AVAILABLE WITH VARYING LOAD FOR THE DURATION OF AN EMERGENCY OUTAGE. AVERAGE POWER OUTPUT IS 70% OF THE STANDBY POWER RATING. TYPICAL OPERATION IS 200 HOURS PER YEAR, WITH MAXIMUM EXPECTED USAGE OF 500 HOURS PER YEAR.

PRIME POWER RATING

OUTPUT AVAILABLE WITH VARYING LOAD FOR AN UNLIMITED TIME. AVERAGE POWER OUTPUT IS 70% OF THE PRIME POWER RATING. TYPICAL PEAK DEMAND IS 100% OF PRIME RATED EKW WITH 10% OVERLOAD CAPABILITY FOR EMERGENCY USE FOR A MAXIMUM OF 1 HOUR IN 12. OVERLOAD OPERATION CANNOT EXCEED 25 HOURS PER YEAR.

CONTINUOUS POWER RATING

OUTPUT AVAILABLE WITH NON-VARYING LOAD FOR AN UNLIMITED TIME. AVERAGE POWER OUTPUT IS 70-100% OF THE CONTINUOUS POWER RATING. TYPICAL PEAK DEMAND IS 100% OF CONTINUOUS RATED EKW FOR 100% OF OPERATING HOURS.

SOUND DEFINITIONS:

Sound Power : DM8702
Sound Pressure : TM7080

Date Released : 0

Caterpillar Confidential: **Green**
Content Owner: Commercial Processes Division
Web Master(s): PSG Web Based Systems Support
Current Date: Tuesday, February 25, 2014 9:34:28 AM
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Data Privacy Statement.

ATTACHMENT 5 - AP-42 EMISSION FACTORS

Table 3.4-1. GASEOUS EMISSION FACTORS FOR LARGE STATIONARY DIESEL AND ALL STATIONARY DUAL-FUEL ENGINES[a]

Pollutant	Diesel Fuel (SCC 2-02-004-01)			Dual Fuel[b] (SCC 2-02-004-02)		
	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	EMISSION FACTOR RATING	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	EMISSION FACTOR RATING
NO_x						
Uncontrolled	0.024	3.2	B	0.018	2.7	D
Controlled	0.013[c]	1.9[c]	B	ND	ND	NA
CO	5.5 E-03	0.85	C	7.5 E-03	1.16	D
SO_x[d]	8.09 E-03S_1	1.01S_1	B	4.06 E-04S_1 + 9.57 E-03S_2	0.05S_1 + 0.895S_2	B
CO_2[e]	1.16	165	B	0.772	110	B
PM	0.0007[c]	0.1[c]	B	ND	ND	NA
TOC (as CH_4)	7.05 E-04	0.09	C	5.29 E-03	0.8	D
Methane	f	f	E	3.97 E-03	0.6	E
Nonmethane	f	f	E	1.32 E-03	0.2[g]	E

[a] Based on uncontrolled levels for each fuel, from References 2,6-7. When necessary, the average heating value of diesel was assumed to be 19,300 Btu/lb with a density of 7.1 lb/gallon. The power output and fuel input values were averaged independently from each other, because of the use of actual brake-specific fuel consumption (BSFC) values for each data point and of the use of data possibly sufficient to calculate only 1 of the 2 emission factors (e. g., enough information to calculate lb/MMBtu, but not lb/hp-hr). Factors are based on averages across all manufacturers and duty cycles. The actual emissions from a particular engine or manufacturer could vary considerably from these levels. To convert from lb/hp-hr to kg/kw-hr, multiply by 0.608. To convert from lb/MMBtu to ng/J, multiply by 430. SCC = Source Classification Code.

[b] Dual fuel assumes 95% natural gas and 5% diesel fuel.

[c] References 8-26. Controlled NO_x is by ignition timing retard.

[d] Assumes that all sulfur in the fuel is converted to SO_2. S_1 = % sulfur in fuel oil; S_2 = % sulfur in natural gas. For example, if sulfer content is 1.5%, then S = 1.5.

[e] Assumes 100% conversion of carbon in fuel to CO_2 with 87 weight % carbon in diesel, 70 weight % carbon in natural gas, dual-fuel mixture of 5% diesel with 95% natural gas, average BSFC of 7,000 Btu/hp-hr, diesel heating value of 19,300 Btu/lb, and natural gas heating value of 1050 Btu/scf.

[f] Based on data from 1 engine, TOC is by weight 9% methane and 91% nonmethane.

