FORM G(A)

AIR RESOURCE PROTECTION

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
January 2023
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

Construction/Demolition Waste Landfill .... ☐   If existing: Permit # _____

Composting Facility .... ☐

Demonstration Facility .... ☐   Proposed Waste through put in tons/day **700** _____

Incinerator or Resource Recovery Facility ..... ☐   Proposed operating schedule:

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

Other Municipal (☒) / Residual (☐) Waste Processing   **313** days/yr (OD)   Mon.-Fri.: 6:00am to 4:00pm

Facility

Facility (Describe) *Transfer Facility with Rail and Transfer Trailer Loading*   Sat.-Sun.: 6am to 4pm **Saturday ONLY**

Total: _____ 3,443 (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							
Trailer							
High Capacity							
Front Loader							
Light Weight							
Rear Loader							
Dump Trucks							
In Plant Trucks							

See attached narrative G(A)-1 and calculation worksheet entitled "Part 1 Potential to Emit Total Dust and PM10 Emissions on Roadways"

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

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

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

> *See attached calculation worksheet entitled "Part 1 Potential to Emit Total Dust and PM10 Emissions on Roadways"*

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 =
{ 7.0 (paved to unpaved)
3.5 (unpaved shoulders)
Other (explain) _____ }

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

Vehicle Type	Trucks/ Yr (A)	UPR (mile) (B)	PR (mile) (C)	Unpaved (lb./VMT) E_{in} (D)	Unpaved (lb./VMT) E_{out} (E)	Paved (lb./VMT) E_{in} (F)	Paved (lb./VMT) E_{out} (G)	Total Dust (lb./yr) Unpaved in (AxBxD) (lb./yr)	Total Dust (lb./yr) Unpaved out (AxBxE) (lb./yr)	Total Dust (lb./yr) Paved in (AxCxF) (lb./yr)	Total Dust (lb./yr) Paved out (AxCxG) (lb./yr)
Transfer											
Trailer											
High Capacity											
Front Loader											
Light Weight											
Rear Loader											
Dump Trucks											
In Plant Vehicles											
Other											
TOTAL:											
									(h)	(i)	(j)	(k)

See attached narrative G(A)-1 and calculation worksheet entitled "Part 1 Potential to Emit Total Dust and PM10 Emissions on Roadways"

Total potential dust emissions from roads ((h+i+j+k) x (1 ton/2,000 lb))= __8.6_____t/yr
(T)

II.   **Construction/Operation Particlate 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
[(tons topsoil removed/yr)$_{avg.}$ + (tons topsoil daily cover/yr)$_{avg.}$]

See Attachment G(A) - 1 _____   =   0_____ t/yr

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

See Attachment G(A) - 1 _____   =   0_____ t/yr

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

See Attachment G(A) - 1

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

See Attachment G(A) - 1 _____   =   0_____ t/yr

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

See Attachment G(A) - 1 _____   =   0_____ t/yr

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

See Attachment G(A) - 1 _____   =   0_____ t/yr

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

See Attachment G(A) - 1 _____   =   0_____ t/yr

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

III. **Summary of Potential/Actual Total Dust, & PM-10 Emissions – Refer to Worksheet 2**

Total potential dust emissions = T + H =

<u>8.6</u>_____ t/yr
(M)

Total potential PM-10 emissions = 0.36 X M =

<u>1.0</u>_____ t/yr
(N)

Total actual dust emissions = 0.5 X M =

<u>4.3</u>_____ t/yr
(O)

Total actual PM-10 dust emissions = 0.5 X N =

<u>0.5</u>_____ t/yr
(P)

IV. **Stationary Sources Standards**

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

   ☐ 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?

   ☐ 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.

   Refer to Attachment G(A)-1

4. Is the proposed facility subject to any other national standard for hazardous air pollutants?

   ☐ Yes   ☒ No

   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 attached narrative

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 response in 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 response in Attachment G(A)-1.

