



VET ENVIRONMENTAL ENGINEERING, LLC

2335 West Fountain Drive, Bloomington, IN 47404

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Email: info@vet-env.com

June 20, 2024

Received
State of Indiana

JUN 25 2024

KB-2

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

Dept of Environmental Mgmt
Office of Air Quality

To whom it may concern,

**RE: Air Permit Application
Bybee Stone Company
6293 Matthews Drive
Ellettsville, Indiana 47429**

VET Environmental Engineering, LLC (VET) was retained by Mr. Jeff Leisz, Superintendent of Bybee Stone Company (Bybee) located at 6293 Matthews Drive in Ellettsville, Monroe County, Indiana (Site) to provide environmental consulting services regarding compliance with the Inspection Summary/Violation Letter issued by IDEM on April 1, 2024 (VL-2024). The Site does not currently have an identification number issued by the Office of Air Quality. The Site is located in Monroe County, which is in attainment for all criteria pollutants. According to the VL-2024, the following violations were reported at the Site:

"1) Pursuant to 326 IAC 8-3-2, [cold cleaner degreasers] need a permanent, conspicuous label that lists the operating requirements in subdivisions (3), (4), (6), and (7).

2) Pursuant to 326 IAC 2-1.1-2, any person proposing to operate a source requiring a registration or permit must first apply for and obtain a registration or permit before commencing operation."

VET performed a Site visit on May 15, 2024. At the time of the Site visit, Bybee had affixed a permanent, conspicuous label that lists the operating requirements for the degreaser located at the Site. Photographic documentation of the degreaser label was obtained during VET's Site visit, and is included in this submittal. The first violation reported in the VL-2024 was therefore appropriately addressed.

VET prepared this application for an air permit registration to address the second violation reported in the VL-2024. This submittal represents a preliminary permit application. VET is requesting a meeting with IDEM to discuss the appropriate permit level for the Site. Enclosed in this submittal are the following documents in support of the a preliminary permit application:

"Compliance that makes sense."

- Air Permit Application Cover Sheet (State Form #50639)
- Form GSD-01 General Source Data – Basic Source Level Information (State Form #50640)
- Parts Washer Label Photographs
- Bybee Equipment List
- Preliminary Supporting Calculations

Site Background

Bybee operates a custom limestone cutting and shaping facility under SIC code 3281 (cut stone and stone products). The Site has been in operation since 1979. Similar permitted facilities operating under SIC code 3281 reviewed pursuant to the preparation of this permit application included operations that do not occur at the Site, including quarrying, crushing, crushed stone storage, surface coating, and screening, or conveyance activities. Site operations are limited to intricate cutting and shaping of limestone for custom architectural projects. Limestone cutting and shaping occurs indoors inside Plant 1 and Plant 2. Tool maintenance and repairs occur in the Tool Shop.

Pollution controls present at the Site include those integral to the processing equipment. The majority of the equipment used at the Site includes water inherent to the process that renders particulate emissions relatively negligible. See the attached equipment list and the following sections for a description of the equipment utilized at the Site.

Natural Gas

Natural gas-powered heaters operate to heat the office, Plant 1, Plant 2, and the Tool Shop, respectively. Natural gas heaters include 22 Spaceray LTU250 in Plant 1; six Spaceray LTU250 radiant natural gas heaters in Plant 2; and one Johnson gas forge in the Tool Shop. Potential to emit (PTE) calculations for particulate matter (PM) from the natural gas-powered equipment is 0.06 tons per year for PM, and 0.242 tons per year for PM10 and PM2.5. PTE for total organic hazardous air pollutants (HAPs) is 0.059 tons per year, and PTE for total metal HAPs is 0.059 tons per year.

Process Particulate Emissions

The majority of the equipment used at the Site includes water inherent in the process that renders particulate emissions relatively negligible. Limestone processing equipment is located in Plant 1 and Plant 2. The Horizontal Wet Grinder, Wet Diamond Blade Saws, Wet Cut Computer Numerical Control (CNC), and Wet Cut Diamond Belt Saws are pieces of limestone cutting equipment where water continuously floods the machining surface. As such, particulate emissions from these pieces of equipment are expected to be negligible. See the attached equipment list for additional equipment and hand tools in use at the Site.

