



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
MC 61-53 IGCN 1003
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant
DATE: November 26, 2007
RE: Lee Alan Health Care Center / 121-25280-00010
FROM: Nisha Sizemore
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FN-REGIS.dot 03/23/06



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(317) 232-8603
(800) 451-6027
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November 26, 2007

David See
Lee Alan Bryant Health Care Center
3838 E Old 36 Rd.
Rockville, IN 47872

Re: Registered Construction and Operation Status,
121-25280-00010

Dear Mr. See

The application from Lee Alan Bryant Health Care Center, received on September 14, 2007 has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following stationary health care center located at 3838 E Old 36 Rd., Rockville, Indiana 47872, is classified as registered:

- (a) One (1) coal-fired boiler, identified as #1, constructed in 1927, with a heat input capacity of 6.7 MMBtu per hour.
- (b) One (1) fuel oil-fired boiler, identified as #2, constructed in 1927, with a heat input capacity of 6.7 MMBtu per hour.
- (c) One (1) coal storage silo, identified as #3, constructed in 1950, with a maximum storage capacity of 96 tons of coal.

The following conditions shall be applicable:

- (a) 326 IAC 2-5.5 (Registrations)

Pursuant to 326 IAC 2-5.5, only one boiler shall be operated at a time.

- (b) 326 IAC 6-2 (Particulate Emissions from Indirect Heating Units)

Pursuant to 326 IAC 6-2-3(d), particulate emissions from the boilers shall in no case exceed 0.8 lb/MMMtu heat input.

- (c) 326 IAC 5-1-2 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:

- (1) Opacity shall not exceed an average of twenty percent (20%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute

nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

(d) 326 IAC 6-4 (Fugitive Dust Emissions)

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), the Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3). The annual notice shall be submitted to:

Compliance Data Section
Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, IN 46204-2251

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source. If you have any questions on this matter, please contact Renee Traivaranon, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251, at 317-234-5615 or at 1-800-451-6027 (ext 4-5615).

Sincerely,

Original signed by
Iryn Calilung, Section Chief
Permits Branch
Office of Air Quality

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Enclosures - Notice of Decision, TSD, Appendix A

cc: File - Parke County
Parke County Health Department
Air Compliance Section - Dave Rice
Permits Administrative and Development
Billing, Licensing and Training Section – Dan Stamatkin

Registration Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

Company Name:	Lee Alan Bryant Health Care Center
Address:	3838 E Old 36 Rd., Rockville, Indiana 47872
Phone #:	(765) 569-2381
Registration #:	121-25280-00010

Certification by the Authorized Individual
I hereby certify that Lee Alan Bryant Health Care Center is still in operation and is in compliance with the requirements of Registration 121-25280-00010 .
Name (typed):
Title:
Signature:
Phone Number:
Date:

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name: Lee Alan Bryant Health Care Center
Source Location: 3838 E Old 36 Rd, Rockville, IN 47872
County: Parke
SIC Code: 8051
Application No.: 121-25280-00010
Reviewer: Renee Traivaranon

On September 14, 2007 the Office of Air Quality (OAQ) received an application from Lee Alan Bryant Health Care Center relating to the operation of a stationary health care source.

Permitted Emission Units and Pollution Control Equipment

The application includes information relating to the operation of the following:

- (a) One (1) coal-fired boiler, identified as #1, constructed in 1927, with a heat input capacity of 6.7 MMBtu per hour.
- (b) One (1) fuel oil-fired boiler, identified as #2, constructed in 1927, with a heat input capacity of 6.7 MMBtu per hour.
- (c) One (1) coal storage silo, identified as #3, constructed in 1950, with a maximum storage capacity of 96 tons of coal.

There are no new emission units at the source during this review. Based on information provided by the source, the coal-fired boiler or the oil-fired boiler can never be operated at the same time, it is either coal fired-boiler or oil-fired boiler operating at a time. The level of approval is based on this restriction.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

OP 61-03-84-0037, issued April 18, 1980
OP 61-03-88-0046, issued April 2, 1984
OP 61-09-92-0078, issued May 18, 1989

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the application be approved as a registration. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application submitted by the applicant.

An application for the purposes of this review was received on September 14, 2007.