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

See response in 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 response in 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.

All trucks entering or exiting with waste will be covered. Those vehicles that are empty will not be required to be covered.

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:

a.   for paved roads and parking areas: **See response in Attachment G(A)-1.**

  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 dilutent 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.

ATTACHMENT G(A)-1

NARRATIVE RESPONSES AND CALCULATIONS

FORM G(A): TRANSFER FACILITIES
ATTACHMENT G(A)-1: NARRATIVE RESPONSES

Narrative

1.0 ESTIMATE OF POTENTIAL PARTICULATE EMISSIONS FROM ROADWAYS

1.1 FACILITY DESCRIPTION

North East Waste Systems Transfer Facility (NEWT), which is owned and operated by North East Waste Systems, LLC (NEWS) is a transfer station proposed to accept both MSW and C&D wastes located in the city of Hazleton, Luzerne County, Pennsylvania. This report estimates potential fugitive dust emissions from traffic on the facility's roadways and from activities associated with construction and operation of the proposed transfer station, in conformance with the Pennsylvania Department of Environmental Protection (PaDEP) Bureau of Land Recycling & Waste Management Form G(A) and the United States Environmental Protection Agency publication AP-42. This report also outlines the road maintenance and dust control measures to be implemented at the facility, also in conformance with PaDEP Form G(A).

The entrance and access to the site is located on a privately owned road off of State Route 93 in Hazleton, PA. The entrance access will be a paved driveway which conveys transfer station traffic from the private road to the scale house for waste screening/weigh in activities. From this point, the road remains as a paved haul road leading to the NEWT building's tipping floor area. Waste delivery vehicles travel the same route to exit the site once unloaded. This haul road will also be utilized by employee vehicles, delivery trucks and other non-waste related traffic.

The MSW and C&D wastes will be loaded onto either transfer trailer trucks or railcars to transport waste to an approved facility. To determine the most conservative potential to emit, it is assumed that all waste will be transferred offsite in transfer trailers instead of by rail. The transfer trailers will travel from the southwest side of the building on a separate paved road, passing through the out-going scales prior to exiting the facility.

The calculations to estimate the potential dust created from the construction and operation of the facility do not apply to this project. Construction and fugitive dust sources from operations other than the proposed waste hauling will be a one-time occurrence to initially construct the facility and should not continue to be a source of fugitive dust emissions once the site is graded and the facility is constructed. All operational activity it proposed to occur within the transfer facility building.

Finally, it should be noted that all unloading and loading of waste will occur within the transfer facility building. Traffic will be regulated to ensure there is room for tipping waste onto the floor before allowing trucks into the building. Operations will pause as necessary to ensure they can occur within the building to prevent any additional fugitive dust emissions.

The traffic at NEWT can be divided into different categories: incoming waste hauling, outgoing waste hauling, and non-waste traffic.

1.2   UNPAVED AND PAVED ROADWAY EMISSIONS

Fugitive dust emission rates from the movement of traffic over paved and unpaved surfaces can be estimated using the methods outlined in AP-42. The PaDEP Form G(A) is based on the methods outlined in AP-42 (4th ed.). AP-42 gives two different equations for estimating fugitive dust emissions rates from paved and unpaved roads. The equations from AP-42 yield fugitive dust emissions rates in units of pounds per vehicle miles traveled (i.e., lb/VMT) as follows:

Paved: $\quad E_p = k_p \, (sL / 2)^{0.65} \, (W / 3)^{1.5} (1 - p/4*365)$

Unpaved: $\quad E_u = k_u \, (s / 12)^{a} \, (W / 3)^{b} [(365 - p) / 365]$

where:
- E_u = unpaved roadway emission factor (lb/VMT)
- E_p = paved roadway emission factor (lb/VMT)
- sL = paved road surface dust loading (g/m^2)
- k_p = paved roadway emission factor (dimensionless)
- $k_{u,}$ = unpaved roadway emission factor (dimensionless)
- a, b, c = empirical constants based on particle size
- S = mean vehicle speed (mph)
- W = "fleet" mean vehicle weight (tons)
- p = number of wet (≥ 0.01 inch precipitation) days per year
- s = surface material silt content (%)
- M = surface material moisture content

Two model equations from the latest AP-42 version (5th edition) have been used, one for paved roadways and one for unpaved roadways. Please note that all roadways used by truck traffic are proposed to be paved. Therefore the unpaved roadway calculations are provided here, but not used.

