

**THE FOLLOWING CHANGES ARE PRESENTED HERE FOR
FORM G(A)**

1. Replace Form G(A) Table of Contents with that included here.
2. Replace Form G(A), Pages 1 through 7 of 7 with those included here.
3. Replace Form G(A), Attachment G(A)-2 PM10 Emissions Calculations with that included here.

**FORM G(A)
AIR RESOURCES PROTECTION
DUST EMISSIONS ESTIMATE AND CONTROL PLAN**

Prepared 07/2017; Revised 09/2022

This Form G(A) has been prepared to estimate the dust and PM10 emissions for this facility with operations at the maximum level of **1,000** tons per day.

Form G(A) - Table of Contents

FORM G(A) (Rev 09/2022)	This Major Permit Modification
Attachment G(A)-1	Form G(A) Narrative
Attachment G(A)-2 (Rev 09/2022).....	PM10 Emissions Calculations
Attachment G(A)-2, Exhibit G(B)-2.1	Reference Information



Date Prepared/Revised <i>Prepared 07/2017</i> <i>Revised 09/2022</i>
DEP USE ONLY
Date Received

FORM G (A)

AIR RESOURCES PROTECTION DUST EMISSIONS ESTIMATE AND CONTROL PLAN

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form G(A), reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General Reference: Pa Code 121.7, 123.1(c), 123.2, 131.2, 131.3, 273.217, 277.217, 279.218, 281.217, 288.217, 289.227, 293.218, 295.217, 297.218

CHECK TYPE OF FACILITY and whether NEW or EXISTING / EXPANSION Facility

Municipal () / Residual () Waste Landfill (*Solid Waste Transfer Station*)

Construction/Demolition Waste Landfill..... If existing: Permit # 101717

Composting Facility

Demonstration Facility Proposed Waste through put in tons/day 1,000-tpd (max.)

Incinerator or Resource Recovery Facility Proposed operating schedule: *Refer to Form O for hours.*

Oil and Gas Wastewater Storage Impoundment..... Proposed operating schedule:

Other Municipal () / Residual () Waste Processing Facility _____ days/yr Mon.-Fri.: _____ to _____ (OD)

Facility (Describe) Municipal Sat.-Sun.: _____ to _____

Solid Waste Transfer Facility Total: _____ (hr./yr.) (OH)

INSTRUCTIONS/APPLICABILITY: The purpose of this form is to obtain information necessary to determine whether the proposed facility will be operated in such a manner as to prevent particulate matter emitted from the facility from causing air pollution or causing an exceedance of ambient standards and to determine if dust prevention measures comply with applicable operational standards.

I. Unpaved/Paved Road Particulate Emissions Potential

Vehicle Type	Vehicle Wt. Unloaded (ton)	Vehicle Wt. Loaded (ton)	No. of Wheels	Unpaved (lb./VMT)		Paved (lb./VMT)	
				E _{in}	E _{out}	E _{in}	E _{out}
Transfer	<i>Detailed calculations of emissions for each type included as Form G(A), Attachment G(A)-2.</i>						
Trailer							
High Capacity							
Front Loader							
Light Weight							
Rear Loader							
Dump Trucks							
In Plant Trucks							

$$\text{Unpaved Road : } E_{in/out} = 5.9K \left(\frac{s}{12} \right) \left(\frac{S_{in/out}}{30} \right) \left(\frac{W_{in/out}}{3} \right)^{0.7} \left(\frac{w}{4} \right)^{0.5} \left(\frac{365 - P}{365} \right) \text{ lb./VMT}$$

$$\text{Paved Road : } E_{in/out} = .077I \left(\frac{4}{n} \right) \left(\frac{s}{10} \right) \left(\frac{L}{1000} \right) \left(\frac{W_{in/out}}{3} \right)^{0.7} \text{ lb./VMT}$$

Where:

E_{in} = Emission factor loaded trucks in (lb./VMT)

E_{out} = Emission factor unloaded trucks out (lb./VMT)

K = Particle size multiplier - 1 (total); 0.8 (TSP); 0.36 (PM-10)