Emission Calculations

See Appendix A of this TSD for detailed emissions calculations (Appendix A, pages 1 through 3).

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit (PTE) is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	20.6
PM-10	7.9
SO ₂	8.6
NO _x	8.5
VOC	0.1
CO	6.8

HAPs	Potential To Emit (tons/year)
Arsenic	1.17E-04
Beryllium	8.80E-05
Cadmium	8.80E-05
Chromium	8.80E-05
Lead	2.64E-04
Mercury	8.80E-05
Manganese	1.76E-04
Nickel	8.80E-05
Selenium	4.40E-04
TOTAL HAPs	1.4E-03

- (a) The PTE (as defined in 326 IAC 2-1.1-1(16)) of regulated criteria pollutants are less than twenty-five (25) tons per year, but the PTE of particulate matter (PM or PM-10) is greater than five (5) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5. A registration will be issued.
- (b) The PTE (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

County Attainment Status

The source is located in Parke County.

Pollutant	Status
PM10	Attainment
PM2.5	Attainment
SO ₂	Attainment
NO ₂	Attainment
8-Hour Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC emissions and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Parke County has been designated as attainment for ozone. Therefore, VOC emissions and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.
- (b) Parke County has been classified as attainment or unclassifiable for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as a surrogate for PM2.5 emissions. See the State Rule Applicability – Entire Source section.
- (c) Parke County has been classified as attainment or unclassifiable for all the other regulated criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (d) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 but since there are applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are counted toward determination of PSD applicability.

Source Status

Existing Source PSD Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	20.6
PM-10	7.9
SO ₂	8.6
NO _x	8.5
VOC	0.1
CO	6.8
Worst Single HAP	negligible
Combination HAPs	1.4E-03

This existing source is not a major PSD stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This source is not subject to the Part 70 Permit requirements because the PTE of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This status is based on the potential to emit calculations of the source (see Appendix A).

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this source.

Each boiler is not subject to the requirements of New Source Performance Standard, 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (326 IAC 12) because each boiler has a heat input capacity less than 10 million British thermal units per hour (MMBtu/hr).

- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR Part 61, 63) included in the permit for this source.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This source is not one of the 28 listed source categories defined in 326 IAC 2-2-1(gg)(1), no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater. Therefore, the requirements of 326 IAC 2-2 (PSD) are not applicable.

326 IAC 2-3 (Emission Offset)

The requirements of 326 IAC 2-3 (Emission Offset) apply to major sources or major modifications constructed in an area designated as non-attainment. The source located in attainment area for VOC, therefore, the requirements of 326 IAC 2-3 (Emission Offset) are not applicable.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The requirements of 326 IAC 2-4.1 are not applicable to this source, since the potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year.

326 IAC 2-6 (Emission Reporting)

This source is located in Parke County, has the potential to emit of each criteria pollutant of less than hundred (100) tons per year and the potential to emit lead of less than five (5) tons per year. Therefore, the requirements of 326 IAC 2-6 do not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions Limitations)

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

326 IAC 7-1.1 (Sulfur dioxide emission limitations: applicability)

The source is not subject to the requirements of 326 IAC 7-1.1 because the potential to emit of all emissions units are less than twenty-five (25) tons per year or ten (10) pounds per hour of sulfur dioxide.

326 IAC 10-1 (Nitrogen Oxides Control)

The source is not subject to 326 IAC 10 (Nitrogen Oxides Control) because the source is not located in Clark or Floyd Counties.

State Rule Applicability - Individual Facilities

326 IAC 6-2 (Particulate Emissions from Indirect Heating Units)

The boilers were constructed in 1927, pursuant to 326 IAC 6-2-3(d), particulate emissions from both boilers shall in no case exceed 0.8 lb/MMMtu heat input.

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

The requirements of 326 IAC 6-3 do not apply to each of the boiler and storage silo because each unit is not part of the manufacturing processes.

326 IAC 8-1-6 (VOC rules: General Reduction Requirements for New Facilities)

The requirements of 326 IAC 8-1-6 are not applicable, since each of the emission units at this source does not have the potential to emit greater than twenty-five (25) tons of VOCs per year.

Conclusion

The operation of this source shall be subject to the conditions of the attached registration, No 121-25280-00010.