[g] Assumes that nonmethane organic compounds are 25% of TOC emissions from dual-fuel engines. Molecular weight of nonmethane gas stream is assumed to be that of methane.

Table 11.19.2-2 (English Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (lb/Ton)[a]

Source[b]	Total Particulate Matter[r,s]	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Primary Crushing (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Primary Crushing (controlled) (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Secondary Crushing (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Secondary Crushing (controlled) (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Tertiary Crushing (SCC 3-050030-03)	0.0054[d]	E	0.0024[o]	C	ND[n]	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0012[d]	E	0.00054[p]	C	0.00010[q]	E
Fines Crushing (SCC 3-05-020-05)	0.0390[e]	E	0.0150[e]	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0030[l]	E	0.0012[l]	E	0.000070[q]	E
Screening (SCC 3-05-020-02, 03)	0.025[c]	E	0.0087[l]	C	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0022[d]	E	0.00074[m]	C	0.000050[q]	E
Fines Screening (SCC 3-05-020-21)	0.30[g]	E	0.072[g]	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0036[g]	E	0.0022[g]	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030[h]	E	0.00110[h]	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00014[i]	E	4.6×10^{-5}[i]	D	1.3×10^{-5}[q]	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		8.0×10^{-5}[j]	E	ND	
Truck Unloading - Fragmented Stone (SCC 3-05-020-31)	ND		1.6×10^{-5}[j]	E	ND	
Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		0.00010[k]	E	ND	

a. Emission factors represent uncontrolled emissions unless noted. Emission factors in lb/Ton of material of throughput. SCC = Source Classification Code. ND = No data.

b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

ATTACHMENT - 6 PROOF OF LOCAL ZONING

New Castle County | eParcelView Map

Map Tools

Parcel #: 1203000235
Subdivision: DEL RECYCLABLE PRODS
Lot #: 0-2
Lot Size: 21.23
Address: 218 MARSH LA
NEW CASTLE, DE 19720

Property Class: INDUSTRIAL
Zoning: IG - UDC - HEAVY INDUSTRIAL
School District: COLONIAL SCHOOL DIST-TRES
Council District: COUNCIL 10 - JEA P STREET

Note Info

INTERSTATE 495
INTERSTATE 95
PETRILLO RD PK
WEST MINQUADALE
HESSLER RD PK
MINQUADALE
CLEARVIEW MANOR
GARFIELD PARK
OVERVIEW GARDENS

Map Layers
Layers
Land Use
Tax Parcels
Agricultural Preservation
Development Activity
Major Work
Notice Sites
Parks and Public Spaces
Subdivisions
Vacant Residential Lots
Zoning
Future Land Use 2012
Future Land Use 2017
UDC Rezone Sites
LOTS
Districts
Infrastructure
Natural Features
Adjacent Features
Aerial Photo

Map Legend
Identify
Query
Tools
Preferences

2:22 PM
10/28/2013

Parcel # 1000400005

Property Address: 200 MARSH LA
NEW CASTLE, DE 19720-
Subdivision: DEL RECYCLABLE PRODS
Owner: CLIFTON MILL ASSOCIATES L P
C/O CORRADO AM INC
Owner Address: 200 MARSH LA
NEW CASTLE, DE 19720
Municipal Info: Unincorporated

Lot #: D-2
Location:
Map Grid: 10203500
Block:
Census Tract: 152.00
Street Type:
Water:
Microfilm #: 013138

Property Class: INDUSTRIAL
Lot Size: 21.33
Lot Depth: 0
Lot Frontage: 0
Street Finish:

Related Project Plans

	A/P No.	Project Name	Work Type	Status
Details	20050057	200 MARSH LANE		COMPLETE

District & Zoning Info

Districts

- **COLONIAL SCHOOL DIST-TRES**
- **COUNCIL 10 - JEA P STREET**
- DE REP 16-JAMES JOHNSON
- FIRE/RESCUE - MINQUADALE
- NORTH OF C&D CANAL
- SEWER DISTRICT NORTHERN-ASMT
- TRAFFIC ZONE T103 (YR2000)
- DE SEN 13-DAVID B MCBRIDE
- PLANNING 2 - NEW CASTLE

Zoning

- HI - UDC - HEAVY INDUSTRIAL

Sales History

Owner	Deed	Current Owner?	Multi?	Sale Date	Sale Amount
		N	N	2/1/1977	$1.00
		N	N	5/1/1980	$156,100.00
CLIFTON MILL ASSOCIATES L P	157 273	Y	N	3/22/1984	$10.00