VMT = Vehicle mile traveled

Surface Material:

s = Mean silt content

Gravel = 5%

Limestone = 10%

Dirt = 28%

Other = _____% (Explain) _____

S_{in} = Mean vehicle speed in (_____ MPH); S_{out} = Mean vehicle speed out (_____ MPH)

W = Number of wheels

W_{in} = Vehicle weight loaded (tons); W_{out} = vehicle weight unloaded (tons)

P = Number of days/yr with at least .01 inches of precipitation per day = _____ days

n = number of paved traffic lanes

I = Industrial augmentation factor = $\left[\begin{array}{l} 7.0 \text{ (paved to unpaved)} \\ 3.5 \text{ (unpaved shoulders)} \\ \text{Other (explain) } \end{array} \right]$

L = Surface dust loading (lb./mile) = 53 lb./mile

UPR = Total length of unpaved roads _____ ft. or _____ miles

PR = Total length of paved roads _____ ft. or _____ miles

Refer to Form G(A), Attachment G(A)-2 for detailed calculation narrative and spreadsheet calculations which present information about all parameters utilized.

II. Construction/Operation Particulate Emissions Potential

Note: General emission factors are given in the following calculations. Should site specific factors be used, please provide reference.

- A. Total potential dust emissions from topsoil removal/daily cover:
 6×10^{-5} (tons of dust emissions/tons of topsoil removed or covered) X
 $[(\text{tons topsoil removed/yr})_{\text{avg.}} + (\text{tons topsoil daily cover/yr})_{\text{avg.}}]$

Not Applicable. This project is a municipal waste transfer station. = 0 t/yr

- B. Total potential dust emissions from dozers onsite:
 1.6×10^{-2} (tons of dust emissions/dozer hr) X $[(\# \text{dozers})_{\text{avg.}} \text{ X}$
 $(\text{hr/day dozer opr})_{\text{avg.}} \text{ X OD}]$

Not Applicable. This project is a municipal waste transfer station. = 0 t/yr

- C. Overburden drilling potential dust emissions:
 7.5×10^{-4} (tons of dust emissions/hole drilled) X $(\text{holes drilled/yr})_{\text{avg.}}$

Not Applicable. This project is a municipal waste transfer station. = 0 t/yr

- D. Blasting potential dust emissions:
 6×10^{-4} (tons of dust emissions/tons of overburden removed) X
 $(\text{tons/yr of overburden removed})_{\text{avg.}}$

Not Applicable. This project is a municipal waste transfer station. = 0 t/yr

- E. Overburden removal potential dust emissions:
 1.85×10^{-5} (tons of dust emissions/tons of overburden removed) X
 $(\text{tons/yr of overburden removed})_{\text{avg.}}$

Not Applicable. This project is a municipal waste transfer station. = 0 t/yr

- F. Overburden truck dumping potential dust emissions:
 4.0×10^{-6} (tons of dust emissions/tons of overburden dumped) X
 $(\text{tons/yr of overburden dumped})_{\text{avg.}}$

Not Applicable. This project is a municipal waste transfer station. = 0 t/yr

- G. Road maintenance potential dust emissions:
 1.6×10^{-2} (tons of dust emissions/dozer hour opr.) X $[(\text{hr/day road maintenance})_{\text{avg.}} \text{ X OD}]$

Not Applicable. This project is a municipal waste transfer station. = 0 t/yr

- H. Total: 0 t/yr
(H)

III. Summary of Potential/Actual Total Dust, & PM-10 Emissions

Total potential dust emissions = T + H = 0.45 t/yr
(M)

Total potential PM-10 emissions = 0.36 X M = 0.162 t/yr
(N)

Total actual dust emissions = 0.5 X M = 0.225 t/yr
(O)

Total actual PM-10 dust emissions = 0.5 X N = 0.081 t/yr
(P)

IV. Stationary Sources Standards

1. Will the proposed solid waste facility dust emissions be visible off the permit boundary?

See narrative included as Attachment G(A)-1. Yes No

2. Are any stationary sources of air contamination other than landfill gas emissions [see Form G (B)] subject to the new source performance standards of 25 PA Code Chapter 122 planned for this proposed facility?

