San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING

August 31, 2023

Chris Seney
Forward, Inc. Composting Facility
9999 S Austin Rd
Manteca, CA 95336

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-8534
Project Number: N-1212824

Dear Mr. Seney:

Enclosed for your review and comment is the District's analysis of Forward, Inc. Composting Facility's application for an Authority to Construct for a new green waste receiving, stockpiling, and composting operation utilizing a positively aerated static pile (ASP) system, at 9999 S Austin Rd, Manteca.

The notice of preliminary decision for this project has been posted on the District's website (www.valleyair.org). After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. John Yoshimura of Permit Services at (209) 557-6449.

Sincerely,

Brian Clements
Director of Permit Services

BC:jy

Enclosures

cc: Courtney Graham, CARB (w/ enclosure) via email

Samir Sheikh
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 FAX: (661) 392-5585

www.valleyair.org www.healthyairliving.com

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review

Organic Waste Composting Operation

Facility Name:	Forward, Inc. Composting Facility	Date:	August 31, 2023
Mailing Address:	9999 S Austin Rd	Engineer:	John Yoshimura
	Manteca, CA 95336	Lead Engineer:	James Harader
Contact Person:	Chris Seney		
Telephone:	(760) 272-1224		
E-Mail:	cseney@republicservices.com		
Application #s:	N-8534-7-0 and '-8-0		
Project #:	N-1212824		
Deemed Complete:	January 25, 2022		

I. Proposal

Forward, Inc. Composting Facility (Forward Compost) has requested an Authority to Construct (ATC) permit for the installation of a feedstock material receiving and stockpiling operation (permit unit N-8534-7-0) and a 52,000 ton/year organic waste (green, food, vegetative, landscaping, and agricultural material) composting operation (permit unit N-8534-8-0) utilizing a positively aerated static pile (ASP) system with a fabric or finished compost cover. Additionally, Forward Compost has proposed to install a new finished compost storage and loadout operation, which as shown in this evaluation meets the definition of a "low emitting unit" per Section 3.10 of Rule 2020 (Exemptions) and is therefore permit-exempt per Section 6.19 of Rule 2020. The proposed stockpiling and organic waste composting operations will not share material or operate in conjunction with the existing composting operation under permit N-8534-2. A copy of the draft ATCs are included in Appendix A.

Stationary Source Determination

This organic composting facility is located adjacent to Forward Landfill (N-339). Pursuant to District Rule 2201, subsection 3.39.2, to be considered part of the same stationary source the landfill and organic waste composting operations must belong to the same industrial grouping by virtue of having the same two-digit standard industrial classification (SIC) code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material.

The SIC code for organic waste composting is 2875 (Fertilizers, mixing only) and includes compost, while the SIC code for landfills is 4953 (Refuse Systems). Since these operations have different two-digit SIC codes, the operations are not the same stationary source based on SIC code. Raw organic waste material is received at a common receiving scale at the landfill, where the material that is suitable for composting is diverted to the composting area and the other organic waste that is not suitable for composting is diverted to the landfill for disposal. The finished composted material is sold to customers. Alternatively, the other organic waste diverted to the landfill is typically non-compostable, and the primary purpose of the landfill is to permanently dispose of this material rather than to create a sellable product.

Therefore, these operations are considered to be distinct, separate processes with separate two-digit SIC codes, and per the definitions in Rule 2201, the Forward Composting Facility is determined to not be the same stationary source as Forward Landfill.

II. Applicable Rules

Rule 2020 Exemptions (12/18/14)
Rule 2201 New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410 Prevention of Significant Deterioration (6/16/11)
Rule 2520 Federally Mandated Operating Permits (8/15/19)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4202 Particulate Matter Emission Rate (12/17/92)
Rule 4565 Biosolids, Animal Manure, and Poultry Litter Operations (3/15/07)
Rule 4566 Organic Material Composting Operations (8/18/11)
Rule 8011 General Requirements (8/19/04)
Rule 8021 Construction, Demolition, Excavation, Extraction and Other Earthmoving Activities (8/19/04)
Rule 8031 Bulk Materials (8/19/04)
Rule 8041 Carryout and Trackout (8/19/04)
Rule 8051 Open Areas (8/19/04)
Rule 8061 Paved and Unpaved Roads (8/19/04)
Rule 8071 Unpaved Vehicle/Equipment Traffic Areas (9/16/04)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The facility is located at 9999 South Austin Rd, Manteca, California. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

Feedstock Organic Waste Material Receiving and Storage (ATC N-8534-7-0)

Forward Compost has proposed to receive and stockpile organic material to be used as feedstock for a proposed positive ASP composting operation. In order to comply with stockpile requirements of District Rule 4566 (Organic Material Composting Operations), the applicant is proposing to process organic waste materials within 24 hours of receipt. The facility has proposed to receive and transfer up to 7,500 tons of material per day and to stockpile up to 1,700 tons of material per day and up to 52,000 tons of material per year. Forward Compost will screen and mix the material under existing permit unit N-8534-9-0; as a result, all emissions from screening and mixing are already accounted for under that existing permit unit.

Positive ASP Compost System with the Finished Compost Cover (ATC N-8534-8-0)

Forward Compost has proposed to install an organic waste compost operation utilizing a positive ASP system with either a fabric or finished compost cover to accelerate the aerobic composting process and control odors, volatile organic compounds (VOC), and ammonia (NH_3). In "positive" aeration, a blower pushes air through perforated piping that runs underneath the compost windrow pile. The blower operation is triggered by the feedback of oxygen and temperature sensors located within the windrow pile. This manner of oxygenating the compost pile allows for more uniform aerobic conditions throughput the pile than can be achieved with conventional periodic turning of the pile. The facility has proposed to compost up to 9,025 tons of material per day and up to 52,000 tons of material per year.

Composting Process Description

After the organic waste material is mixed, ground and screened, a front-end loader delivers the blended feedstocks to the composting area and builds the active phase windrow pile over a perforated pipe manifold connected to a blower fan system. The covering of the blended organic materials marks the beginning of the active phase of composting. Fans push air through dual track perforated piping underneath the windrow and up into the material to maintain aerobic conditions throughout the pile and to maintain the required temperature for biological activity and pathogen destruction.

In the active phase of composting, micro-organisms rapidly break down the more easily decomposable organic material first. The byproduct of this high rate of exothermic biochemical activity is the production of VOCs and NH_3 as well as a rise in temperature of the compost pile, up to 160 degrees Fahrenheit. Generally, the peak pile temperature corresponds to the peak VOC emission rate. According to the District's Compost VOC Emissions Factors Report, 90% of the VOC emissions from composting occur during the active phase.

Upon completion of the active phase, the organic material has minimal odor and has been reduced in volume. A front-end loader will be used to move the material to commence the curing phase of composting. Due to the rapid decomposition that has taken place over the course of the active phase, the pile has lost its original porosity. Moving the material serves to "fluff it up," thereby promoting a more uniform aeration in the curing phase. After the curing phase windrow pile is rebuilt, the windrow will be covered and aerated as needed for two weeks.

At the end of the curing phase, the compost has entered the finishing phase, where it is considered to be stable, meaning its decomposition rate, and, in turn, its air contaminant emission rate, is negligible. In the finishing phase, the material is not normally covered or aerated. The purpose of the finishing phase is to cool the composted material and allow excess moisture to evaporate in preparation for loadout.

Permit Exempt Loadout Operation

The finished compost loadout operation will consist of two transfer points (from compost area to finished compost storage, and from storage area to trucks). A maximum of 3,400 tons/day and 52,000 tons per year of finished compost will be loaded out by this operation.

V. Equipment Listing

N-8534-7-0: GREEN WASTE MATERIALS RECEIVING AND STORAGE OPERATION SERVING THE COMPOSTING OPERATION PERMITTED UNDER N-8534-8

N-8534-8-0: SOUTHEAST COMPOST OPERATION - ORGANIC WASTE (GREEN WASTE) COMPOSTING OPERATION WITH A POSITIVE AERATED STATIC PILE (ASP) SYSTEM WITH COVER (FABRIC OR COMPOST CAP) SERVING THE ACTIVE AND CURING PHASES AND PERMIT EXEMPT FINISHED COMPOST STORAGE AND LOADOUT OPERATIONS

VI. Emission Control Technology Evaluation

N-8534-7-0 (Organic Waste Receiving and Storage)

The organic waste material (feedstock material) receiving, storage, and mixing operations produce VOC and NH_3 as a result of the natural decay of organic material. For the portion of feedstock material that will be diverted to the composting operation, VOC and NH_3 emissions will be mitigated by requirements to incorporate the green and/or food material within the compost system within 24 hours or remove the material from the site.

N-8534-8-0 (Compost Operation and Permit-Exempt Finished Compost Loadout)

The composting process has the potential to emit VOCs, NH_3, and odor. The compost system utilizes positively aerated static piles with a fabric or finished compost cover to reduce these pollutants and odors. The positive aeration and cover system serve to promote more thorough aerobic decomposition throughout the pile, thereby reducing odorous compounds most typically associated with anaerobic decomposition as compared to open windrow composting that relies on turning and simple diffusion of outside air to penetrate the pile. The presence of sufficient oxygen throughout the pile (5 – 15%) means that micro-organisms will have an aerobic environment promoting the rapid decomposition of organic matter to CO_2.