Tax/Assessment Info

Assessment

Land: 256700
Structure: 969000
Homesite: 0
Total: 1225700

County Taxable: 1225700
School Taxable: 1225700

Tax History as of 10/25/2013 7:06:23 AM

Tax Year	County				School			
	Principal Due	Penalty Due	Date Paid	Amt Paid	Principal Due	Penalty Due	Date Paid	Amt Paid
2010A	$0.00	$0.00	9/7/2010	$8,780.54	$0.00	$0.00	9/7/2010	$18,789.98
2011A	$0.00	$0.00	8/18/2011	$8,854.70	$0.00	$0.00	8/18/2011	$18,471.30
2012A	$0.00	$0.00	8/9/2012	$8,818.42	$0.00	$0.00	8/9/2012	$18,091.33
2013A	$0.00	$0.00	8/8/2013	$8,817.68	$0.00	$0.00	8/8/2013	$22,748.99

County Balance Due: $0.00
School Balance Due: $0.00

These amounts are valid through the last day of the month. For accounts with delinquent balances, statutory penalty will accrue on the first day of next month.

Sewer History as of 10/25/2013 7:06:18 AM

Tax Year	Principal Due	Penalty Due	Date Paid	Amount Paid
2007S1	$0.00	$0.00	2/8/2007	$474.08
2007S2	$0.00	$0.00	5/22/2007	$474.08
2007S3	$0.00	$0.00	8/2/2007	$474.08
2007S4	$0.00	$0.00	2/7/2008	$507.26
2008S1	$0.00	$0.00	2/7/2008	$725.07
2008S2	$0.00	$0.00	5/2/2008	$725.07
2008S3	$0.00	$0.00	7/23/2008	$725.07
2008S4	$0.00	$0.00	11/13/2008	$725.07
2009S1	$0.00	$0.00	2/12/2009	$1,180.56
2009S2	$0.00	$0.00	5/5/2009	$1,180.56
2009S3	$0.00	$0.00	7/23/2009	$1,298.67
2009S4	$0.00	$0.00	11/13/2009	$1,298.67
2010S1	$0.00	$0.00	2/15/2010	$547.08
2010S2	$0.00	$0.00	5/7/2010	$547.08
2010S3	$0.00	$0.00	7/22/2010	$568.97
2010S4	$0.00	$0.00	11/22/2010	$568.97
2011S1	$0.00	$0.00	2/8/2011	$755.08
2011S2	$0.00	$0.00	5/3/2011	$755.08
2011S3	$0.00	$0.00	7/20/2011	$784.53
2011S4	$0.00	$0.00	11/2/2011	$784.53
2012S1	$0.00	$0.00	2/9/2012	$392.26
2012S2	$0.00	$0.00	5/3/2012	$392.26
2012S3	$0.00	$0.00	7/17/2012	$392.26
2012S4	$0.00	$0.00	11/14/2012	$392.26
2013S1	$0.00	$0.00	2/5/2013	$563.54
2013S2	$0.00	$0.00	5/7/2013	$563.54
2013S3	$0.00	$0.00	8/8/2013	$585.51
2013S4	$585.51	$0.00	Not Available	$0.00

Balance Due: $585.51

These amounts are valid through the last day of the month. Statutory penalty will accrue on the first day of next month.

Commercial Structure Characteristics

Building #: 01

Occupancy: GENERAL OFFICE **# of Stories:** 2 **Year Built:** 1980

Struct Class:	MASONRY-WALL	**Quality:**	AVERAGE	**Condition:**	AVERAGE
Floor Level:	ALL	**Grnd Flr Area:**	2736	**Total Flr Area:**	5472
Ext Wall Type:	COMMON BRICK	**Wall Height:**	20	**Perimeter:**	456
AC %:	90	**Heat %:**	90	**Rentable Units:**	1
Bsmt:	99	**Bsmt Util:**	FINISHED		
Year Renov:	0	**Renov Rtng:**	NONE	**Eff. Yr Built:**	1978

Building #: 02

Occupancy:	GENERAL WAREHOUSE	**# of Stories:**	1	**Year Built:**	1980
Struct Class:	PRE-ENC-STL	**Quality:**	AVERAGE	**Condition:**	AVERAGE
Floor Level:	FIRST	**Grnd Flr Area:**	3600	**Total Flr Area:**	3600
Ext Wall Type:	METAL	**Wall Height:**	15	**Perimeter:**	250
AC %:	0	**Heat %:**	0	**Rentable Units:**	1
Bsmt:	0	**Bsmt Util:**	NO BSMT		
Year Renov:	0	**Renov Rtng:**	NONE	**Eff. Yr Built:**	1978