Fugitive Dust

The Site contains roadways surfaced with crushed limestone extending from the entrance of the Site to the Office Building and Plants 1 and 2. Mobile equipment operates at the Site, including loaders, fork lifts, and rock trucks. Industrial semi trailers enter the Site with raw limestone product, and leave the Site with finished custom limestone product manufactured at the Site. An average of five

loaded semi trailers enter and leave the Site on a daily basis. A crushed limestone surfaced parking lot for employees is located on the eastern portion of the Site. Approximately 50 employees drive passenger vehicles to the Site on a daily basis. The attached fugitive dust emissions calculations include highly conservative estimates of the average loads of vehicles entering, leaving, and operating on the Site. Based on these calculations, the PTE particulate matter (PM) from unpaved roads at the Site is 3.17 tons per year.

If you have any questions or concerns regarding this submittal, please contact VET at (812) 822-0400 or rene@vet-env.com.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "R. Lloyd".

Rene Lloyd, MS, MPA
Senior Environmental Scientist



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:	105-48005-00061
DATE APPLICATION WAS RECEIVED:	State of Indiana JUN 25 2024 <i>KB-2</i>
Dept of Environmental Mgmt Office of Air Quality	

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: Bybee Stone Company, Inc.		3. Plant ID: --	
4. Billing Address: 6293 North Matthews Drive			
City: Ellettsville	State: IN	ZIP Code: 47429 --	
5. Permit Level: <input type="checkbox"/> Exemption <input type="checkbox"/> Registration <input type="checkbox"/> SSOA <input type="checkbox"/> MSOP <input type="checkbox"/> FESOP <input type="checkbox"/> TVOP <input type="checkbox"/> PBR			
6. Application Summary: Check all that apply. Multiple permit numbers may be assigned as needed based on the choices selected below.			
<input checked="" type="checkbox"/> Initial Permit	<input type="checkbox"/> Renewal of Operating Permit	<input type="checkbox"/> Asphalt General Permit	
<input type="checkbox"/> Review Request	<input type="checkbox"/> Revocation of Operating Permit	<input type="checkbox"/> Alternate Emission Factor Request	
<input type="checkbox"/> Interim Approval	<input type="checkbox"/> Relocation of Portable Source	<input type="checkbox"/> Acid Deposition (Phase II)	
<input type="checkbox"/> Site Closure	<input type="checkbox"/> Emission Reduction Credit Registry		
<input type="checkbox"/> Transition (between permit levels) From: To:			
<input type="checkbox"/> Administrative Amendment:			
<input type="checkbox"/> Company Name Change		<input type="checkbox"/> Change of Responsible Official	
<input type="checkbox"/> Correction to Non-Technical Information		<input type="checkbox"/> Notice Only Change	
<input type="checkbox"/> Other (specify):			
<input type="checkbox"/> Modification:			
<input type="checkbox"/> New Emission Unit or Control Device		<input type="checkbox"/> Modified Emission Unit or Control Device	
<input type="checkbox"/> New Applicable Permit Requirement		<input type="checkbox"/> Change to Applicability of a Permit Requirement	
<input type="checkbox"/> Prevention of Significant Deterioration		<input type="checkbox"/> Emission Offset	<input type="checkbox"/> MACT Preconstruction Review
<input type="checkbox"/> Minor Source Modification		<input type="checkbox"/> Significant Source Modification	
<input type="checkbox"/> Minor Permit Modification		<input type="checkbox"/> Significant Permit Modification	
<input type="checkbox"/> Other (specify):			
7. Is this an application for an initial construction and/or operating permit for a "Greenfield" Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
8. Is this an application for construction of a new emissions unit at an Existing Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

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: 7/9/2024

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.

Jeff Leisz
Name (typed)

Superintendent
Title

Signature

6/19/2024
Date



OAQ GENERAL SOURCE DATA APPLICATION
GSD-01: Basic Source Level Information
 State Form 50640 (R5 / 1-10)
 INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Received
 JUN 25 2024 KB-2

IDEM – Office of Air Quality – Permits Branch
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 Indianapolis, IN 46204-2251
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 Facsimile Number: (317) 232-6749
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- 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.

