



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Mr. Daniel Crago
Paul H. Rohe Company, Inc.
11048 Highway 56
Aurora, Indiana 47001

May 26, 2005

Re: Permit By Rule Status
029-21193-00031

Dear Mr. Crago:

The application from Paul H. Rohe Company, Inc. was received on January 26, 2005. Based on the data and information submitted and the provisions of 326 IAC 2-10 (Permit by Rule), Paul H. Rohe Company, Inc. states that the barge unloading and truck loading operation for sand, gravel and crushed limestone, located at 11048 Highway 56, Aurora, Indiana 47001 satisfies the criteria to operate under the Permit by Rule provisions.

Pursuant to 326 IAC 2-10 (Permit by Rule), this source shall comply with the following conditions:

- (a) The source's total actual emissions for every 12-month period shall be limited to less than 20% of any threshold for the following:
 - (1) A major source of regulated air pollutants.
 - (2) A major source of hazardous air pollutants, as defined in Section 112 of the Clean Air Act. [326 IAC 2-10-3(1)]
- (b) The source shall not rely on air pollution control equipment to comply with the above-mentioned limitations. [326 IAC 2-10-3(2)]
- (c) Not later than thirty (30) days after receipt of written request by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ), or U.S. Environmental Protection Agency (EPA), the owner or operator shall demonstrate that the source is in compliance with the above-mentioned conditions. [326 IAC 2-10-4]
- (d) Compliance demonstration shall be based on actual emissions for the previous 12 months and may include, but is not limited to, fuel or material usage or production records. No other demonstration of compliance shall be required. [326 IAC 2-10-4]

This source is hereby notified that this Permit by Rule approval does not relieve the source of the responsibility to comply with the provisions of any applicable federal, state, or local requirements, such as New source Performance Standards (NSPS), 40 CFR Part 60, or National Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61 and 40 CFR Part 63. [326 IAC 2-10-5]

Any change or modification which will alter operations in such a way that the source will no longer comply with 326 IAC 2-10 (Permit by Rule), must obtain the appropriate approval from the OAQ under 326 IAC 2-1.1, 326 IAC 2-2, 326 IAC 2-3, 326 IAC 2-7, 326 IAC 2-8, or 326 IAC 2-9 before such change may occur. This source may at any time apply for a state operating permit under 326 IAC 2-6.1, a Part 70 permit under 326 IAC 2-7, a FESOP under 326 IAC 2-8, or an operating agreement under 326 IAC 2-9, as applicable. [326 IAC 2-10-1(b)]

Any violation of 326 IAC 2-10 (Permit by Rule) may result in administrative or judicial enforcement proceedings under IC 13-30-3 and penalties under IC 13-30-4.

Sincerely,
Original signed by

Kathy Moore, Section Chief
Permit Branch
Office of Air Quality

LQ/EVP

cc: File – Dearborn County
Dearborn County Health Department
Air Compliance Section Inspector – Dearborn County
Technical Support and Modeling

Company Name: Paul Rohe Company, Inc.
 Plant Location: 11048 Highway 56, Aurora, Indiana 47001
 County: Dearborn
 Date: May 5, 2005
 Permit Reviewer: Linda Quigley/EVP

Emission Calculations based on actual operating hours to demonstrate compliance with the applicable limits under 326 IAC 2-10, Permit by Rule.

**** aggregate handling ****

The following calculations determine the amount of emissions created by material handling, based on 2,080 hours of use and AP-42, Section 13.2.4, Equation 1. The emission factors for calculating PM and PM-10 emissions are calculated as follows:

PM and PM-10 Emissions for sand and gravel:

$$E = k \cdot (0.0032) \cdot \left(\frac{U}{5} \right)^{1.3} / \left(\frac{M}{2} \right)^{1.4}$$

$$= 5.6E-04 \text{ lb PM-10/ton}$$

$$1.2E-03 \text{ lb PM/ton}$$

where k = 0.35 (particle size multiplier for <10um)
 0.74 (particle size multiplier for <30um)

U = 12 mph mean wind speed
 M = 7.4 material moisture content (%)

$$\frac{150 \text{ ton/hr} \cdot 2,080 \text{ hrs/yr} \cdot E_f \text{ (lb/ton of material)}}{2,000 \text{ lb/ton}} = (\text{ton/yr})$$

Total PM 10 Emissions: 0.09 tons/yr

Total PM Emissions: 0.18 tons/yr

PM and PM-10 Emissions for crushed limestone:

$$E = k \cdot (0.0032) \cdot \left(\frac{U}{5} \right)^{1.3} / \left(\frac{M}{2} \right)^{1.4}$$

$$= 1.5E-02 \text{ lb PM-10/ton}$$

$$3.2E-02 \text{ lb PM/ton}$$

where k = 0.35 (particle size multiplier for <10um)
 0.74 (particle size multiplier for <30um)

U = 12 mph mean wind speed
 M = 0.7 material moisture content (%)

$$\frac{150 \text{ ton/hr} \cdot 2,080 \text{ hrs/yr} \cdot E_f \text{ (lb/ton of material)}}{2,000 \text{ lb/ton}} = (\text{ton/yr})$$

Total PM 10 Emissions: 2.37 tons/yr

Total PM Emissions: 5.01 tons/yr

PM and PM-10 Emissions for agriculture lime:

$$E = k \cdot (0.0032) \cdot \left(\frac{U}{5} \right)^{1.3} / \left(\frac{M}{2} \right)^{1.4}$$