The fabric (as shown in the image below) or finished compost cap acts as a pseudo-biofilter. During the composting process, when emissions from the pile migrate into the fabric or finished compost layer, they are degraded by microorganisms present in the fabric or finished compost cover. Pursuant to the applicant, the covered positively aerated compost system is expected to reduce VOC and NH_3 emissions by at least 95% for VOC and 80% for NH_3. A source test (see Appendix I) for an existing compost operation at Napa Recycling and Waste Services, which utilizes a positively aerated compost system with a finished compost cover has shown that such a control technology configuration can achieve control efficiencies of at least 95% for VOC and 80% for NH_3 when compared to the District's current uncontrolled organic waste emission factors. Source tests will be conducted to confirm the proposed covered, positively ASP system will achieve the proposed VOC and NH_3 control efficiencies.

VII. General Calculations

A. Assumptions

N-8534-7-0: Organic Waste Receiving and Storing

1. PM_{10}, VOC, and NH_3 are emitted by these operations.
2. PM_{10} will be emitted from the receiving and handling of the feedstock material.
3. PM_{10} emissions from the screening operation have already been quantified under existing permit unit N-8534-6-0. The facility has stated the current throughput limits are sufficient to screen material from the proposed feedstock storage operation and the existing feedstock storage operation (N-8534-1-1).
4. VOC and NH_3 will be emitted from the storage of the feedstock material.
5. Daily tons of feedstock stored = 1,700 tpd (applicant proposed).
6. Daily tons of feedstock received and transferred = 7,500 tpd (applicant proposed).
7. Annual tons of feedstock received and stored = 52,000 tpy (applicant proposed).
8. Maximum stockpile storage time: 1 day (applicant proposed).
9. As a conservative estimate, uncontrolled PM_{10} transfer emissions will be based on AP-42, Table 11.19.2-2, (6/03) Crushed Stone, Conveyor transfer point.
10. Fugitive PM_{10} emissions from material handling will be based on 1 transfer point as described below:
    a. There is 1 transfer point from moving organic waste material from the screening and mixing area (permit unit N-8534-4-1) to the proposed stockpile storage area.

N-8534-8-0: Positive ASP Compost System

1. VOC and NH_3 will be emitted from the active phase and curing phase.
2. Finished compost is assumed to not emit any VOC or NH_3 emissions.
3. Daily tons of organic material composted = 9,025 tpd (applicant proposed).
4. Annual tons of organic material composted = 52,000 tpy (applicant proposed).

5. The positive ASP system with fabric or finished compost cover will control VOC emissions by 95% or better (per facility source test) and ammonia by 80% or better (per facility source test).
6. Fugitive PM_{10} emissions from material handling will be based on 2 transfer points as described below:
   a. There are 2 transfer points consisting of (1) the transfer of the feedstocks from the storage/stockpile area to form an active windrow (4,700 tpd); and (2) the transfer of material from an active phase bunker to a curing phase bunker (3,000 tpd);

Permit-Exempt Finished Compost Storage and Loadout

1. Daily tons of finished compost transferred = 3,400 tpd (applicant proposed).
2. Annual tons of finished compost transferred = 52,000 tpy (applicant proposed).
3. Fugitive PM_{10} emissions from material handling will be based on 2 transfer point as described below
   a. There are 2 transfer points consisting of (1) the transfer of finished compost from the compost area to the storage area; and (2) the transfer of finished compost from storage area to trucks for offsite transport by a front-end loader.

B. Emission Factors (EF)

N-8534-7-0: Organic Waste Receiving, Transfer, and Storing

For the receiving and transport of the materials once on site, the AP-42 emission factor for uncontrolled conveyor transfer point for crushed stone processing, AP-42, Table 11.19.2, Crushed Stone (uncontrolled) (amended 8/04) will be used. Since composting material is already sufficiently wet, the emission factor will be reduced by 70% to more accurately estimate emissions from an organic waste material operation.

Therefore, the uncontrolled material transfer and mixing EF is:

$PM_{10\ \text{Receiving and Transfer}}$ = 0.001 lb-PM_{10}/wet-ton × (1 – 0.70) = 0.0003 lb-PM_{10}/wet-ton

Emission Factors for Organic Waste Receiving, Transfer, and Storing			
Pollutant	Emission Source	Emission Factor	Source
PM_{10}	Receiving and Transfer	0.0003 lb-PM_{10}/wet-ton	AP-42, Table 11.19.2 (uncontrolled, adjusted for moisture content)
VOC	Stockpiles	0.2 lb-VOC/wet-ton/day	District Compost EF Report (3/3/22)
NH_3	Stockpiles	0.02 lb-NH_3/wet-ton/day	

N-8534-8-0: Composting with Organic Waste

Uncontrolled Emission Factors for Organic Material Composting			
Pollutant	Emission Source	Uncontrolled Emission Factors (lb-VOC/wet-ton)	Source
VOC	Composting Cycle (Active and Curing Phases)	3.58	District Compost EF Report (3/3/22)
VOC	Active Phase	3.222	
VOC	Curing Phase	0.702	
NH_3	Composting Cycle (Active and Curing Phases)	0.78	

Uncontrolled Emission Factors for Organic Material Composting			
NH_3	Active Phase	0.702	
NH_3	Curing Phase	0.078	
VOC & NH_3	Finishing Phase	0	
PM_{10}	Transfer and Mixing	0.0003 lb-PM_{10}/wet-ton	AP-42, Table 11.19.2 (uncontrolled, adjusted for moisture content)

The following emission factors will be used to estimate uncontrolled emissions. The District will assume PM10 emissions to be 50% of overall PM emissions.

Emission Factors for Finished Compost Transfer and Loadout			
Pollutant	Emission Source	Emission Factor (lb-PM_{10}/wet-ton)	Source
PM_{10}	Transfer Point	0.0003	AP-42, Table 11.19.2 (uncontrolled, adjusted for moisture content)
PM	Transfer Point	0.0006	

C. Calculations

1. Pre-Project Potential to Emit (PE1)

N-8534-7-0 and '-8-0
Since these are new emissions units, PE1 = 0 for all pollutants.

2. Post-Project Potential to Emit (PE2)

N-8534-7-0
Receiving, Transfer, and Storage
The PE2 for PM_{10}, VOC, and NH_3 emissions from material receiving, transfer, and storage of the organic materials will be calculated based on the following assumptions:

Daily Material Receiving and Transferring: 7,500 wet-tons/day
Daily Storage Weight: 1,700 wet-tons/day
Annual Material Receiving/Storage Weight: 52,000 wet-tons/year
Maximum Stockpile Storage Time: 1 days
Transfer Points = 1 (Receiving)

Daily $PE2_{PM10\text{-}Receiving/\ Mixing}$ = Transfer Points × Throughput (wet-ton/day)
× $EF_{PM10/Receiving\ or\ Mixing}$ (lb-PM10/wet-ton)

Annual $PE2_{PM10\text{-}Receivin/\ Mixing}$ = Transfer Points × Throughput (wet-ton/year)
× $EF_{PM10/Receiving\ or\ Mixing}$ (lb-PM10/wet-ton)

Daily and Annual PE2 for Material Receiving and Transfer				
Pollutant	Transfer Points	Throughput	EF (lb-PM_{10}/ton)	PE2
PM_{10} Receiving and Transfer	1	7,500 wet-tons/day	0.0003	2.3 lb/day
PM_{10} Receiving and Transfer	1	52,000 wet-tons/year	0.0003	16 lb/year

Daily $PE2_{VOC}$ = Daily Storage Weight (wet-ton/day) x Stockpile Storage Time (days) x $EF_{VOC/Stockpiles}$ (lb/wet-ton/day)

Annual $PE2_{VOC}$ = Annual Storage Weight (wet-ton/year) x Stockpile Storage Time (days) x $EF_{VOC/Stockpiles}$ (lb/wet-ton/day)

Daily and Annual PE2 for Material Storing				
Pollutant	Storage Days	Storage Weight	EF	Daily & Annual PE2
VOC	1	1,700 wet-tons/day	0.2 lb-VOC/wet-ton/day	340.0 lb/day
VOC	1	52,000 wet-tons/year	0.2 lb-VOC/wet-ton/day	10,400 lb/year

Daily $PE2_{NH3}$ = Daily Storage Weight (wet-ton/day) x Stockpile Storage Time (days) x $EF_{NH3/Stockpiles}$ (lb/wet-ton/day)

Annual $PE2_{NH3}$ = Annual Storage Weight (wet-ton/year) x Stockpile Storage Time (days) x $EF_{NH3/Stockpiles}$ (lb/wet-ton/day)

Daily and Annual PE2 for Material Storing				
Pollutant	Storage Days	Storage Weight	EF	Daily & Annual PE2
NH_3	1	1,700 wet-tons/day	0.02 lb-NH_3/wet-ton/day	34.0 lb/day
NH_3	1	52,000 wet-tons/year	0.02 lb-NH_3/wet-ton/day	1,040 lb/year

PE2 Summary for Receiving, Transfer, and Storing		
Pollutant	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
PM_{10}	2.3	16
VOC	340.0	10,400
NH_3	34.0	1,040

N-8534-8-0

Composting with Organic Materials

VOC and NH3 emissions will be generated by the compost windrows; PM10 emissions will be generated by transfer material into the compost system.

Daily PE

The daily PM_{10}, VOC, and NH_3 emissions will be calculated as follows:

PM_{10} is emitted by transferring the material from the stockpiles to the active compost phase, and transferring the material from the active compost phase to the curing compost phase. The applicant has proposed a maximum of 9,025 wet-tons of compost on-site on any given day. Therefore, the maximum amount of material transferred will be 4,700 wet-ton/day for the active phase and 3,000 wet-ton/day for the curing phase.