105-48005-00061

PART A: Source / Company Location Information		
1. Source / Company Name: Bybee Stone Company, Inc.		2. Plant ID: —
3. Location Address: 6293 North Matthews Drive		
City: Ellettsville	State: IN	ZIP Code: 47429 —
4. County Name: Monroe County	5. Township Name: Richland	
6. Geographic Coordinates:		
Latitude: 39°14'40.9	Longitude: 86°37'25.5	
7. Universal Transferal Mercadum Coordinates (if known):		
Zone:	Horizontal:	Vertical:
8. Adjacent States: Is the source located within 50 miles of an adjacent state?		
<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Indicate Adjacent State(s): <input checked="" type="checkbox"/> Illinois (IL) <input type="checkbox"/> Michigan (MI) <input type="checkbox"/> Ohio (OH) <input type="checkbox"/> Kentucky (KY)		
9. Attainment Area Designation: Is the source located within a non-attainment area for any of the criteria air pollutants?		
<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Indicate Nonattainment Pollutant(s): <input checked="" type="checkbox"/> CO <input checked="" type="checkbox"/> Pb <input type="checkbox"/> NO _x <input checked="" type="checkbox"/> O ₃ <input type="checkbox"/> PM <input checked="" type="checkbox"/> PM ₁₀ <input checked="" type="checkbox"/> PM _{2.5} <input checked="" type="checkbox"/> SO ₂		
10. Portable / Stationary: Is this a portable or stationary source?		
<input type="checkbox"/> Portable <input type="checkbox"/> Stationary		

PART B: Source Summary	
11. Company Internet Address (optional):	
12. Company Name History: Has this source operated under any other name(s)?	
<input checked="" type="checkbox"/> No <input type="checkbox"/> 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?	
<input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> No <input type="checkbox"/> 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?	
<input checked="" type="checkbox"/> No <input type="checkbox"/> 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?	
<input type="checkbox"/> No <input checked="" type="checkbox"/> 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?	
<input checked="" type="checkbox"/> No <input type="checkbox"/> 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?	
<input checked="" type="checkbox"/> Not Required <input type="checkbox"/> No <input type="checkbox"/> Yes → Date submitted: _____ EPA Facility Identifier: — —	

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: Mr. Jeff Leisz

19. Title (optional): Superintendent

20. Mailing Address: 6293 North Matthews Drive

City: Ellettsville

State: IN

ZIP Code: 47429 -

21. Electronic Mail Address (optional): Leisz@bybeestone.com

22. Telephone Number: (812) 221 - 5122

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: Mr. Jeff Leisz

25. Title: Superintendent

26. Mailing Address: 6293 North Matthews Drive

City: Ellettsville

State: IN

ZIP Code: 47429 -

27. Telephone Number: (812) 221 - 5122

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: Bybee Stone Company, Inc.

31. Name of Owner Contact Person:

32. Mailing Address: 6293 North Matthews Drive

City: Ellettsville

State: IN

ZIP Code: 47429 -

33. Telephone Number: () -

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: Bybee Stone Company, Inc.

36. Name of Operator Contact Person: Mr. Jeff Leisz

37. Mailing Address: Superintendent

City: Ellettsville

State: IN

ZIP Code: 47429 -

38. Telephone Number: (812) 221 - 5122

39. Facsimile Number (optional): () -

PART G: Agent Information		
40. Company Name of Agent: VET Environmental Engineering, LLC		
41. Type of Agent: <input checked="" type="checkbox"/> Environmental Consultant <input type="checkbox"/> Attorney <input type="checkbox"/> Other (specify):		
42. Name of Agent Contact Person: Rene Lloyd, MS, MPA		
43. Mailing Address: 2335 West Fountain Drive		
City: Bloomington	State: IN	ZIP Code: 47404 –
44. Electronic Mail Address (optional): rene@vet-env.com		
45. Telephone Number: (812) 822 – 0400	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? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		