The paved roadway equation is:

$E_{PM10} = [k_p \, x \, (sL)^{0.91} \, x \, (W)^{1.02}] \, x \, (1 - (p / 4 \, x \, 365) = $ lb/VMT

USEPA AP-42 Chapter 13.2.1 (1/11 revision), where;
- k_p = Paved road particle size multiplier specific to PM10 or TSP
- sL = Paved road surface dust loading
- W = Fleet average weight
- p = number of days with > 0.01 in. of precipitation per year

- All default or landfill specific values documented within the text have been used with the exception of W, which was obtained via calculation.

- AP-42 (01/11 rev.) does not have constants specific for total dust (only PM-30, PM-15, PM-10 and PM-2.5). However, it does indicate that PM-30 is often used as a surrogate for TSP.

- This equation includes the extrapolation to account for annual average uncontrolled conditions with natural mitigation (days of precipitation).

The unpaved roadway equation is:

$$E_{PM10} = [k_p \times (s / 12)^a \times (W / 3)^b] \times ((365 - p) / 365)$$

USEPA AP-42 Chapter 13.2.2 (11/06 revision), where;

k_p , a, b, c = Empirical constants based on aerodynamic particle size
s = Surface material silt content
W = Fleet average weight
p = number of days with > 0.01 in. of precipitation per year

- □ All default or landfill specific values documented within the text have been used with the exception of W, which was obtain via calculation and S, which is assumed based on the facility.

- □ AP-42 (11/06 rev.) does not have constants specific for total dust (only PM-30, PM-15, PM-10 and PM-2.5). However, it does indicate that PM-30 is assumed equivalent to TSP.

- □ This equation includes the extrapolation to account for annual average uncontrolled conditions with natural mitigation (days of precipitation).

AP-42 provides default values for several of the input parameters needed to compute the emission rates. Other input data required for completion of the form must be determined directly from site-specific conditions. These site-specific data include: modelling the different vehicles using the site each day, quantifying vehicles, characterizing their traffic patterns throughout the permit area, and establishing the number of "wet" days per year for the subject site.

Typical Vehicle Classes, Quantities and Characteristics
The classes, quantities, and characteristics of the different vehicles that typically access a transfer station on a daily basis vary from facility to facility. The vehicle classifications used to determine emissions from facility roadways are based on information provided by NEWS. The number of each type of truck per year was calculated using the estimated vehicle traffic distribution provided by NEWS as assumed in the traffic study, permitted average daily volume of 700 tpd, truck capacities, and 313 operating days per year. These waste hauling vehicles are assumed to travel to the tipping area within the transfer station building to dump waste loads along a paved road that travels through the scales. Emissions from waste hauling traffic are included in the Part 1 Calculation worksheet and Table 1.

There is no anticipated on-going construction that would be occurring at the proposed transfer station, unlike a landfill where cell development and construction would occur more regularly. All operations proposed for the facility will occur within the transfer facility building. Therefore no additional construction or operational traffic is modeled.

Note that Section 2.0 of this report, corresponding to Section II of Form G(A), models fugitive dust emissions associated with soil handling activities. As these activities are not proposed to occur at the facility, except for the initial site construction, they are not

included in these calculations. All operational activities are also proposed to occur within the enclosed building.

The potential particulate dust emissions from site roadways based on these vehicle classifications, soil quantities and construction activities is presented in Section I of Form G(A).