Building #: 03

Occupancy:	REPAIR BODY SHOP	**# of Stories:**	1	**Year Built:**	1980
Struct Class:	PRE-ENC-STL	**Quality:**	AVERAGE	**Condition:**	AVERAGE
Floor Level:	FIRST	**Grnd Flr Area:**	10465	**Total Flr Area:**	10465
Ext Wall Type:	METAL	**Wall Height:**	20	**Perimeter:**	474
AC %:	0	**Heat %:**	90	**Rentable Units:**	1
Bsmt:	0	**Bsmt Util:**	NO BSMT		
Year Renov:	0	**Renov Rtng:**	NONE	**Eff. Yr Built:**	1978

Building #: 04

Occupancy:	GENERAL OFFICE	**# of Stories:**	3	**Year Built:**	1990
Struct Class:	MASONRY-WALL	**Quality:**	AVERAGE	**Condition:**	GOOD
Floor Level:	UPPER	**Grnd Flr Area:**	4865	**Total Flr Area:**	14595
Ext Wall Type:	COMMON BRICK	**Wall Height:**	20	**Perimeter:**	335
AC %:	90	**Heat %:**	90	**Rentable Units:**	1
Bsmt:	0	**Bsmt Util:**	NO BSMT		
Year Renov:	0	**Renov Rtng:**	NONE	**Eff. Yr Built:**	1983

Building #: 05

Occupancy:	GENERAL WAREHOUSE	**# of Stories:**	1	**Year Built:**	1997
Struct Class:	MASONRY-WALL	**Quality:**	AVERAGE	**Condition:**	AVERAGE
Floor Level:	FIRST	**Grnd Flr Area:**	14245	**Total Flr Area:**	14245
Ext Wall Type:	METAL SANDWICH PANEL	**Wall Height:**	20	**Perimeter:**	524
AC %:	90	**Heat %:**	90	**Rentable Units:**	1
Bsmt:	0	**Bsmt Util:**	NO BSMT		
Year Renov:	0	**Renov Rtng:**	NONE	**Eff. Yr Built:**	1983

ATTACHMENT 7 - DUST CONTROL PLAN

FUGITIVE DUST CONTROL PLAN
DIAMOND MATERIAL, LLC
200 Marsh Lane
New Castle, DE 19720

This document is presented as an attachment to the Air Permit Application detailing the installation and operation of a non-metallic mineral processing plant at Diamond Materials, LLC facility, 200 Marsh Lane, New Castle, DE 19720. The information provided in this Plan is intended to identify the measures to be employed to control fugitive dust that may be associated with the proposed site operation and to minimize potential impacts of these processes on the local community. This Plan is intended to prevent fugitive emissions from the location identified above.

The non-metallic mineral processing plant will be operated by Diamond Materials, LLC (Diamond). The operations will include, but are not limited to, processing and recycling of material stored on site. The material processed on site may consist of recycled concrete, stone, brick, block, and/or asphalt pavement (RAP).

The following measures will be employed to minimize fugitive dust emissions at the proposed location:

- The on-site traffic patterns used by vehicles accessing the facility are intended to minimize vehicle roadway traffic in areas where products are stored or processed. In addition, the site is readily accessed by a number of major roadways to allow offsite vehicular traffic to avoid residential areas. The use of any roads in residential areas will be kept to a minimum. This measure will limit the amount of fugitive dust and/or debris that could collect on residential roads,

- Trucks delivering or leaving the property with material will be covered with a tarp, or other suitable cover, to ensure that dust and debris will not blow off during transportation on roadways onsite.

- The site operator has access to adequate water supplies and appropriate equipment to allow site personnel to wet down the piles of processed and unprocessed material stored onsite. This measure can be employed to minimize the amount of dust that could blow off the piles when conditions warrant.

- Any unpaved roads onsite will be regularly wetted with water to minimize the amount of dust from interior roadways when visible dust is observed. All travel roads on the property will he eventually paved and maintained to minimize the generation of fugitive dust.

- The Cedarapids crusher is equipped with water spray bars that will limit the amount of dust generated by the crushing and screening operations.

- Diamond Materials will ensure that all recordkeeping requirements specified by the Department will be maintained and stored onsite for the period of time as outlined in the appropriate permit.