PM_{10} = # of Drop Points × Processing Rate (ton/day) × $EF_{PM10/Transfer\ Points}$ (lb-PM_{10}/ton)

VOC = Processing Rate (wet ton/year) × $EF_{VOC/Compost}$ (lb/wet ton) x (1/Days Composted) x (1 – Control Efficiency / 100)

NH_3 = Processing Rate (wet ton/year) × $EF_{NH3/Compost}$ (lb/wet ton) x (1/Days Composted) x (1 – Control Efficiency/100)

Daily Emissions from Composting and Transferring – Active and Curing Phases						
Pollutant	Processing Rate/Capacity (wet ton/day)		EF (lb/ton)	# Days of each phase	Control Efficiency (%)	Daily PE (lb/day)
PM_{10}	Active Phase	4,700 tons/day	0.0003	---	---	1.4
	Curing Phase	3,000 tons/day	0.0003	---	---	0.9
VOC	Active + Curing	9,025 tons capacity[1]	3.58	21	95	76.9
NH_3	Active + Curing	9,025 tons capacity[1]	0.78	21	80	67.0

Annual PE

The annual PM_{10}, VOC, and NH_3 emissions will be calculated as follows:

PM_{10} is emitted by transferring the material from the stockpiles to the active compost phase, and transferring the material from the active compost phase to the curing compost phase. The applicant has proposed a maximum of 52,000 wet-tons of material will be composted on-site on any given year. Therefore, the maximum amount of material transferred will be 52,000 wet-ton/year for each transfer point.

PM_{10} = # of Drop Points × Processing Rate (ton/year) × $EF_{PM10/Transfer\ Points}$ (lb-PM_{10}/ton)

VOC = Processing Rate (wet ton/year) × $EF_{VOC/Compost}$ (lb/wet ton) x (1 – Control Efficiency/100)

NH3 = Processing Rate (wet ton/year) × $EF_{NH3/Compost}$ (lb/wet ton) x (1 – Control Efficiency/100)

Annual Emissions from Composting and Transferring – Active and Curing Phases					
Pollutant	Total Number of Drop Points	Processing Rate (wet ton/year)	EF (lb/ton)	Control Efficiency (%)	Annual PE (lb/year)
PM_{10}	2	52,000	0.0003	0	31
VOC	---	52,000	3.58	95	9,308
NH_3	---	52,000	0.78	80	8,112

Permit Exempt Finished Compost Storage and Loadout

PM_{10} is emitted by (1) transferring the material from the curing compost phase to finished compost storage, and (2) transferring the material from the storage piles to trucks taking the finished compost off-site. The applicant has proposed a maximum of 3,400 wet-tons

[1] 9,025 tons is the maximum capacity of the compost bunkers, so this amount will be used to estimate the worst case daily compost emissions.

of finished compost transferred on any given day and 52,000 wet-tons of finished compost transferred in any year.

The daily and annual PM_{10} emissions will be calculated as follows:

Daily PE_{PM10} = # of Drop Points × Processing Rate (ton/day) × $EF_{PM10/Transfer\ Points}$ (lb-PM_{10}/ton)

Annual PE_{PM10} = # of Transfer Points × Processing Rate (ton/year) × $EF_{PM10/Transfer\ Points}$ (lb-PM_{10}/ton)

PE for Loading of the Finished Compost into Trucks						
Pollutant	# of Drop Points	EF (lb/ton)	Daily Processing Rate	Annual Processing Rate	Daily PM (lb/day)	Annual PE (lb/year)
PM10	2	0.0003	3,400	52,000	2.0	31
PM	2	0.0006	3,400	52,000	4.1	62

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site. Potential emissions for permit units not associated with this project have been calculated in Appendix H.

SSPE1 (lb/year)						
Permit Unit	**NO_X**	**SO_X**	**PM_{10}**	**CO**	**VOC**	**NH_3**
N-8534-1-1	0	0	157	0	190,000	19,000
N-8534-2-1	0	0	63	0	281,943	61,429
N-8534-3-0	0	0	63	0	0	0
N-8534-6-0	6,086	13	470	198	79	0
N-8534-9-0	222	6	364	24	8	0
SSPE1	**6,308**	**19**	**1,117**	**222**	**472,030**	**80,429**

4. Post-Project Stationary Source Potential to Emit (SSPE2)

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

SSPE2 (lb/year)						
Permit Unit	**NO_X**	**SO_X**	**PM_{10}**	**CO**	**VOC**	**NH_3**
N-8534-1-1	0	0	157	0	190,000	19,000
N-8534-2-1	0	0	63	0	281,943	61,429
N-8534-3-0	0	0	63	0	0	0
N-8534-4-1 (Being Removed)	0	0	0	0	0	0
N-8534-6-0	6086	13	470	198	79	0
N-8534-7-0 (ATC)	0	0	16	0	10,400	1,040
N-8534-8-0 (ATC)	0	0	31	0	9,308	8,112
N-8534-9-0	222	6	364	24	8	0
SSPE2	**6,308**	**19**	**1,164**	**222**	**491,738**	**89,581**

5. Major Source Determination

Rule 2201 Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months), pursuant to the Clean Air Act, Title 3, Section 302, US Codes 7602(j) and (z)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 70.2

The emissions from existing open windrow composting operations are considered fugitive as defined in Section 3.19 of District Rule 2201 and are not listed as non-exempt fugitive source in 40 CFR 70.2 (Definitions). Therefore, the emissions from the feedstocks receiving and open windrow composting operations under permit units N-8534-1-1, '-2-1, and '-7-0, and the emissions from the non-road engines under permit units N-8534-6-0 and '-9-0 are not included in the determination of a major source as defined in District Rule 2201, Section 3.24, and have been subtracted from the Major Source Determination SSPE2 total as indicated in the table below.

Emissions from storage piles are normally regarded as fugitive[2]. The feedstock material stockpiles in permit units N-8354-1-1 and '-7-0 are a type of storage pile; therefore, the VOC and NH_3 emissions from feedstock material stockpiling will be regarded as fugitive.

Pursuant to the CAA, Section 302(z), a major stationary source does not include "those emissions resulting directly from an internal combustion engine for transportation purposes or from a nonroad engine". Therefore, the emissions from the transportable (nonroad) engines under permits N-8534-6-0 and ATC N-8534-9-0 have been subtracted from the Major Source Determination SSPE2 total as indicated in the table below. Only

[2] Pursuant to District Rule 2201, Section 3.19, fugitive emissions are defined as emissions that could not reasonably pass through a vent, chimney, stack, or other functionally equivalent opening. Since the emissions from the Forward Compost's feedstock piles cannot be controlled through the options previously listed, they are considered fugitive.

the emissions from material handling, screening, and grinding are included for the major source determination.

Major Source Determination (lb/year)					
	NOx	SOx	PM_{10}	CO	VOC
SSPE2 w/Fugitives and Engines	6,308	19	1,164	222	491,738
N-8534-1-1 (Fugitives)	0	0	-157	0	-190,000
N-8534-2-1 (Fugitives)	0	0	-63	0	-281,943
N-8534-3-0 (Fugitives)	0	0	-63	0	0
N-8534-6-0 (Non-Road Engine Emissions)	-6,086	-13	-79	-198	-79
ATC N-8534-7-0 (Fugitive Stockpile Emissions)	0	0	0	0	-10,400
ATC N-8534-9-0 (Non-Road Engine Emissions)	-222	-5	-16	-24	-8
Major Source Determination SSPE2 w/o Fugitives	**0**	**1**	**786**	**0**	**9,308**
Major Source Threshold	**20,000**	**140,000**	**140,000**	**200,000**	**20,000**
Major Source	**NO**	**NO**	**NO**	**NO**	**NO**

As seen in the table above, the facility is not an existing Major Source and is not becoming a Major Source as a result of this project.

Rule 2410 Major Source Determination

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant. As explained earlier in this document, all pre-project VOC emissions (from stockpiles, non-road engines, and existing open windrow composting) at this facility are considered to be fugitive emissions.

PSD Major Source Determination (tons/year)						
	NO_2	**VOC**	**SO_2**	**CO**	**PM**	**PM_{10}**
Estimated Facility PE before Project Increase	0	0	0	0	0.4	0.4
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source?	No	No	No	No	No	No

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 for:

- Any unit located at a non-Major Source,

- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

As shown in Section VII.C.5 above, the facility is not a Major Source for any pollutant.

Therefore BE = PE1.

N-8354-7-0 and '-8-0
Since these are new emissions units, BE = PE1 = 0 for all pollutants.

7. SB 288 Major Modification

40 CFR Part 51.165 defines a SB 288 Major Modification as any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification and no further discussion is required.

8. Federal Major Modification / New Major Source

Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

As defined in 40 CFR 51.165, Section (a)(1)(v) and part D of Title I of the CAA, a Federal Major Modification is any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act. The significant net emission increase threshold for each criteria pollutant is included in Rule 2201.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification and no further discussion is required.

New Major Source

As demonstrated above, this facility is not becoming a Major Source as a result of this project, therefore, this facility is not a New Major Source pursuant to 40 CFR 51.165 a(1)(iv)(A)(3).

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- VOC
- PM
- PM10

a. Project Emissions Increase - New Major Source Determination

The post-project non-fugitive potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

Major Source Determination (lb/year)					
	NOx	SOx	PM_{10}	CO	VOC
N-8534-7-0 (Total Emissions)	0	0	16	0	10,400
N-8534-8-0 (Total Emissions)	0	0	31	0	9,308
N-8534-7-0 (Fugitive Stockpile Emissions)	0	0	0	0	-10,400
N-8534-8-0 (Fugitive Emissions)	0	0	0	0	0
Total Fugitive PE From New and Modified Units	**0**	**0**	**47**	**0**	**9,308**

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO_2	**VOC**	**SO_2**	**CO**	**PM**	**PM_{10}**
Total PE from New and Modified Units	0	4.7	0	0	0	0
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	No	No	No	No	No	No

As shown in the table above, the potential to emit for the project, by itself, does not exceed any PSD major source threshold. Therefore Rule 2410 is not applicable and no further analysis is required.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix E.