Appendix A: Emissions Calculations
Coal combustion: Chain grate stokers
Boiler

Company Name: Lee Alan Bryant Health Care Center
Address City IN Zip: 3838 E Old 36 Rd, Rockville, IN 47872
Permit No.: 121-25280-00010
Reviewer: Renee Traivaranon
Date: November 26, 2007

Heat Input Capacity MMBtu/hr	Heat Content of Coal Btu/lb of Coal	Potential Throughput tons/year	Weight % Sulfur in Fuel
6.7	13,000	2,257	S = 0.2 %

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/ton	16.0	6.04	7.6 (38S)	7.5	0.05	6.00
Potential Emission in tons/yr	18.1	6.8	8.6	8.5	0.1	6.8
Potential Emission in lbs/MMBtu	0.617		0.292			

Methodology

*The PM emission factor is filterable PM only. The PM10 emission factor is filterable and condensable PM10 combined.

VOC emission factor is from Table 1.1-19 (Total non-methane organic carbon).

Potential Throughput (tons/year) = Heat Input Capacity (MMBtu/hr) x 10⁶ Btu/MMBtu / Heat Content of Coal (Btu/lb) / 2000 lb/ton x 8,760 hrs/yr

Emission Factors from AP-42, Chapter 1.1 for industrial overfeed stoker SCC 1-02-002-05/25 (Supplement E, 9/98)

Additional emission factors for commercial/institutional and electric generation boilers are available in AP-42, Chapter 1.1.

HAPs emission factors are available in AP-42, Chapter 1.1.

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

Emissions (lbs/MMBtu) = 10⁶ Btu/MMBtu / Heat Content of Coal (Btu/lb) / 2000 lb/ton x Emission Factor (lb/ton)

Appendix A: Emissions Calculations
Boiler-Fuel Oil
Fuel Oil

Company Name: Lee Alan Bryant Health Care Center
Address, City IN Zip: 3838 E Old 36 Rd, Rockville, IN 47872
Permit Number: 121-25280-00010
Reviewer: Renee Traivaranon
Date: November 9, 2007

Heat Input Capacity
MMBtu/hr

6.7

Potential Throughput
kgals/year

419.229

S = Weight % Sulfur

0.5

	Pollutant					
	PM*	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/kgal	2.0	2.0	71 (142.0S)	20.0	0.34	5.0
Potential Emission in tons/yr	0.4	0.4	14.9	4.2	0.1	1.0

Methodology

1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.140 MM Btu

Emission Factors are from AP 42, Tables 1.3-1, 1.3-2, and 1.3-3 (SCC 1-03-005-01/02/03) Supplement E 9/98 (see erata file)

*PM emission factor is filterable PM only. Condensable PM emission factor is 1.3 lb/kgal.

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

See page 3 for HAPs emission calculations.

Appendix A: Emissions Calculations

Boiler - Fuel Oil

HAPs Emissions

Company Name: Lee Alan Bryant Health Care Center
Address, City IN Zip: 3838 E Old 36 Rd, Rockville, IN 47872
Permit Number: 121-25280-00010
Reviewer: Renee Traivaranon
Date: November 26, 2007

HAPs - Metals					
Emission Factor in lb/mmBtu	Arsenic 4.0E-06	Beryllium 3.0E-06	Cadmium 3.0E-06	Chromium 3.0E-06	Lead 9.0E-06
Potential Emission in tons/yr	1.17E-04	8.80E-05	8.80E-05	8.80E-05	2.64E-04

HAPs - Metals (continued)				
Emission Factor in lb/mmBtu	Mercury 3.0E-06	Manganese 6.0E-06	Nickel 3.0E-06	Selenium 1.5E-05
Potential Emission in tons/yr	8.80E-05	1.76E-04	8.80E-05	4.40E-04

Methodology

No data was available in AP-42 for organic HAPs.