Number of "Wet" Days Per Year, P
The number of "wet" days per year is defined by AP-42 as the number of days per year with at least 0.01 inches of precipitation. This factor is used to model the effect of surface soil moisture on fugitive emissions from unpaved roads. The mean number of wet days per year for Scranton, Pennsylvania is approximately p = 139 days per year based on the Pennsylvania Climatologist Website.

Mean Vehicle Speeds, Sin and Sout
The posted speed limit at facility is 10 mph for both facility access and haul roads.

Roadway Lengths, UPR and PR

The distances traveled by vehicles on paved and unpaved roadways have been based on the proposed roadways within the permit boundary. NEWS proposes to pave all roadways to be travelled by incoming and outgoing waste hauling vehicles going through the scales to the facility as well as the non-waste hauling vehicles such as employee and delivery trucks.

At the site, two separate roads or road segments can be modeled to represent the incoming and outgoing traffic routes on a given day.

- **Paved Road:** The paved access roadway at the entrance of the facility where incoming waste hauling and non-waste hauling traffic enters the site and continues from the truck scales to the transfer facility building. The paved road is approximately 930 feet, or 0.176 miles in length one-way. It is conservatively assumed that all incoming waste haulers and non-waste hauling vehicles will travel this same path to exit the site.

- The paved roadway from the egress of the transfer facility building, back through the scales and exiting the site will be travelled by the outgoing waste hauling trailers. This paved road is approximately 760 feet, or 0.144 miles in length one-way.

2.0 ESTIMATE OF POTENTIAL PARTICULATE EMISSIONS FROM CONSTRUCTION AND LANDFILL OPERATIONS

2.1 BACKGROUND DATA

Section II of Form G(A) provides default emissions rates for various landfill construction and operations activities. The proposed transfer facility is different from a landfill as it will not have on-going construction of landfill cells, cover hauling and placement, as well as dozer and compactor operations. There will be some site grading and building construction initially as the facility is being built, but it will be a one-time event. All

operational activities will occur within the enclosed transfer facility building. Therefore, no operational/construction fugitive emissions are anticipated.

During the initial construction of the site, efforts to minimize particulate emissions will be made in accordance with 25 Pa. Code § 123.1, including watering, sweeping, and/or tire washing for dust control.

3.0   ESTIMATE OF TOTAL PARTICULATE EMISSIONS FROM THE FACILITY

3.1   TOTAL POTENTIAL AND TOTAL ACTUAL DUST EMISSIONS

Total potential dust emissions are computed based on the factors described above. Total potential and actual dust emissions from the facility roadways as well as from construction and operational activities are calculated as indicated in previous paragraphs of this narrative. These two quantities are then summed together to estimate the total annual dust emissions for the facility. Part 3 summarizes the estimates of total potential particulate emissions at NEWT.

The total potential for dust emissions for NEWT is approximately 8.6 tons per year. Actual dust emissions are reduced from potential dust emissions as a result of applying control measures, such as watering and sweeping. The total actual dust emissions rate from daily operations is estimated to be approximately 4.3 tons per year, based on the conservative control efficiency of 50% provided in Form G(A).

3.2   TOTAL POTENTIAL AND TOTAL ACTUAL PM-10 EMISSIONS

PM-10 emissions constitute a fraction of the total dust emissions, which is represented mathematically in AP-42 as the particle size multiplier, k. Since the newer versions of AP-42 provide constants for calculating PM-10 emissions from paved and unpaved roadways directly, the AP-42 method is used to estimate emissions from these sources. In the case of fugitive emissions from construction and operational activities, the PM-10 emissions are obtained from the particle size multiplier, k. The particle size multiplier of $k = 0.36$ for total PM-10 emissions is used by Section III of Form G(A). The particle size multiplier, $k = 0.36$ is applied to the total emissions for construction and landfill operations to determine PM-10 emissions from this source.