VIII. Compliance Determination

Rule 2020 Exemptions

Finished Compost Storage and Loadout:
A finished compost loadout operation is not one of the operation specific categories listed in District Rule 2020; therefore, it may be exempt as a low-emitting unit provided emissions are less than 2.0 lb/day and the proposed operation will not be a significant health risk.

As shown above, uncontrolled annual emissions for PM, the only pollutant emitted, was determined to be greater than 2 lb/day, however, less than or equal to 75 lb/year. Furthermore, District health risk modeling determined that the operation will not pose a significant health risk. Therefore, the finished compost loadout operation is exempt from permitting pursuant to District Rule 2020, Section 6.19.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

Pursuant to District Rule 2201, Section 4.1, BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

a. Any new emissions unit with a potential to emit exceeding two pounds per day,
b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (AIPE) exceeding two pounds per day, and/or
d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

As seen in Section VII.C.2 above, the applicant is proposing to install a new green waste materials receiving and storage operation with a PE greater than 2 lb/day for PM10, VOC, and NH3. Therefore, BACT is triggered for PM10 from the green waste materials receiving and transfer operations, and BACT is triggered for VOC and NH3 for the proposed green waste materials storage operation. Additionally, the applicant is proposing to install a new organic waste composting operation with a PE greater than 2 lb/day for VOC and NH3 from the active phase and curing phase. Therefore, BACT is triggered for VOC and NH3 for the proposed composting operation.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated with this project. Therefore BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification for any pollutant. Therefore BACT is not triggered for any pollutant.

2. BACT Guideline

BACT Guideline 6.4.3 is applicable to the proposed feedstock transfer and mixing operation [Green Waste, Wood Waste, and Composted Material – Transfer & Screening]

BACT Guideline 6.4.15 is applicable to the proposed feedstock and stockpiles operation [Composting Feedstock Receiving, Mixing, and Stockpiles (Non-biosolids)]

A new BACT Guideline will be created for organic material composting.

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

N-8534-7-0 (Organic Waste (Feedstock) Receiving, Mixing, and Storage)

Feedstock receiving, transfer, and mixing operations:
Pursuant to the attached Top-Down BACT Analysis (see Appendix C), BACT has been satisfied with the following for the proposed feedstock receiving, transfer, and mixing operation:

PM10: Use of wet suppression technology as necessary to limit visible emissions to no greater than 5% opacity as measured using EPA Method 9 (Visible Opacity)

Feedstock storage:
Pursuant to the attached Top-Down BACT Analysis (see Appendix C), BACT has been satisfied with the following for the proposed organic material stockpiling operation:

VOC: Process received green waste within 72 hours and food waste within 48 hours by incorporating into an active compost pile or cover material with finished compost, engineered cover, or equivalent until used.

NH_3: Process received green waste within 72 hours and food waste within 48 hours by incorporating into an active compost pile or cover material with finished compost, engineered cover, or equivalent until used.

N-8534-8-0 (Organic Composting Operation)

Pursuant to the attached Top-Down BACT Analysis (see Appendix C), BACT has been satisfied with the following for the proposed organic material composting operation:

VOC: Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) or negatively aerated static piles venting to biofilter or equivalent during the active phase and curing phase

NH_3: Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) or negatively aerated static piles venting to biofilter or equivalent during the active phase and curing phase

B. Offsets

1. Offset Applicability

Pursuant to District Rule 2201, Section 4.5, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO_X	**SO_X**	**PM_{10}**	**CO**	**VOC**
SSPE2	6,308	19	1,164	222	491,774
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	No	No	No	No	Yes

2. Quantity of District Offsets Required

District Offset Quantities Calculation

As demonstrated above, the facility has an SSPE1 for VOC greater than the offset thresholds. Therefore offset calculations will be required for this project.

The quantity of offsets in pounds per year for VOC is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

Where,
PE2 = Post-Project Potential to Emit, (lb/year)
BE = Baseline Emissions, (lb/year)
ICCE = Increase in Cargo Carrier Emissions, (lb/year)
DOR = Distance Offset Ratio, determined pursuant to Section 4.8
BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, Located at a Major Source.

otherwise,

BE = HAE

As calculated in Section VII.C.6 above, the BE from this unit are equal to the PE1 since the unit is a Clean Emissions Unit.

Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions. Therefore, offsets can be determined as follows:

Offsets Required (lb/year) = ([PE2 – BE] + ICCE) x DOR

PE2 (VOC) = Stockpile PE + Compost PE = 10,400 + 9,308 = 19,708 lb/year
BE (VOC) = 0 lb/year
ICCE = 0 lb/year

Offsets Required (lb/year) = ([19,708 – 0] + 0) x DOR = 19,708 x 1.5
= 29,562 lb-VOC/year = 14.78 ton/year

Calculating the appropriate quarterly emissions to be offset is as follows:

Quarterly offsets required (lb/qtr) = (29,562 lb-VOC/year) ÷ (4 quarters/year)
= 7,390.5 b-VOC/qtr

As demonstrated in the calculation above, the amount of offsets is 7,390.5 lb-VOC/quarter. Therefore, offsets will be required for this project.

The applicant has stated that the facility plans to use their primary ERC certificate S-5300-1 to offset the increases in VOC emissions associated with this project. The certificate has the available quarterly VOC credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #S-5300-1	7,390	7,391	7,391	7,390

As seen above, the facility has sufficient credits to fully offset the quarterly VOC emissions increases associated with this project.

The following condition will be included on ATC N-8534-8-0:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 7,390 lb, 2nd quarter – 7,390 lb, 3rd quarter – 7,391 lb, and 4th quarter – 7,391 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19). [District Rule 2201]
- ERC Certificate Number S-5300-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received

and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

District and Federal Offset Quantities

As discussed above, District offsets are triggered and required for VOC under NSR. However, as demonstrated above, this project does not trigger Federal Major Modification or New Major Source requirements for VOC emissions. Therefore, the VOC District offset quantities do not need to be surplus of Federal requirements at the time of ATC issuance.

The applicant has stated that the facility plans to use ERC certificate S-5300-1 to offset the increases in VOC emissions associated with this project.

3. ERC Withdrawal Calculations

The applicant must identify the ERC Certificate to be used to offset the increase of VOC emissions for the project. As indicated in previous section, the applicant is proposing to use ERC certificate S-5300-1 to mitigate the increases of VOC emissions associated with this project. See Appendix G for detailed ERC Withdrawal Calculations.

C. Public Notification

1. Applicability

Pursuant to District Rule 2201, Section 5.4, public noticing is required for:

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
c. Any project which results in the offset thresholds being surpassed,
d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant, and/or
e. Any project which results in a Title V significant permit modification

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

As shown in Section VII.C.5 above, this existing minor source facility is not becoming a Major Source as a result of this project. Therefore, this facility is not a New Major Source and this project does not constitute an SB 288 or a Federal Major Modification. Consequently, public noticing for this project for New Major Source, Federal Major Modification, or SB 288 Major Modification purposes is not required.

b. PE > 100 lb/day

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds – Material Receiving and Storage			
Pollutant	**PE2 (lb/day)**	**Public Notice Threshold**	**Public Notice Triggered?**
NO_X	0.0	100 lb/day	No
SO_X	0.0	100 lb/day	No
PM_{10}	2.3	100 lb/day	No
CO	0.0	100 lb/day	No
VOC	340.0	100 lb/day	Yes
NH3	34.0	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is required.

c. Offset Threshold

Public notification is required if the pre-project Stationary Source Potential to Emit (SSPE1) is increased to a level exceeding the offset threshold levels. The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Thresholds				
Pollutant	**SSPE1 (lb/year)**	**SSPE2 (lb/year)**	**Offset Threshold**	**Public Notice Required?**
NO_X	6,308	6,308	20,000 lb/year	No
SO_X	19	19	54,750 lb/year	No
PM_{10}	1,117	1,164	29,200 lb/year	No
CO	222	222	200,000 lb/year	No
VOC	472,066	491,774	20,000 lb/year	No

As demonstrated above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	**SSPE2 (lb/year)**	**SSPE1 (lb/year)**	**SSIPE (lb/year)**	**SSIPE Public Notice Threshold**	**Public Notice Required?**
NO_x	6,308	6,308	0	20,000 lb/year	No
SO_x	19	19	0	20,000 lb/year	No
PM_{10}	1,164	1,117	47	20,000 lb/year	No
CO	222	222	0	20,000 lb/year	No
VOC	491,774	472,066	19,708	20,000 lb/year	No
NH_3	9,152	0	9,152	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

e. Title V Significant Permit Modification

Since this facility does not have a Title V operating permit, this change is not a Title V significant Modification, and therefore public noticing is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for VOC emissions in excess of 100 lb/day. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be electronically published on the District's website prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