PART H: Local Library Information		
48. Date application packet was filed with the local library: June 20, 2024		
49. Name of Library: Monroe County Public Library		
50. Name of Librarian (optional):		
51. Mailing Address: 600 West Temperence Street		
City: Ellettsville	State: IN	ZIP Code: 47429 –
52. Internet Address (optional):		
53. Electronic Mail Address (optional):		
54. Telephone Number: (812) 876 – 1272	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
Not Applicable	to
	to
	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? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – Change Company Name to:	

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
-	Not Applicable	to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
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-		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: Not Applicable

City:	State:	ZIP Code: -
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County Name:

63. New Location:

Address:

City:	State:	ZIP Code: -
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County Name:

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
Limestone Cutting and Shaping	Custom Limestone Architectural Products	3281	327991

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
Not Applicable	Not Applicable	

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
See attached equipment list	See attached equipment list			

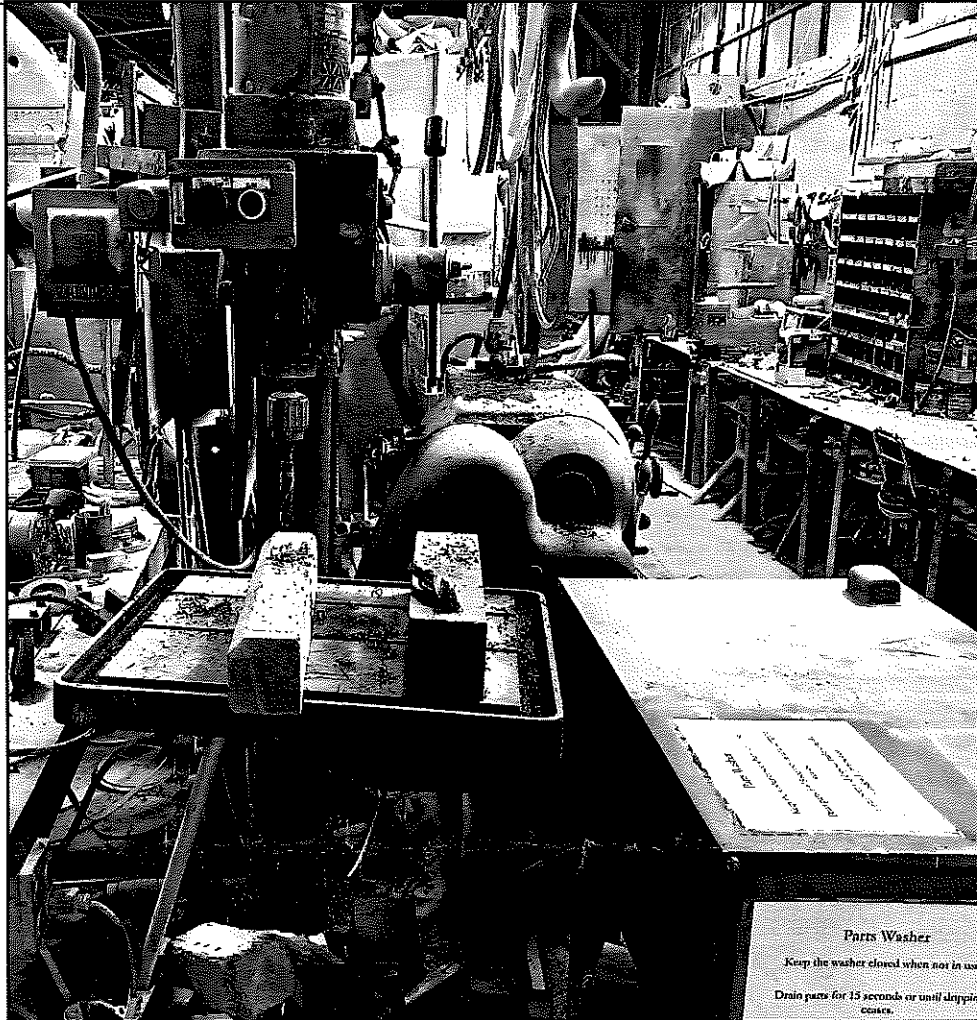
PART O: New or Modified Emissions Units (if applicable)

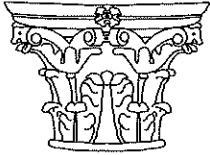
Complete this section only if the source is proposing to add new emission units or modify existing emission units.