The total potential PM-10 emissions for NEWT are approximately 1.0 tons per year. And, it follows that the total actual PM-10 emissions rate is approximately 0.5 tons per year based on the conservative control efficiency of 50% provided in Form G(A).

4.0   STATIONARY SOURCES AND AMBIENT AIR QUALITY STANDARDS

4.1   VISIBLE FACILITY EMISSIONS OFF THE PERMIT BOUNDARY

The facility does not expect visible dust emissions beyond the permit boundary in relation to the general transfer facility operations. All tipping and loading of waste will be conducted inside the transfer facility building.

4.2   OTHER STATIONARY SOURCES SUBJECT TO 25 PA CODE §122

There are no known stationary sources of air contaminants which are subject to the new source performance standards adopted under 25 Pa. Code §122. Also, no such sources are planned.

4.3   ASBESTOS WASTE SUBJECT TO 25 PA CODE §124

NEWT is not a landfill, but there may be waste that is accepted for transfer at the facility that may be both friable and non-friable asbestos-containing waste. This type of waste will be handled in accordance with waste acceptance procedures specified in Form O. These procedures require that incoming loads of friable asbestos-containing wastes are bagged and sealed, and that only properly trained and attired personnel handle the waste.   Also, the specified procedures require that incoming loads of non-friable asbestos-containing waste be wrapped, usually with plastic sheeting, and that only properly trained and attired personnel handle the waste. This procedure is proposed to continue with the expansion operations.

4.4   OTHER NATIONAL STANDARDS FOR HAZARDOUS AIR POLLUTANTS

NEWT is not known to be subject to any other national standard for hazardous air pollutants. NEWT does not accept hazardous waste.

5.0   ENTRANCE ROADS, ACCESS ROADS, AND PARKING AREAS

In order to reduce potential dust emissions at NEWT, maintenance and dust control measures will be implemented for site roadways and traffic areas. Generally, these measures reduce fugitive dust emissions by reducing the quantity of aerodynamic surface particles on the facility's roadways, either by removal via sweeping or by cohesive forces via watering. Logs will be kept to record the activities undertaken to control dust emissions by maintaining the roads.

5.1   PAVED ROADWAY CLEANING AND MAINTENANCE

The paved access and haul roads at NEWT will be cleaned by a sweeper or a water truck as needed. On dry days, paved roads will be typically swept and/or watered as necessary to control fugitive dust emissions. During wet periods, sweeping and/or watering will be conducted as necessary to control dust and mud. Street sweeping and/or watering activities will be recorded in the maintenance logs. A pressurized spray washer is available for washing the tires of disposal vehicles.

5.2   PAVED ROADWAY SHOULDER MAINTENANCE

Fugitive dust emissions from the unpaved shoulders of the paved access road are controlled by watering. Road treatment operations are recorded in the maintenance logs.

NEWS does not intend to use chemical dust suppressants on the shoulders of paved roadways. If, at any time in the future, chemical dust suppressants are deemed necessary, the Department will be notified prior to the application of chemical dust suppressants.

5.3   UNPAVED ROADWAY DUST CONTROL

NEWS is proposing to pave all roadways to be utilized by waste hauling and other

vehicle traffic. Therefore, this section is not applicable.

5.4   TRAFFIC CONTROL AND SPEED LIMITS

The speed limit for the paved access road is 10 mph, and the limit for the unpaved haul roads and unloading areas is also 10 mph.

5.5   FACILITY "COVERED VEHICLE" POLICY

NEWS will maintain the policy that all incoming and outgoing waste-hauling vehicles to the facility must be covered. Vehicles that are empty arriving or leaving the facility will not be required to be covered because they are empty and, therefore, have negligible potential to emit fugitive dust.

6.0   RECORDKEEPING

Various logs will be kept at the facility for the many tasks and operations that must be completed during the normal operation of the transfer station. Among these are the logging of general site activities and dust control. The logs will be used to record daily road maintenance activities.