= 3.3E-03 lb PM-10/ton
6.9E-03 lb PM/ton

where k = 0.35 (particle size multiplier for <10um)
0.74 (particle size multiplier for <30um)

U = 12 mph mean wind speed

M = 2.1 material moisture content (%)

$$\frac{150 \text{ ton/hr} \cdot 2,080 \text{ hrs/yr} \cdot E_f \text{ (lb/ton of material)}}{2,000 \text{ lb/ton}} = (\text{ton/yr})$$

Total PM 10 Emissions: 0.51 tons/yr
Total PM Emissions: 1.08 tons/yr

PM and PM-10 Emissions for coal:

$$E = k \cdot (0.0032) \cdot \left(\frac{U}{5} \right)^{1.3} / \left(\frac{M}{2} \right)^{1.4}$$

= 3.5E-04 lb PM-10/ton
7.3E-04 lb PM/ton

where k = 0.35 (particle size multiplier for <10um)
0.74 (particle size multiplier for <30um)

U = 12 mph mean wind speed

M = 10.4 material moisture content (%)

$$\frac{150 \text{ ton/hr} \cdot 2,080 \text{ hrs/yr} \cdot E_f \text{ (lb/ton of material)}}{2,000 \text{ lb/ton}} = (\text{ton/yr})$$

Total PM 10 Emissions: 0.05 tons/yr
Total PM Emissions: 0.11 tons/yr

Worst Case Emissions from aggregate handling and storage piles:

Total PM 10 Emissions: 2.37 tons/yr
Total PM Emissions: 5.01 tons/yr

PM emissions from the conveyor transfers are controlled by continuous wetting with a 97% control efficiency.

Total Controlled PM 10 Emissions: 0.07 ton/yr
Total Controlled PM Emissions: 0.15 ton/yr

**** storage ****

The following calculations determine the amount of emissions created by wind erosion of storage stockpiles, based on 8,760 hours of use and USEPA's AP-42 (Pre 1983 Edition), Section 11.2.3.

Material	Silt Content (wt %)	Pile Size (acres)	Total Storage Capacity (tons)	PM Emissions tons/yr	PM-10 Emissions tons/yr
Sand	2.6	0.18	10,000	0.10	0.03
Gravel	2.6	0.18	10,000	0.10	0.03
Crushed Limestone	1.6	0.90	50,000	0.30	0.11
Limestone	1.6	0.36	20,000	0.12	0.04
Agric. Limestone	3.9	0.18	10,000	0.15	0.05
Coal	8.6	0.10	5,000	0.18	0.06
Other*	5.3	0.10	5,000	0.11	0.04
Total				1.07	0.37

*Note: Other material includes coke, fertilizer, salt, grain, slag, potash, and crushed glass. The silt content of slag was used to represent the worst case silt content.

Sample Calculation:

$$E_f = 1.7 \cdot (s/1.5) \cdot (365-p)/235 \cdot (f/15)$$

$$= 3.01 \text{ lb/acre/day}$$

where s = 2.6 % silt

p = 125 days of rain greater than or equal to 0.01 inches

f = 15 % of wind greater than or equal to 12 mph

PM = 0.10 tons/yr

P M-10: 35% of PM =

0.03 tons/yr

**** unpaved roads ****

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

I. Dump Trucks

$$\begin{aligned}
 & 10 \text{ trip/hr} \times \\
 & 0.25 \text{ mile/trip} \times \\
 & 2 \text{ (round trip) } \times \\
 2,080 \text{ hr/yr} & = 10400 \text{ miles per year}
 \end{aligned}$$

$$\begin{aligned}
 E_f &= k \cdot (s/12)^a \cdot (W/3)^b \\
 &= 0.62 \text{ lb PM-10/mile} \\
 &= 3.05 \text{ lb PM/mile}
 \end{aligned}$$

- where k = 1.5 (particle size multiplier for PM-10)
k = 4.9 (particle size multiplier for PM)
s = 1.6 mean % silt content of unpaved roads
a = 0.9 Constant for PM-10
a = 0.7 Constant for PM
b = 0.45 Constant for PM and PM-10
W = 24 tons average vehicle weight

$$\text{PM10: } \frac{0.62 \text{ lb/mi} \times 10400 \text{ mi/yr}}{2000 \text{ lb/ton}} = 3.24 \text{ tons/yr}$$

$$\text{PM: } \frac{3.05 \text{ lb/mi} \times 10400 \text{ mi/yr}}{2000 \text{ lb/ton}} = 15.85 \text{ tons/yr}$$

Total PM Emissions From Unpaved Roads = 15.85 tons/yr
Total PM-10 Emissions From Unpaved Roads = 3.24 tons/yr

Fugitive PM emissions from unpaved roads are controlled by wet suppression with an estimated control efficiency of 50%.

Total Controlled PM Emissions From Unpaved Roads = 7.93 tons/yr
Total Controlled PM-10 Emissions From Unpaved Roads = 1.62 tons/yr

Total Source Wide Potential PM Emissions =	21.93 tons/yr
Total Source Wide Potential PM-10 Emissions =	5.99 tons/yr
Total Source Wide Controlled PM Emissions =	14.00 tons/yr
Total Source Wide Controlled PM-10 Emissions =	4.37 tons/yr