Potential Emissions (tons/year) = Throughput (mmBtu/hr)*Emission Factor (lb/mmBtu)*8,760 hrs/yr / 2,000 lb/ton

**Appendix A: Emissions Calculations
Coal Handling and Storage**

**Company Name: Lee Alan Bryant Health Care Center
Address City IN Zip: 3838 E Old 36 Rd, Rockville, IN 47872
MSOP No.: 121-25280-00010
Reviewer: Renee Traivaranon
Date: November 26, 2007**

Drop Operations (AP-42 Section 13.2.4)

To estimate potential fugitive dust emissions from processing and handling of raw materials (batch or continuous drop operations), AP-42 emission factors for Aggregate Handling, Section 13.2.4 (fifth edition, 1/95) are utilized.

$$E_f = k \cdot (0.0032) \cdot (U/5)^{1.3} / (M/2)^{1.4}$$

where: E_f = Emission factor (lb/ton)

- k (PM) = 0.74 = particle size multiplier (0.74 assumed for aerodynamic diameter ≤ 100 μ m)
- k (PM10) = 0.35 = particle size multiplier (0.35 assumed for aerodynamic diameter ≤ 10 μ m)
- U = 9.9 = worst case annual mean wind speed (Source: NOAA, 2006*)
- M = 4.5 = material % moisture content of materials (Based upon coal as received)
- E_f (PM) = 1.85E-03 lb PM/ton of material handled
- E_f (PM10) = 8.75E-04 lb PM10/ton of material handled

Maximum Material Handling Throughput = 96 tons/hr¹
Maximum Material Handling Throughput = 840,960 tons/yr

Type of Activity	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)
Truck unloading of materials into storage silo	0.78	0.37
Chain Run Buckets Pick-up	0.78	0.37
Chain Run Buckets Drop-off	0.78	0.37
Total (tons/yr)	2.33	1.10

Methodology

Potential to Emit (tons/yr) = (Maximum Material Handling Throughput (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)

*Worst case annual mean wind speed (South Bend, IN) from "Comparative Climatic Data", National Climatic Data Center, NOAA, 2006

The maximum capacity of the silo is 96 tons, therefore, this is the worst case possible for the throughput.

Abbreviations

- PM = Particulate Matter
- PM10 = Particulate Matter (<10 μ m)
- PTE = Potential to Emit

**Appendix A: Emission Calculations
Fugitive Dust Emissions - Paved Roads**

**Company Name: Lee Alan Bryant Health Care Center
Address City IN Zip: 3838 E Old 36 Rd, Rockville, IN 47872
Permit Number: 121-25280-00010
Reviewer: Renee Traivaranon
Date: November 26, 2007**

Paved Roads

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 (12/2003).

Vehicle Information (provided by source)

Type	Maximum number of vehicles	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle (entering plant) (one-way trip)	1.0	1.0	1.0	24.0	24.0	2640	0.500	0.5	182.5
Vehicle (leaving plant) (one-way trip)	1.0	1.0	1.0	24.0	24.0	2640	0.500	0.5	182.5
Total		2.0	2.0		48.0			1.0	365.0

Average Vehicle Weight Per Trip = $\frac{24.0}{1.0}$ tons/trip
Average Miles Per Trip = $\frac{0.50}{1.0}$ miles/trip

Unmitigated Emission Factor, Ef = $[k * (sL/2)^{0.65} * (W/3)^{1.5} - C]$ (Equation 1 from AP-42 13.2.1)

	PM	PM10	
where k =	0.082	0.016	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	24.0	24.0	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	0.6	0.6	g/m ² = Ubiquitous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer r

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = $E * [1 - (p/4N)]$

Mitigated Emission Factor, Eext = $Ef * [1 - (p/4N)]$
where p = $\frac{125}{365}$ days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N = 365 days per year

	PM	PM10	
Unmitigated Emission Factor, Ef =	0.85	0.17	lb/mile
Mitigated Emission Factor, Eext =	0.78	0.15	lb/mile
Dust Control Efficiency =	0%	0%	(no control)

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)
Vehicle (entering plant) (one-way trip)	0.08	0.02	0.07	0.01	0.07	0.01
Vehicle (leaving plant) (one-way trip)	0.08	0.02	0.07	0.01	0.07	0.01
	0.15	0.03	0.14	0.03	0.14	0.03

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 (tons/yr) = (Maximum one-way miles (miles/yr)) * (Mitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Controlled PTE (tons/yr) = (Mitigated PTE (tons/yr)) * (1 - Dust Control Efficiency)

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PTE = Potential to Emit