74. Emissions Unit ID	75. NEW	76. MOD	77. Type of Emissions Unit	78. Estimated Dates		
				Begin Construction	Complete Construction	Begin Operation
Not Applicable			Not Applicable			

Bybee Stone Company, Inc.
Parts Washer Photographs
May 15, 2024

Photo 1: Parts Washer and Label





BYBEE STONE COMPANY INC.

Builders of American History

March 22, 2024

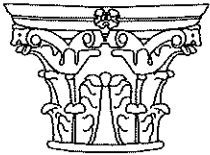
Bybee Stone Plant 1 equipment list

1x, Berkeley Centrifugal water pump Model B3zpls
1x, Ingersol Rand 100hp rotary air compressor
5x, Dayton 48" belt drive exhaust fan
5x, Countyline 30" wall air circulation fan
8x, Global Industrial 60" ceiling fan
5x, overheads cranes, Bedford Crane pre-1980
1x, Clemco blaster TLR-50
6x, Wet cutting diamond blade saws, pre-1980
1x, Wet cut diamond beltsaw, Standish Equipment 7' x 14'.
3x, stone lathes, pre-1980
12x, stone planers, New Albany Brand, pre-1980
4x, wet cut gang saws, New Albany Brand, pre-1980
1x drop metal drop hammer, pre-1980
4x, bench grinders, Baldor 1-1/2 hp
1x parts washer
1x, Ingersol gas powered air compressor #2475
1x, Mascot steel lath pre-1980
1x, Hatch steel blade tensioner
1x, Makita steel 14" chop saw
3x, steel drill press pre-1980
1x, Miller Brand Millermatic welder
2x, 12" DeWalt table saws
2x, 10" DeWalt miter saw
2x, Tsurumi 7hp water pumps
22x, Spaceray LTU250 radiant natural gas heaters
150x, LED 100watt overhead lighting



6293 N. MATTHEWS DRIVE ELLETTSVILLE, IN 47429 P.O. BOX 968 BLOOMINGTON, IN 47402
(812) 876-2215 FAX (812) 876-6329 BYBEESTONE.COM





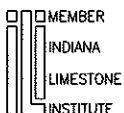
BYBEE STONE COMPANY INC.

Builders of American History

March 22, 2024

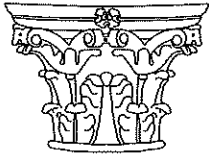
Bybee Stone Plant 2 equipment list

- 1x, Bedford Brand 5 ton overhead crane
- 1x, Gobel vacuum lift
- 1x, Bedford Brand 7.5 ton crane
- 1x, 76" Sawing Systems Brand horizontal wet grinder
- 3x, 36" Sawing Systems Brand wet diamond saw
- 7x, Sawing Systems Brand conveyor drives
- 1x, Ingersol Rand 100hp rotary air compressor
- 4x, Dayton 48" belt drive exhaust fan
- 6x, Spacera LTU250 radiant natural gas heaters
- 1x, Tsurumi 7hp water pumps
- 1x, Berkeley Centrifugal water pump Model B3zpls
- 1x, Northwood Manufacturing wet cut CNC
- 4x, LED 100 watt lights



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(812) 876-2215 FAX (812) 876-6329 BYBEESTONE.COM





BYBEE STONE COMPANY INC.