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- Green material is defined as vegetative material generated from gardening, agriculture, or landscaping activities including, but not limited to, a mixture of grass clippings, leaves, tree and shrub trimmings, and plant remains. [District Rule 2201]
- Wood material is defined as untreated lumber and the woody-material portion of mixed demolition wastes and mixed-construction wastes. Wood material also includes overs, and the woody material portion of trees. Wood material or wood material chips to which other organic material has been added are not considered to be wood material. [District Rule 2201]
- Food material is defined as food scraps collected from the food processing industry, food service industry, grocery stores, or residential food scrap collection. Food material also includes food material that is chipped or ground. [District Rule 2201]
- Within 24 hours of the receipt of green material on site, the operator shall either (1) Remove the green material from the facility; or (2) Place the green material in an active-phase composting windrow and start active phase composting. Wood material, as defined in this permit, is not subject to the 24 hour limitation. [District Rule 2201]
- Within 24 hours of the receipt of food material on site, the operator shall either (1) Remove the food material from the facility; or (2) Preprocess the material for use in the composting system. [District Rule 2201]
- The amount of green material and food material received and transferred shall not exceed either of the following limits: 7,500 tons per day or 52,000 tons per year. [District Rules 2201 and 4102]
- The amount of green and food material stored onsite shall not exceed either of the following limits: 1,700 tons per day or 52,000 tons per year. [District Rule 2201]
- PM10 emissions from the receiving (truck unloading) of green, wood, and food materials shall not exceed 0.0003 lb-PM10/wet-ton of material unloaded. [District Rule 2201]
- VOC emissions from the storage and processing of green material, and food material shall not exceed 0.2 lb-VOC/wet-ton/day of material stored and processed. [District Rule 2201]

- Ammonia (NH3) emissions from the storage and processing of green material, and food material shall not exceed 0.02 lb-NH3/wet-ton/day of material stored and processed. [District Rule 2201]

N-8534-8-0

- All composting (active and curing phases) shall take place in a positively aerated static pile system with a cover. [District Rules 2201 and 4566]
- The total daily quantity of organic materials composted shall not exceed 9,025 wet-tons in any day. [District Rules 2201, 4102, and 4566]
- The total daily quantity of organic materials composted shall not exceed 52,000 wet-tons in any one calendar year. [District Rules 2201, 4102, and 4566]
- The total quantity of material transferred to the active phase shall not exceed 4,700 tons per day. [District Rules 2201 and 4566]
- The total quantity of material transferred to the curing phase shall not exceed 3,000 tons per day. [District Rules 2201 and 4566]
- PM10 emissions from the transfer of material shall not exceed 0.0003 lb-PM10/wet-ton/transfer point. [District Rules 2201 and 4102]
- Daily emissions from the active and curing phase of composting shall not exceed either of the following limits: 76.9 lb-VOC/day (averaged over the complete compost cycle) and 120.7 lb-NH3/day (averaged over the complete compost cycle). [District Rules 2201 and 4102]
- Annual emissions from the active and curing phase of composting shall not exceed either of the following limits: 9,308 lb-VOC/year and 14,602 lb-NH3/year. [District Rules 2201 and 4102]
- The controlled VOC emission rate from the active and curing phases combined shall not exceed 0.179 lb-VOC/wet-ton of organic materials. This controlled VOC emission rate is equivalent to a 95% or greater reduction in VOC emissions over a baseline uncontrolled windrow emission rate of 3.58 lb-VOC/wet-ton. [District Rules 2201, 4102, and 4566]
- The controlled ammonia (NH3) emission rate from the active and curing phases combined shall not exceed 0.156 lb-NH3/wet-ton of organic materials. This controlled NH3 emission rate is equivalent to an 80% or greater reduction in NH3 emissions over a baseline uncontrolled windrow emission rate of 0.78 lb-NH_3/wet-ton. [District Rules 2201, 4102, and 4566]
- Feedstock materials are green material, wood material, and food material or any mixture of these materials. [District Rule 2201]
- Green material is defined as vegetative material generated from gardening, agriculture, or landscaping activities including, but not limited to, a mixture of grass clippings, leaves, tree and shrub trimmings, and plant remains. [District Rule 2201]
- Wood material is defined as untreated lumber and the woody-material portion of mixed demolition wastes and mixed-construction wastes. Wood material also includes overs, and the woody material portion of trees. Wood material or wood material chips to which other organic material has been added are not considered to be wood material. [District Rule 2201]
- Food material is defined as food scraps collected from the food processing industry, food service industry, grocery stores, or residential food scrap collection. Food material also includes food material that is chipped or ground. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

N-8534-7-0

The operations covered by N-8534-7-0 is a source of uncontrolled fugitive emissions, relying on generally accepted emission factors, and are not subject to emissions testing under any other rule or regulation. Therefore, pursuant to District Policy APR 1705, Source Test Frequency, source testing for these operations will not be required.

N-8534-8-0

APR 1705 requires annual source testing "if significant performance deterioration can be expected over time or if the margin of compliance is low." While deterioration should not be a factor for the composting operation, the facility must show compliance with the daily and annual potential to emit assessed, BACT, and offset requirements. The policy also requires testing in cases where the reliability of the emission factors is uncertain, which is true for composting operations because of the limited emissions data available. In addition, since the composting operation is a large source of emissions, and a significant percentage of those emissions are toxic air contaminants, verification of the emission rates through source testing is required to ensure compliance with the assumptions used in the risk assessment.

Therefore, to verify compliance with the controlled VOC and NH_3 emissions attributed to the positively aerated static pile system (+ASP), a start-up source test for VOC and NH_3 will be required for the proposed +ASP composting system (both active and curing phases). In addition, Rule 4566 requires periodic source testing for VOC emissions. Rule 4566 also requires that source testing represent the seasonal variation in composting conditions. Therefore, the periodic source testing interval will be 27 months, which will enable each subsequent source test to be performed in a different seasons, cycling through all four seasons.[3] The following conditions specify the source test frequency for the co-composting operation:

- Initial source testing for VOC and NH3 shall be performed no sooner than 90 days, but no later than 270 days after composting commences in the new +ASP bunkers used in the active and curing phases (i.e. after the first mixing of organic materials for introduction into active phase compost pile). Source testing will not be required during compost pile breakdowns and transfer of material between the active and curing phases. [District Rules 2201 and 4566]
- Periodic source testing for VOC shall be performed at least once every 27 months. [District Rules 2201 and 4566]

The appropriate source test methods, procedures and analysis of the collected data are identified in South Coast AQMD Rule 1133.3, Emissions Reductions from Greenwaste Composting Operations, Attachment A. The following conditions specify the source test procedure and protocol for the co-composting operation:

[3] LACSD ATC C-6048-19-3 periodic test requirements start with a 15 month interval and then relax to a 27 month interval if the two preceding tests demonstrate compliance. The LACSD facility almost 10 times the potential throughput of Forward, and in consideration of the expense of source testing (>$30,000 test by one estimate), Forward will not be held to the same initial interval as LACSD.

- District approved independent testing lab(s) shall perform the source testing. [District Rules 2201 and 4566]
- The source test protocol shall be developed in accordance with the guidelines in South Coast AQMD, Rule 1133.3, Attachment A. [District Rules 2201 and 4566]
- {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]

Since compost piles do not emit at a constant rate over their entire decomposition cycle, emission measurements ideally would be conducted every day (if not continuously) from the start of active phase to the conclusion of the curing phase to obtain an accurate measure of the total emissions per wet-ton of organic materials composted. However, this is not practical because of the cost of testing. Instead, the facility has proposed to take samples at the beginning (~ day 3), middle (~ day 18), and end (~ day 28) of the active phase, and the beginning (~ day 3) and end (~ day 15) of the curing phase.

Given that testing will only be conducted on a few piles of different ages, emissions for the composting cycle as a whole will be calculated from the limited test data by linear interpolation of emission rates from test days.[4] For non-test days that fall before the first test day, the measured emission rate for the first test day is assigned to the non-test days. For non-test days that fall after the last test day, the emission rate measured for the last test day is assigned to the non-test days. Provided the pile age with the maximum VOC emission rate is tested, the above method for generating the total emissions from the composting cycle should produce a conservatively high estimate of the VOC emissions. The maximum VOC emission rate and the maximum NH_3 emission rate do not typically occur on the same days. Because of the cost of testing, and the relative importance of VOC compared to NH_3, the District will only require that piles be chosen of an age to capture the maximum VOC emission rate.

As discussed in the DEL section above for N-8534-8-0, the controlled emission rates of VOC and NH_3 from composting have been derived by applying the proposed control efficiencies to the District's average emission factor for uncontrolled, unmitigated, open windrow green material composting. Emissions testing "above the cover" will be done to demonstrate compliance with the controlled emission rates. Because of how the controlled emission rates were derived, compliance with the controlled emission rates also equates to compliance with the proposed control efficiencies. Emissions testing "below the cover" will not be required because the "below the cover" conditions are not representative of an uncontrolled open windrow and are not relevant to demonstrating compliance with this permit. With the above considerations in mind, the following conditions will be included on ATC N-8534-8-0:

- All source testing shall take place under conditions representative of normal source operation, and, to the extent practicable, the emission measurements shall be

[4] This procedure is used by Tom Card, P.E. and Chuck Schmidt, PhD., environmental consultants who prepared a comprehensive Air Emissions Data Review that became the basis for SJVAPCD's Compost VOC Emission Factors (2022) report.

representative of the emissions that occur over the active phase and curing phase cycles. [District Rules 2201 and 4566]

- Source testing for the controlled VOC and NH3 emissions shall be performed above the cover for both active phase and curing phase piles. At least two active phase piles of different ages shall be tested. One of the active phase piles selected for testing shall be representative of the day when the expected maximum VOC emission rate occurs (as indicated by temperature or other process data). At least one curing phase pile shall be tested. The age of the curing phase piles tested shall be representative of the day when the expected maximum VOC emission rate occurs. Additional piles or days may be included to ensure emission measurements are representative for the compost cycle. [District Rules 2201 and 4566]
- The source test summary shall include the following for VOC and NH3 emissions: (1) The controlled emission rates (lb/wet-ton) for the active phase pile; (2) The controlled emission rates (lb/wet-ton) for the curing phase pile; and (3) The total controlled emission rates (lb/wet-ton) for the active and curing phases combined. [District Rules 2201 and 4566]

2. Monitoring

N-8534-7-0

Monitoring for the operations covered by ATC N-8534-7-0 is not required.