6.1   PAVED ROADWAY RECORDKEEPING

The daily operations log also records the nature of any road maintenance work including road repairs, patchwork, paving and other incidental construction. Also, the reason(s) for not watering or sweeping the paved access road (i.e., freezing temperatures, steady rainfall, etc.) is noted in the Logs.

NEWS does not intend to use chemical dust suppressants to control dust at the transfer facility. If chemical dust suppressants are used, a log will be kept to record the identification of the dust suppressant, and the identification of diluents and dilution ratios if chemical suppressants are used. Also, purchase records of chemical dust suppressants will be retained if such suppressants are used.

6.2   UNPAVED ROADWAY RECORDKEEPING

NEWS is proposing to pave all roadways to be utilized by waste hauling and other vehicle traffic. Therefore, this section is not applicable.

NEWS does not intend to use chemical dust suppressants to control dust at the transfer facility. If chemical dust suppressants are used, a log will be kept to record the identification of the dust suppressant, and the identification of diluents and dilution ratios if chemical suppressants are used. Also, purchase records of chemical dust suppressants will be retained if such suppressants are used.

6.3   QUARTERLY REPORTS

Quarterly reports of the Roadway Maintenance Logs will be submitted to PaDEP upon request.

CALCULATION WORKSHEET

Proj No: _21-4STMGMT-002_   **Sheet** _1_ **of** _3_   **By:** _LAV_   **Date:** _January 2023_

Calc Title: _Part 1: Potential to Emit PM10 and PM2.5_   **Ch:** _PW_   **Date:** _January 2023_
from Roadways

OBJECTIVE

Estimate Potential To Emit (PTE) fugitive Total PM and PM10 emissions for the North East Waste Systems, LLC proposed Transfer Facility resulting from waste hauling and daily vehicle traffic travelling the facility's roadways.

CALCULATION METHOD AND ASSUMPTIONS

Based on the information provided by North East Waste Systems, LLC (NEWS) the haul roads within the permit boundary to be travelled by waste haulers, employees, and other anticipated daily traffic will be paved. The traffic at the Transfer Facility is categorized by Incoming Waste Hauling to Transfer Station, Outgoing Waste Hauling, and Non-Waste Hauling traffic. A brief description of each category, including quantity of material transported by each type of traffic, respective traffic counts used for calculations, as well as average roadway length, is presented below.

Incoming Waste Hauling Traffic: The proposed transfer facility may accept up to 700 tons of MSW and C&D waste per day from customers/sources. These vehicles will travel onto the site, through the scales and then along to the transfer facility using a paved roadway approximately 930 feet one-way. The traffic count and truck type for waste hauling vehicles given below is based on the same assumptions used for the traffic study. The counts and hauling capacity add up to 700 tons per day and assuming 313 days of operation per year.

Vehicle Type	Estimated Hauling Capacity (tons)	Number of Vehicles Per Year
Roll-off	10	10,955
Loader	15	3,130
Small Dump	3	10,329
5-axle Hauler	20	1,565

Outgoing Waste Hauling Traffic: The proposed transfer facility may transport MSW and C&D waste received offsite to approved landfills or other facilities via transfer trailer or railcar. For the purposes of this calculation, it is assumed all waste received is hauled offsite utilizing transfer trailers.   These vehicles will travel off site, through the scales, using a paved roadway approximately 760 feet one-way.   Assuming transfer trailers have a hauling capacity of approximately 20 tons, the calculations assume 10,955 trucks per year for outgoing waste hauling.

Non-Waste Hauling Traffic: The proposed transfer facility will have employee vehicle traffic, delivery traffic, and/or other non-waste hauling traffic. These non-waste hauling vehicles were assumed to occur at an estimated rate of 20 per day and have a weight of 3 tons. For these calculations, it is conservatively assumed that all of these vehicles would travel the same paved roadway length that incoming waste traffic travel. Below are the estimates of vehicle counts per year in this category.