See narrative included as Attachment G(A)-1. Yes No

Describe source(s) _____

If "yes", what is the air quality application # _____

3. Will the proposed facility accept asbestos waste subject to national standard for hazardous air pollutants adopted under 25 PA. Code Chapter 124? Yes No

If yes, describe compliance with Chapter 124.

See narrative included as Attachment G(A)-1.

4. Is the proposed facility subject to any other national standard for hazardous air pollutants? Yes No

See narrative included as Attachment G(A)-1.

Identify pollutant(s) _____

V. Entrance Roads, Access Roads, and Parking Areas

Describe plans for monitoring, maintaining and cleaning all entrance roads, access roads, and parking areas. This plan must effectively control the dust and particulate emissions calculated in Parts I-III above. The use of waste oil for dust suppression is prohibited.

- a. For each paved parking lot/area, paved facility haul road, the required paved access roadways from public highway to the facility, and public highways, describe the method and frequency of road cleaning and/or maintenance.

See narrative included as Attachment G(A)-1.

- b. For the shoulders of: paved parking lot/areas; paved facility haul roads; the required paved access roadways from public highways to the facility; and public highways, describe the extent of application and frequency of water or other chemical dust suppressants to reduce fugitive dusts. Application of dust suppressants or water on public highway shoulders must be completed for a distance of 500 feet in both directions from the facility. Identify any road maintenance agreements with the local municipality or PennDOT.

See narrative included as Attachment G(A)-1.

- c. For unpaved parking lot areas, and unpaved access roads near unloading areas, describe the application and frequency of use of water or other chemical dust suppressants to reduce fugitive dust emissions.

See narrative included as Attachment G(A)-1.

- d. Describe how vehicles which transport waste or earth into the facility, will be cleaned before exiting the site.

See narrative included as Attachment G(A)-1.

- e. State the roadway speed limit for the proposed facility, and include the locations and size specifications of speed limit signs.

See narrative included as Attachment G(A)-1.

- f. Will all trucks entering and leaving the facility be covered? Yes No

If no, explain why a cover is not needed to prevent fugitive dust emissions from becoming airborne.

See narrative included as Attachment G(A)-1.

VI. Records Keeping

Describe the records to be kept at the site to insure that the plan discussed in Item IV (2) above is being implemented. These records must include, at a minimum, the following:

See narrative included as Attachment G(A)-1.

- a. for paved roads and parking areas:
 - i. daily log of time and location of any vacuum sweeping conducted,
 - ii. log explaining the reasons any required vacuum sweeping was not performed.
- b. for unpaved roads and shoulders of paved roads:
 - i. daily log of time and location of treated areas,
 - ii. identification of dust suppressants,
 - iii. daily log of the dilution ratios of the dust suppressants and diluent used if chemical suppressants are used, and
 - iv. purchase records of the chemical suppressants, if used.
- c. Quarterly reports of the above records must be submitted to this Department upon request.

**FORM G(A)
ATTACHMENT G(A)-2**

PM10 EMISSIONS CALCULATIONS

Boyd Roll-Off Services, Inc. - Proposed Solid Waste Transfer Station
ESTIMATE OF WASTE HAULING OPERATIONS PM10 DUST GENERATION - MAXIMUM OPERATIONS 1,000 TONS/DAY