N-8534-8-0

- The operator shall conduct maintenance inspections of the cover each time a cover is placed on a compost pile. Any tears or other abnormalities in the cover that could compromise the ability of the cover to act as an air pollution control device shall be repaired immediately, or the cover shall be replaced. [District Rules 2201 and 4566]
- The operator shall conduct an inspection of the blower and air distribution system in each bunker prior to building a compost pile in that bunker. Any abnormalities that adversely affect the ability of the air distribution system to provide air to the compost pile shall be repaired prior to constructing the pile. [District Rules 2201 and 4566]
- The operator shall maintain aerobic conditions in active phase of composting at all times. Compliance with this requirement may be demonstrated by computer records of data obtained in the controlling software that demonstrate that the blowers are operating and pushing air in a positive direction into the composting bunkers in total duration for a minimum 100 minutes of operating time in a 24-hour period each day of active phase composting. [District Rules 2201 and 4566]
- The operator shall maintain aerobic conditions in curing phase of composting at all times. Compliance with this requirement may be demonstrated by computer records of data obtained in the controlling software that demonstrate that the blowers are operating and pushing air in a positive direction into the composting bunkers for a minimum of one (1) minute of operating time in a 24-hour period each day of curing phase composting. [District Rules 2201 and 4566]
- At least quarterly, the operator shall demonstrate that the organic materials completing the active phase meet one of the following stability criteria: (1) The organic material respiration rate is no more than 20 milligrams of oxygen consumed per gram of volatile solids per day as measured by direct respirometry using the TMECC Method 05-08-A - SOUR: Specific Oxygen Uptake Rate; or (2) The organic material emits no more

than 7 mg CO2-C per gram of organic material per day, as measured using the TMECC Method 05-08-B - Carbon Dioxide Evolution Rate; or (3) The organic material has a Solvita® Maturity Index of 5 or greater, as measured using the TMECC Method 05-08-E - Solvita® Maturity Test. [District Rules 2201 and 4566]

- At least quarterly, the operator shall demonstrate that the organic materials completing the curing phase meet one of the following stability criteria: (1) The organic material respiration rate is no more than 10 milligrams of oxygen consumed per gram of volatile solids per day as measured by direct respirometry using the TMECC Method 05-08-A - SOUR: Specific Oxygen Uptake Rate; or (2) The organic material emits no more than 4 mg CO2-C per gram of organic material per day, as measured using the TMECC Method 05-08-B - Carbon Dioxide Evolution Rate; or (3) The organic material has a Solvita® Maturity Index of 7 or greater, as measured using the TMECC Method 05-08-E - Solvita® Maturity Test. [District Rules 2201 and 4566]

3. Recordkeeping

District Rule 4566, Organic Material Composting Operations, has recordkeeping requirements for stockpiling and composting that are discussed under that section of this application review. The following recordkeeping requirements will ensure compliance with the assumptions used to calculate the potential to emit for each of the units in this project.

N-8534-7-0

- For materials that will be composted, the operator shall maintain a daily record of (1) the date when the material was received; (2) the type of material (e.g. green, wood, and food) received; (3) the amount in tons received; and (4) the date when this material was moved into an active-phase composting pile and covered. [District Rule 1070]
- A cumulative annual log shall be maintained of the total wet-tons of each material received by type. The records shall be updated at least monthly. [District Rule 1070]
- All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 4566]

N-8534-8-0

- The operator shall record the cumulative wet-tons of green, wood, and food materials introduced into active phase composting during the current calendar year. [District Rules 2201 and 4566]
- The operator shall keep a record of the wet-tons of compost material introduced into curing phase and finished phase that day and the cumulative wet-tons of compost material introduced into the curing phase and finished phase during that calendar year. [District Rules 2201 and 4566]
- The operator shall keep a record of (1) the date each compost cover and blower are inspected; (2) the cover and blower ID number; (3) the condition of the cover and blower; and (4) a description of the repairs made, if any. [District Rules 2201 and 4565]
- The operator shall keep a record of the compost maturity test(s) conducted on active and curing phase piles consisting of (1) the pile ID or lot number; (2) the mix ratio (by mass) of feedstock materials used; (3) the date the test was conducted; (4); the name of the test conducted; (5) the result of the compost maturity test. [District Rules 2201 and 4566]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. However, no subparts of 40 CFR Part 60 apply to organic waste composting operations.

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to organic waste composting operations.

Rule 4101 Visible Emissions

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. Therefore, the following conditions will be placed on the ATCs:

- {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rules 2201 and 4101]

Rule 4102 Nuisance

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, the following condition will be listed on the ATCs to ensure compliance:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification of an existing source shall not result in an increase in cancer risk greater than the District's significance level (20 in a million) and shall not result in acute and/or chronic risk indices greater than 1.

According to the Technical Services Memo for this project, the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project. The resulting prioritization score, acute hazard index, chronic hazard index, and cancer risk for this project is shown below.

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
7-0	0.56	0.60	0.00	1.29E-06	Yes	Yes
8-0	0.51	0.34	0.03	2.40E-06	Yes	No
Permit Exempt Finished Compost Loadout	0.51	0.03	0.00	3.45E-08	No	No
Project Totals	1.58	0.97	0.04	3.72E-06		
Facility Totals	>1	0.99	0.05	6.30E-06		

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is required for this project because the HRA indicates that the risk is above the District's thresholds for triggering T-BACT requirements.

For this project T-BACT is triggered for VOC for permit unit N-8534-7-0 and '-8-0. T-BACT is satisfied with BACT for VOC (see Appendix C) with the following:

Organic material receiving and stockpiling operation (7-0):

VOC: Process received green waste and food waste within 24 hours by incorporating into an active compost pile or cover material with finished compost, engineered cover, or equivalent until used.

Organic material composting operation (8-0):

VOC: Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) or negatively aerated static piles venting to biofilter or equivalent during the active phase and curing phase

In accordance with District policy APR 1905, no further analysis is required, and compliance with District Rule 4102 requirements is expected. See Attachment D: Health Risk Assessment Summary

Rule 4202 Particulate Matter - Emission Rate

This rule establishes PM emission limits as a function of process weight rate in tons/hr. Gas and liquid fuels are excluded from the definition of process weight. Therefore, Rule 4202 does not apply to the IC engines. This rule will apply to the PM emissions associated with the trammel screen.

Section 4.0 of this rule, a person shall not discharge into the atmosphere PM emissions in excess of the maximum allowable limit (E Max), in lb/hr, determined by the following specified in this Rule:

$E_{Max} = 3.59\ P^{0.62}$, for Process weight (P, tons/hr) less than or equal to 30 tons/hr
$E_{Max} = 17.31\ P^{0.16}$, for Process weight (P, tons/hr) greater than 30 tons/hr

N-8534-7-0 and '-8-0

Assumptions:

- The receiving and storage operation can receive and process 7,500 tons per day of organic material. Assuming an 8-hour day, this equates to a process rate P of 937.5 tons per hour.
- The active phase of composting can receive and transfer up to 4,700 tons per day or organic material. Assuming an 8- hour day, this equates to a process rate P of 587.5 tons per hour.
- The curing phase of composting can receive and transfer up to 3,000 tons per day of organic material. Assuming an 8-hour day, this equations to a process rate P of 375.0 per hour.
- This rule applies to each *source operation*, which is defined in Rule 1020, Definitions as "*the last operation preceding the emission of any air contaminant*." Each *source operation* is allowed to emit PM up to the rate (E) calculated according to the formula in the rule. As a conservative and time saving assumption, all the PM potentially emitted by this project will be regarded as a single source operation. Thus, for units N-8534-7-0 and '-8-0, their combined PE for PM_{10} is = 4.6 lb/day. Assuming an 8-hour day, the PM_{10} emission rate is 0.575 lb/hr.
- Assuming the PM_{10} emission rate is 50% of the total PM emission rate, the PM emission rate ($E_{Proposed}$) = 1.15 lb/hr.

Calculations of Allowed PM Emission Rate under Rule 4202:

The lowest process rate is from the curing phase, therefore, P = 375.0 ton/hr

Since P > 30 tons/hr

$E = 17.31\ P^{0.16}$
$= 17.31\ (375.0)^{0.16}$
$= 44.7$ lb-PM/hr

Source Operation	P process weight (ton/hr)	E max emission rate (lb-PM/hr) under Rule 4202	E proposed (PM/hr)	E proposed < E max?
N-8534-7-0 and '-8-0	375.0	44.7	1.15	Yes

Since the proposed emission rate is less than the maximum permissible emission rate, compliance is expected with this Rule. The following condition shall be placed on the ATCs.

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Rule 4565 Biosolids, Animal Manure, and Poultry Litter Operations

N-8534-7-0 and '-8-0
The purpose of this rule is to limit the emissions volatile organic compounds (VOC) from operations involving the management of biosolids, animal manure, or poultry litter. Per Section 2.0, this rule applies to all facilities whose throughput consists entirely or in part of biosolids, animal manure, or poultry litter and the operator who landfills, land applies, composts, or co-composts these materials.

The facility will only process and compost green and food waste organic materials. Therefore this rule is not applicable to this facility's operations.