CALCULATION WORKSHEET

Proj No: _21-4STMGMT-002_   **Sheet** _2_ **of** _3_   **By:** _LAV_   **Date:** _January 2023_

Calc Title: _Part 1: Potential to Emit PM10 and PM2.5_   **Ch:** _PW_   **Date:** _January 2023_
from Roadways

Vehicle Type	Estimated Vehicles per day	Number of Vehicles Per Year
Employee/Delivery/Non-Waste Hauling	20	6,280

MODEL EQUATIONS

Two model equations, one for paved roadways and one for unpaved roadways given in USEPA AP-42, Chapters 13.2.1 & 13.2.2 (01/11 revision) respectively have been used.

The paved roadway equation is:

$$E_{PMi} = k_{pi} \times (sL)^{0.91} \times (W)^{1.02} \times (1 - P/4N)$$

E_{PMi} = Size specific emission factor (lb/VMT)
k_{pi} = Paved road particle size multiplier specific to Total Dust or PM10
sL = Paved road surface dust loading
W = Fleet average weight
P = number of days with > 0.01 in. of precipitation per year
N = 365 for annual emission calculation

All default or landfill specific values given below were used for calculations and the majority was obtained from USEPA AP-42 Chapter 13.2.1 (12/03 revision).

$k_{total\ dust}$ = 0.011 lb/VMT
k_{pm10} = 0.0022 lb/VMT
sL = 7.4 g/m^2
W = See Table 1 for the calculations pertaining to W
P = 139 days (Reference 2)

The unpaved roadway equation is (_though not applicable as all roadways are to be paved_):

$$E_{PMi} = k_{pi} \times (s/12)^a \times (W/3)^b \times ((365 - p)/365)$$

E_{PMi} = Size specific emission factor (lb/VMT)
k_{pi} = Paved road particle size multiplier specific to Total Dust or PM10
a, b, c = Empirical constants based on aerodynamic particle size
s = Surface material silt content
P = number of days with > 0.01 in. of precipitation per year
M_{dry} = surface material moisture content (dry uncontrolled conditions)
W = Fleet average weight

All default or landfill specific values given below were used for calculations and the majority was obtained from USEPA AP-42 Chapter 13.2.2 (11/06 revision). These values were previously approved by the PaDEP for this site with the exception of W which was obtained via calculation and S which is assumed based on the facility.

k_{total} = 4.9 lb/VMT
k_{p10} = 1.5 lb/VMT

CALCULATION WORKSHEET

Proj No: *21-4STMGMT-002*   **Sheet** _3_ **of** _3_   **By:** _LAV_   **Date:** _January 2023_

Calc Title: *Part 1: Potential to Emit PM10 and PM2.5*   **Ch:** _PW_   **Date:** _January 2023_
          from Roadways

a = 0.9 for PM10 or 0.7 for Total Dust
b = 0.45
s = 6.4 %
P = 139 days (Reference 2)
W = See Table 1 for the calculations pertaining to W

CALCULATION

The calculations for potential Total PM and PM-10 emissions from paved and unpaved roadways were completed using a Microsoft Excel spread sheet. See Table 1 for Total PM and PM-10 emissions

CONCLUSION

The potential to emit fugitive Total PM and PM-10 from paved and unpaved roadways due to waste hauling and other traffic for the facility is estimated to be 8.6 and 1.0 tons/year, respectively.

REFERENCES

1. North East Waste Systems, LLC
2. Pennsylvania Climatologist Web Site, http://climate.met.psu.edu/data, for Scranton, PA

End of Calculations, Part 1.