Waste Vehicle Type	Vehicle Count Per Day (1)	Vehicle Weight Unloaded (ton)	Vehicle Weight Loaded (ton)	Vehicle Number Wheels	Number Vehicle Per Year (1)	Unpaved Road Length (mile) (2)	Paved Road Length (mile) (2)	Unit PM10 Generation				Total PM10 Generation			
								Unpaved Road		Paved Road		Unpaved Road		Paved Road	
								E out	E in	E out	E in	PM 10 Out	PM 10 In	PM 10 Out	PM 10 In
								(lb/vmt) (3)	(lb/vmt) (3)	(lb/vmt) (3)	(lb/vmt) (3)	(ton/yr) (4)	(ton/yr) (4)	(ton/yr) (4)	(ton/yr) (4)
18-Wheel	46	15	35	18	14,352	0.00	0.15	0.69	1.26	0.06	0.10	0.00	0.00	0.06	0.11
High Capacity Packer	10	17	30	10	3,120	0.00	0.15	0.56	0.84	0.06	0.09	0.00	0.00	0.01	0.02
Med. Capacity Packer	20	10	21	6	6,240	0.00	0.15	0.30	0.51	0.04	0.07	0.00	0.00	0.02	0.03
Low Capacity Packer	20	6	12	6	6,240	0.00	0.15	0.21	0.34	0.03	0.05	0.00	0.00	0.01	0.02
Roll Off	40	15	25	12	12,480	0.00	0.15	0.57	0.81	0.06	0.08	0.00	0.00	0.06	0.07
Light Weight	20	3	4	4	6,240	0.00	0.15	0.11	0.13	0.02	0.02	0.00	0.00	0.01	0.01
Dump Trucks	14	5	7	6	4,368	0.00	0.15	0.19	0.24	0.03	0.03	0.00	0.00	0.01	0.01
Other (Car)	98	2	2	4	30,576	0.00	0.15	0.08	0.08	0.01	0.01	0.00	0.00	0.02	0.02
Sub-Total	268				53,040							0.00	0.00	0.18	0.27

Total PM10 Dust Generation = Unpaved out + Unpaved in + Paved out + Paved in = 0.00 + 0.00 + 0.18 + 0.27 = 0.45-ton/year

- (1) Vehicle count per day taken from the T traffic analysis in Form D.
- (2) Roadway lengths for one-way trip on-site from edge of facility to center of transfer station building.
- (3) Unit PM10 Generation estimates prepared utilizing equations identified below, Loaded truck weight used for In calculation, Unloaded truck weight used for Out calculation.
- (4) Total PM10 Generation estimates prepared utilizing unit PM10 generation for Paved/Unpaved times road length times Number of Trucks
 Example PM10 Paved Road Out for High Capacity Packer = Paved Road E out * Paved Road Length * Number Vehicles * 1-ton/2000-lb=0.06-lb/vmt*0.15-mile*3,120-vehicle/yr*1-tm/2000-lb=0.01 tn/yr

As Taken from PADEP Form G(A)

$$E_{UnPaved} = (1-CE)5.9 \left(\frac{silt}{12} \right) \left(\frac{S}{30} \right) \left(\frac{W}{3} \right)^{0.7} \left(\frac{wheels}{4} \right)^{0.5} \left(\frac{365-P}{365} \right)$$

Definition of Variables

- E Dust Generation, lb/vmt
- k Particle Size Multiplier
- silt Mean Silt Content, %
- S Mean Vehicle Speed, mph
- W Vehicle Weight, ton
- Wheels Number of Wheels for Vehicle
- P Number of Days with precipitation greater than 0.01-inch
- CE Control Efficiency

Values Utilized

- k 0.36 (From PADEP Form G(A) for PM10)
- silt 6.4 (AP-42, Table 13.2.2-1)
- S 10 (From Site Operations Experience)
- W Varies (Different Vehicle Loaded and Unloaded Weights Used)
- Wheels Varies (Different for Each Vehicle)
- P 160 (AP-42, Figure 13.2.2-1 for site location)
- CE 50% (From AP-42 Figure 13.2.2-4 for wetting)

As Taken from PADEP Form G(A)

$$E_{Paved} = (1-CE)0.077 \left(\frac{4}{n} \right) \left(\frac{silt}{10} \right) \left(\frac{SDL}{1000} \right) \left(\frac{W}{3} \right)^{0.7}$$

Definition of Variables

- E Dust Generation, lb/vmt
- I Industrial Augmentation Factor
- n Number of paved lanes
- silt Mean Silt Content, %
- SDL Surface Dust Loading, lb/mile
- W Vehicle Weight, ton
- CE Control Efficiency

Values Utilized

- I 7.0 (From PADEP Form G(A) for Paved/Unpaved)
- n 2.0 (Two lanes of traffic on-site)
- silt 6.4 (AP-42, Table 13.2.2-1)
- SDL 53.0 (From PADEP Form G(A))
- W Varies (Different Vehicle Loaded and Unloaded Weights Used)
- CE 50% (From AP-42 Figure 13.2.2-4 for wetting)