Rule 4566 Organic Material Composting Operations

N-8534-7-0 and '-8-0
Sections 1.0 (Purpose) and 2.0 (Applicability):

The purpose of this rule is to limit the emissions volatile organic compounds (VOC) from composting operations. Per Section 2.0, this rule applies to composting facilities that compost and/or stockpile organic material.

This facility will stockpile and compost green and food waste organic materials. Therefore, the facility's stockpiling operation (Permit Unit N-8534-7-0) and composting operation (Permit Unit N-8534-8-0) are subject to the requirements of this rule.

Section 5.1 (Stockpile Requirements):

Section 5.1.1 requires operators of a composting operation with a total annual throughput of < 100,000 wet tons per year of organic material shall comply with one of the following within 10-days of receipt of the organic material at the facility:

5.1.1.1 Remove the organic material from the facility;
5.1.1.2 Start the active phase of composting;
5.1.1.3 Cover the organic material with a waterproof cover that have at least a six-feet overlap of adjacent sheets and be securely anchored; or
5.1.1.4 Implement an APCO approved alternative mitigation measure, not listed above.

The facility is proposing to limit their annual quantity of organic material received for composting to a level less than 100,000 wet tons per year. Therefore, the following permit condition will be included on ATC permit N-8534-7-0 to enforce the requirements of this section:

- The total quantity of organic material received at this facility for composting shall be less than 52,000 wet tons in any one calendar year. [District Rule 4566]

To comply with the requirements of Section 5.1, the facility proposes to perform one of the following within 24 hours of receiving organic materials at the facility: (a) Remove the organic material; (b) Start the active phase of composting; or (c) Cover the organic material with a waterproof cover that have at least a six-feet overlap of adjacent sheets and be securely anchored. The following condition will be included in ATC permit N-8534-7-0 to assure compliance with the requirements of this section:

- The operator shall perform one of the following to organic material within 24 days of receipt at the facility to satisfy the stockpile requirements: (a) Remove the organic material from the facility; (b) Place the organic material in the active-phase composting windrow and start active phase composting; (c) Cover the organic material with a waterproof cover that have at least a six-feet overlap of adjacent sheets and be securely anchored. [District Rule 4566]

Section 5.2 (Composting Requirements):

Section 5.2.1 requires an operator of a composting operation with a total throughput of < 200,000 wet tons per year of organic material shall comply with Section 5.2.1.1 or Section 5.2.1.2 during the active phase of composting.

5.2.1.1 For windrow composting only, implement at least three turns during the active-phase and one of the mitigation measures for the Watering System in Table 1.
5.2.1.2 Implement an APCO and EPA approved alternative mitigation measure that demonstrates at least a 19% reduction (by weight) in VOC emissions.

To comply with the requirements of this section of the rule, the facility is proposing the following mitigation measures as indicated in Table 1 below:

Table 1 – Composting Facility Mitigation Measures	
Watering Systems	**Facility Proposed**
• **Implement an APCO and EPA approved alternative mitigation measure that demonstrates at least a 19% reduction (by weight) in VOC emissions.**	**[X]**

Table 1 – Composting Facility Mitigation Measures continued	
Finished Compost Cover	**Facility Proposed**
An operator shall cover the surface area of at least the top third of each windrow with finished compost cover so that there is at least six inches in height of finished compost cover as measured at the peak of each windrow. An operator shall cover the surface area of each windrow as described within three hours of initial windrow formation and within three hours after each turning of the windrow for at least three turns of each windrow. For any windrow that are mechanically turned after 2:00 PM, an exception to the three hour limit can be made, which allows the operator to cover the surface area of at least the top third of each windrow with finished compost cover by 12:00 PM the following day.	[ ]

The facility is proposing to comply with Section 5.2.1.1 along with the use of a positively aerated static pile compost system that achieves at least 95% VOC control efficiency. The following condition will be included in ATC permit N-8534-8-0 to assure compliance with the requirements of this section:

- All composting (active and curing phases) shall take place in a positively aerated static pile system with a finished compost cover. [District Rules 2201 and 4565]
- The controlled VOC emission rate from the active and curing phases combined shall not exceed 0.179 lb-VOC/wet-ton of organic materials. This controlled VOC emission rate is equivalent to a 95% or greater reduction in VOC emissions over a baseline uncontrolled windrow emission rate of 3.58 lb-VOC/wet-ton. [District Rules 2201, 4102, and 4565]
- The controlled ammonia (NH3) emission rate from the active and curing phases combined shall not exceed 0.281 lb-NH3/wet-ton of organic materials. This controlled NH3 emission rate is equivalent to a 64% or greater reduction in NH3 emissions over a baseline uncontrolled windrow emission rate of 0.78 lb-NH_3/wet-ton. [District Rules 2201, 4102, and 4565]

Section 6.0 (Administrative Requirements)

Facility Emission Mitigation Plan (FEMP)
Section 6.1 requires an operator to submit a Facility Emission Mitigation Plan (FEMP) along with an Authority to Construct (ATC) application, in accordance with Rule 2010 (Permits Required), to incorporate the approved mitigation measures from the facility's FEMP as applicable permit conditions. The operator has satisfied these requirements with the submission of their FEMP through a previous permitting action (N-1111517).

Recordkeeping
Section 6.3.2 requires an operator subject to this rule to maintain an operations log. The operations log shall include the following information on a daily basis: (a) The date the organic material arrives on site; (b) The type of organic material received on site; and (c) The weight (in wet tons) of each type of organic material received on site.

Section 6.3.3 requires an operator of a composting facility subject to the stockpile requirements to maintain an operations log, which includes the following information on a daily basis: (a) The date of which each stockpile was initially formed; (b) The date and action taken on each stockpile to satisfy the stockpile requirements; and (c) Other information necessary to determine compliance with the requirements.

The following permit condition will be included in ATC permit N-8534-7-0 to assure compliance with the recordkeeping requirements of Sections 6.3.2 and 6.3.3:

- A daily operations log shall be maintained and shall include the following: (a) The date, type, and weight (in wet tons) of each organic material received; (b) The date each stockpile was initially formed; (c) The date and action taken on each stockpile to satisfy the stockpile requirements; (d) Total quantity and type of each organic material stored for composting (in wet tons); (e) Total quantity and type of each organic material mixed for composing (in wet tons); (f) Any other information necessary to demonstrate compliance with Rule 4566.[District Rules 1070 and 4566]

Section 6.3.4.1 requires an operator of a composting facility subject to the composting requirements for a watering system to maintain an operations log, which includes the following information on a daily basis: (a) Record the date and time the organic material from the windrow was tested for compliance; (b) Indicate whether the windrow passes the ball test and, if

applicable, all corrective actions taken; (c) Record the date and time the windrow was turned; (d) Record other information necessary to determine compliance with the requirements.

The following permit condition will be included in ATC permit N-8534-8-0 to assure compliance with the recordkeeping requirements of Section 6.3.4.1:

- A daily operations log shall be maintained and shall include the following: (a) The date and time each compost pile was formed and covered with finished compost; (b) Total quantity of organic material transferred from the stockpiles to the active-phase composting windrows (in wet tons); (c) Total quantity of active-phase composting windrows (in wet tons); (d) Total quantity of curing-phase composting windrows (in wet tons); (e) Any other information necessary to demonstrate compliance with Rule 4566. [District Rules 1070 & 4566]

Section 6.3.5 requires an operator to retain all applicable records, as specified in the recordkeeping requirements of Section 6.0, on site for a period of five years and the records shall be made available to the APCO upon request. The following permit condition will be included in ATC permits N-8534-7-0 and '-8-0 to assure compliance with the requirements of Section 6.3.5:

- {Modified 3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070 and 4566]

Conclusion:

Conditions will be incorporated into these ATC permits in order to ensure compliance with each section of this rule. Therefore, compliance with District Rule 4566 requirements is expected.

Rule 8011 General Requirements

The definitions, exemptions, requirements, administrative requirements, record keeping requirements, and test methods set forth in this rule are applicable to all rules under Regulation VIII (Fugitive PM_{10} Prohibitions) of the Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District.

Rule 8021 Construction, Demolition, Excavation, Extraction and Other Earthmoving Activities

The purpose of this rule is to limit fugitive dust emissions from construction, demolition, excavation, and related activities.

Since none of the activities this rule applies to are proposed at this facility, this rule is not applicable to this project.

Rule 8031 Bulk Materials

Pursuant to Section 2.0, this rule is applicable to the outdoor handling and storage of any bulk material, which emits visible dust when stored or handled. The following condition will be included on ATCs N-8534-7-0 and '-8-0 to ensure compliance with the requirements of this rule.

- All bulk material transport vehicles shall limit Visible Dust Emissions to 20% opacity by either limiting vehicular speed, maintaining sufficient freeboard on the load, applying water to the top of the load, or covering the load with a tarp or other suitable cover. [District Rules 8011 and 8031]

Rule 8041 Carryout and Trackout

Pursuant to Section 2.0, this rule is applicable to all sites that are subject to Rule 8021 (Construction, Demolition, Excavation, Extraction, and other Earthmoving Activities), Rule 8031 (Bulk Materials), and Rule 8071 (Unpaved Vehicle and Equipment Traffic Areas) where carryout or trackout has occurred or may occur. The following condition will be included on ATCs N-8534-7-0 and '-8-0 to ensure compliance with the requirements of this rule.

- An owner/operator shall prevent or cleanup any carryout or trackout in accordance with the requirements of District Rule 8041, Section 5.0. [District Rules 8011 and 8041]

Rule 8051 Open Areas

This rule applies to any *open area* having 0.5 acres or more within urban areas (i.e. city limits), or 3.0 acres or more within rural areas; and contains at least 1,000 square feet of *disturbed surface area*.