North East Waste Systems, LLC
North East Waste Systems Transfer Facility

TRANSFER STATION FACILITY FUGITIVE DUST EMISSIONS
Table 1: Summary of Total Dust and PM10 Emissions from Paved and Unpaved Roadways

Values of Parameters & Constants Used for Calculations:

$k_{PMTotal Dust}$ (lb/VMT) - Unpaved = 4.9

k_{PM10} (lb/VMT) - Unpaved = 1.5

$k_{PMTotal Dust}$ (lb/VMT) - Paved = 0.011

k_{PM10} (lb/VMT) - Paved = 0.0022

s(%) = 6.4

sL (g/m^2) = 7.4

$a_{PMTotal Dust}$ 0.7

a_{PM10} 0.9

b = 0.45

p (days) = 139

Average Vevicle Weight Calculations & Vehicle Count:

Vehicle Type	Vehicle Wt. Loaded W_{in} (tons)	Vehicle Wt. Unoaded W_{out} (tons)	Waste Hauling/Traffic Catergory Count (per year)		
			Incoming Waste	Outgoing Waste	Non-Waste Hauling
Total Waste Accepted			219,100	219,100	
Rolloffs	27.0	17.0	10,955		
Loader Truck	25.0	10.0	3,130		
Small Dump Truck	13.0	10.0	10,329		
5-axle Haulers	40.0	19.8	1,565		
Transfer Trailer	40.0	20.0		10,955	
Employee/Delivery Vehicles	3.0	3.0			6,260
Average Vehicle Weight (tons)			17.8	30.0	3.0
Total Number of Vehicles			25,979	10,955	6,260

Total Dust and PM 10 Emission Calculations:

Material Hauled	W ton	Total Dust Emissions (lb/VMT)		PM10 Emissions (lb/VMT)		No. of Vehicles	Roadway Length (VMT)		Emissions (tons)	
		Unpaved	Paved	Unpaved	Paved		Unpaved	Paved	Total PM	PM10
Incoming Waste	17.8	4.3496	1.1570	1.1742	0.1375	25,979	0.000	0.352	5.3	0.629
Outgoing Waste	30.0	5.5069	1.9752	1.4866	0.2348	10,955	0.000	0.288	3.1	0.370
Non-Waste Haulers	3.0	1.9539	0.1886	0.5275	0.0224	6,260	0.000	0.352	0.2	0.025
								TOTAL EMISSIONS (TONS)	8.6	1.0

CALCULATION WORKSHEET

Proj No: _21-4STMGMT-002_   **Sheet** _1_ **of** _1_   **By:** _LAV_   **Date:** _Jan 2023_

Calc Title: _Part 2: Potential and Actual Total PM and PM-10_   **Ch:** _PW_   **Date:** _Jan 2023_
Emissions

OBJECTIVE
Estimate total Potential To Emit (PTE) fugitive total PM and PM-10 for the North East Waste Systems, LLC proposed Transfer Facility.

CALCULATION METHOD & CONDITION
Total Dust Emissions:
PTE Total Dust emissions from facility roadways, from Part 1 = **8.6 tons**
PTE Total Dust emissions from landfill operations & equipment (non-hauling), _Not applicable_ = **0 tons**
PTE Total Dust emissions = (8.6 + 0) = **8.6 tons**
PTE Total Dust emissions after controls (50% control efficiency) = 8.6 x 0.5 = **4.3 tons**

PM-10 Emissions:
Potential PM-10 emissions from facility roadways, from Part 1 = **1.0 tons**
Potential PM-10 emissions from construction/operations (non-hauling), _Not Applicable_ **= 0 tons**
Potential PM-10 emissions from facility roadways and construction/operations (non-hauling) =
(1.0 + 0 tons) **= 1.0 tons**
Total PM-10 emissions (assuming 50% efficiency) = 1.0 x 0.50 **= 0.5 tons**

CONCLUSION
Total potential to emit fugitive Total PM and PM-10 for the proposed Transfer Facility roadways, are estimated to be 4.3 and 0.5 tons/year, respectively.

End of Calculations, Part 2.