Builders of American History

March 22, 2024

Bybee Stone Tool Shop

1x, Rigid 535 pipe threading machine, pre-1980
1x, Air compress, Melben Brand, pre-1980
1x, steel band saw, Wellsaw Brand model 1016
1x, steel shaper Gould & Eberhardt 24", pre-1980
2x, Baldor bench grinder 1.5 hp
2x, Baldor bench grinder 3hp
1x, Baldor bench grinder 7.5 hp
1x, Jet brand drill press 20"
1x, Jet brand lath, model GH 1880zx
1x, Edward brand metal shear No. 10 – pre-1980
2x, Rockford steel planer pre-1980
1x, Cincinnati Horizontal mill pre-1980
1x, Band saw, Roll-in Saw brand
1x, Marshall & Huschart keyway cutter, pre-1980
1x, Amrox industrial press
1x, Bridgeport 2hp vertical milling machine, pre-1980
2x, Miller Dimension 452 welder
1x, Johson gas forge pre-1980
1x, Ingersol Rand drill sharpener, pre-1980
1x, Beaudry & Co. trip hammer, pre-1980
1x, akita 14" metal chop saw
2x, Berkeley Centrifugal water pump Model B3zpls
2x, Propane gas heaters, 140k btu, Modine brand
5x, exhaust fans



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(812) 876-2215 FAX (812) 876-6329 BYBEESTONE.COM



Bybee Stone Company, Inc.
6293 North Matthews Drive
Ellettsville, Indiana
Estimated Fugitive Emissions from Vehicle Traffic

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 Loaded (tons/trip)*	Total Weight driven per day (ton/day)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle (entering plant) (one-way trip)	5.0	1.0	5.0	80.0	400.0	0.250	1.25	456.3
Vehicle (leaving plant) (one-way trip)	5.0	1.0	5.0	80.0	400.0	0.250	1.25	456.3
Totals			10.0		800.0		2.5	912.5

*Vehicles entering and exiting the Facility are approximately 40 tons in one direction and 21 tons in the opposite direction. For example, vehicles unloading materials at the Facility are 40 tons entering and 21 tons exiting. Vehicles loading processed materials are 21 tons entering and 40 tons exiting. VET used 40 tons for each trip to represent a worst-case scenario at the Facility.

Average Vehicle Weight Per Trip =

80.0

 tons/trip
Average Miles Per Trip =

0.25

 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 =	80.0	80.0	80.0	tons = average vehicle weight (provided by source)
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 =	7.595	1.519	0.3728	lb/mile
Mitigated Emission Factor, Eext =	6.944	1.389	0.341	lb/mile

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)	Minimum Threshold for PM and PM-10 (IDEM Registration Thresholds Table) (tons/yr)
Vehicle (entering plant) (one-way trip)	1.58	0.32	0.08	5.00
Vehicle (leaving plant) (one-way trip)	1.58	0.32	0.08	
Totals	3.17	0.63	0.16	

Methodology

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

Abbreviations

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

Bybee Stone Company, Inc.
6293 North Matthews Drive
Ellettsville, Indiana
Estimated Fugitive Emissions from Natural Gas

Emissions Source: Natural Gas Combustion Only
 Company Name: Bybee Stone
 Source Address: 6293 Matthews Drive, Ellettsville, Indiana
 Permit Number: N/A

Emission Unit	Location	Amount	Heat Input Capacity (MMBtu/hr)
Natural Gas Heaters	Plant 1	22	0.25
Natural Gas Heaters	Plant 2	6	0.25
Johnson Gas Forge	Tool Shop	1	0.4
TOTAL			7.4

Heat Input Capacity	HHV	Potential Throughput
MMBtu/hr	mmBtu mmscf	MMCF/yr
7.4	1020	63.55294118

Emission Factor in lb/MMCF	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
	1.9	7.6	7.6	0.6	100	5.5	84

**see below							
Potential Emission in tons/yr	0.060375294	0.241501176	0.241501176	0.019065882	3.177647059	0.174770588	2.669223529

*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/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutants (HAPs)

Emission Factor in lb/MMcf	HAPs - Organics					Total - Organics
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	
	0.0021	0.0012	0.075	1.8	0.0034	
Potential Emission in tons/yr	6.67306E-05	3.81318E-05	0.002383235	0.057197647	0.00016804	0.059793785

Emission Factor in lb/MMcf	HAPs - Metals					Total - Metals
	Lead	Cadmium	Chromium	Manganese	Nickel	
	0.0005	0.0011	0.0014	0.00038	0.0021	
Potential Emission in tons/yr	1.58882E-05	3.49541E-05	4.44871E-05	1.20751E-05	6.67306E-05	0.000174135
	Total HAPs					0.05996792
	Worst HAP					0.057197647

Methodology is the same as above.

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.



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