Rule 8011, Section 3.36 defines *open area* as one of the following:

- An unsubdivided or undeveloped land adjoining a developed or a partially developed residential, industrial, institutional, governmental, or commercial area.
- A subdivided residential, industrial, institutional, governmental, or commercial lot, which contains no approved or permitted building or structures of a temporary or permanent nature.
- A partially developed residential, industrial, institutional, governmental, or commercial lot and contiguous lots under common ownership.

Rule 8011, Section 3.11 defines *disturbed surface area* as

- An area in which naturally occurring soils, or soils or other materials placed thereon, have been physically moved, uncovered, destabilized, or otherwise modified by grading, land leveling, scraping, cut and fill activities, excavation, brush and timber clearing, or grubbing, and soils on which vehicle traffic and/or equipment operation has occurred. An area is considered to be disturbed until the activity that caused the disturbance has been completed, and the disturbed area meets the stabilized surface conditions specified in this rule.

None of the composting operations proposed in this project are expected to involve disturbed open areas. Therefore, the requirements of this rule do not apply.

Rule 8061 Paved and Unpaved Roads

This rule applies to any new or existing public or private paved or unpaved road, road construction project, or road modification project.

None of the composting operations proposed in this project will involve paved road building or paved road modification. Therefore, Section 5.1, Paved Roads, does not apply. The facility will have some segments of unpaved gravel roads where Section 5.2, Unpaved Road Segment, could apply.

- On any unpaved road segment with 26 or more annual average daily vehicle trips (AADT), the owner/operator shall limit visible dust emissions (VDE) to 20% opacity and comply with the requirements of a stabilized unpaved road by application and/or reapplication/maintenance of at least one of the following control measures: (1) Watering; (2) Uniform layer of washed gravel; (3) Chemical/organic dust stabilizers/suppressants; (4) Roadmix; (5) Paving; or (6) Any other Any other method that can be demonstrated to the satisfaction of the APCO that effectively limits VDE to 20% opacity and meets the conditions of a stabilized unpaved road. [District Rules 8011 and 8061]

Rule 8071 Unpaved Vehicle/Equipment Traffic Areas

Pursuant to Section 2.0, this rule applies to any unpaved vehicle/equipment traffic area of 1.0 acre or larger. The following conditions will be included on ATCs N-8534-7-0 and '-8-0 to ensure compliance with the requirements of this rule.

- For unpaved vehicle or equipment traffic areas that have 50 or more annual average daily trips (AADT), or 150 or more vehicle daily trips (VDT) or 25 or more VDT with vehicles having 3 axles or more, the permittee shall apply water, washed gravel, road mix, chemical/ organic dust stabilizers/suppressants, vegetative materials, or other District-approved control measure as required to limit Visible Dust Emissions to 20% opacity and comply with the requirements for a stabilized unpaved road as defined in District Rule 8011. [District Rules 8071 and 8011]
- Whenever any portion of the site becomes inactive, the permittee shall restrict access and periodically stabilize any disturbed surface to comply with the conditions for a stabilized surface as defined in District Rule 8011. [District Rules 8071 and 8011]

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;

- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

District is a Responsible Agency
It is determined that another agency has prepared an environmental review document for the project. The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating greenhouse gas emissions. The District has determined that the applicant is responsible for implementing greenhouse gas mitigation measures, if any, imposed by the Lead Agency.

District CEQA Findings

The County of San Joaquin (County) is the public agency having principle responsibility for approving the Forward Inc. Landfill 2018 Expansion Project. As such, the County served as the Lead Agency for the project, which covers this AT project. On January 7, 2020, the County certified the Supplemental Environmental Impact Report (SEIR) and adopted a Statement of Overriding Considerations (SOC).

Pursuant to CEQA Guidelines §15250, the District is a Responsible Agency for the ATC project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District complies with CEQA by considering the SEIR prepared by the Lead Agency, and reaching its own conclusion on whether and how to approve the project involved (CEQA Guidelines §15096). The District has considered the Final SEIR certified by the County and prepared findings pursuant to CEQA. As a single purpose agency, the District lacks the Lead Agency's broader scope of authority over the project and does not believe that it should overrule the decisions made by the Lead Agency. Accordingly, after considering the Lead Agency's SEIR, the SOC, and the substantial evidence the Lead Agency relied on in adopting the SOC, the District finds that it had no basis on which to disagree with the SOC and evidence relied on therein. The District therefore adopts the Lead Agency's SOC by reference as its own.

Furthermore, the Districts engineering evaluation of the project (this document) demonstrates that the District would impose permit conditions requiring the applicant to meet BACT. Thus, the District concludes that through a combination of project design elements and permit conditions, project specific stationary source emissions will be reduced to less than significant levels.

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The criteria pollutant emissions and toxic air contaminant emissions associated with the proposed project are not significant, and there is minimal potential for public concern for this particular type of facility/operation. Therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue ATCs N-8354-7-0 and '-8-0 subject to the permit conditions on the attached draft ATC in Appendix A.

X. Billing Information

Annual Permit Fees			
Permit Number	**Fee Schedule**	**Fee Description**	**Annual Fee**
N-8534-7-0	3020-06	Miscellaneous	$128
N-8534-8-0	3020-06	Miscellaneous	$128

Appendixes

A: Draft ATCs
B: BACT Guideline
C: BACT Analysis
D: HRA Summary
E: Quarterly Net Emissions Change
F: Emission Profiles
G: ERC Withdrawal Calculations
H: SSPE Calculations
I: Napa Recycling & Waste Services, Inc. Source Test Summary

APPENDIX A
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-8534-7-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: FORWARD, INC. COMPOSTING FACILITY
MAILING ADDRESS: 1145 W CHARTER WY
STOCKTON, CA 95206

LOCATION: 9999 S AUSTIN RD
MANTECA, CA 95336

EQUIPMENT DESCRIPTION:
GREEN WASTE MATERIALS RECEIVING AND STORAGE OPERATION SERVING THE COMPOSTING OPERATION PERMITTED UNDER N-8534-8

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. Green material is defined as vegetative material generated from gardening, agriculture, or landscaping activities including, but not limited to, a mixture of grass clippings, leaves, tree and shrub trimmings, and plant remains. [District Rule 2201]
5. Wood material is defined as untreated lumber and the woody-material portion of mixed demolition wastes and mixed-construction wastes. Wood material also includes overs, and the woody material portion of trees. Wood material or wood material chips to which other organic material has been added are not considered to be wood material. [District Rule 2201]
6. Food material is defined as food scraps collected from the food processing industry, food service industry, grocery stores, or residential food scrap collection. Food material also includes food material that is chipped or ground. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services
N-8534-7-0 : Aug 31 2023 11:52AM -- YOSHIMUJ : Joint Inspection NOT Required

7. Within 24 hours of the receipt of green material on site, the operator shall either (1) Remove the green material from the facility; or (2) Place the green material in an active-phase composting windrow and start active phase composting. Wood material, as defined below, is not subject to the 24 hour limitation. [District Rule 2201]

8. Within 24 hours of the receipt of food material on site, the operator shall either (1) Remove the food material from the facility; or (2) Preprocess the material for use in the composting system. [District Rule 2201]

9. The amount of green material and food material received and transferred shall not exceed either of the following limits: 7,500 tons per day or 52,000 tons per year. [District Rule 2201]

10. PM10 emissions from the receiving (truck unloading) of green, wood, and food materials shall not exceed 0.0003 lb-PM10/wet-ton of material unloaded. [District Rule 2201]

11. The amount of green and food material stored onsite shall not exceed either of the following limits: 1,700 tons per day or 52,000 tons per year. [District Rule 2201]

12. VOC emissions from the storage and processing of green material, and food material shall not exceed 0.2 lb-VOC/wet-ton/day of material stored and processed. [District Rule 2201]

13. Ammonia (NH3) emissions from the storage and processing of green material, and food material shall not exceed 0.02 lb-NH3/wet-ton/day of material stored and processed. [District Rule 2201]

14. For materials that will be composted, the operator shall maintain a daily record of (1) the date when the material was received; (2) the type of material (e.g. green, wood, and food) received; (3) the amount in tons received; and (4) the date when this material was moved into an active-phase composting pile and covered. [District Rule 1070]

15. A cumulative annual log shall be maintained of the total wet-tons of each material received by type. The records shall be updated at least monthly. [District Rule 1070]

16. The total quantity of organic material received at this facility for composting shall be less than 52,000 wet tons in any one calendar year. [District Rule 4566]

17. The operator shall perform one of the following to organic material within 24 days of receipt at the facility to satisfy the stockpile requirements: (a) Remove the organic material from the facility; (b) Place the organic material in the active-phase composting windrow and start active phase composting; (c) Cover the organic material with a waterproof cover that have at least a six-feet overlap of adjacent sheets and be securely anchored. [District Rule 4566]

18. A daily operations log shall be maintained and shall include the following: (a) The date, type, and weight (in wet tons) of each organic material received; (b) The date each stockpile was initially formed; (c) The date and action taken on each stockpile to satisfy the stockpile requirements; (d) Total quantity and type of each organic material stored for composting (in wet tons); (e) Total quantity and type of each organic material mixed for composing (in wet tons); (f) Any other information necessary to demonstrate compliance with Rule 4566. [District Rules 1070 and 4566]

19. All bulk material transport vehicles shall limit Visible Dust Emissions to 20% opacity by either limiting vehicular speed, maintaining sufficient freeboard on the load, applying water to the top of the load, or covering the load with a tarp or other suitable cover. [District Rules 8011 and 8031]

20. An owner/operator shall prevent or cleanup any carryout or trackout in accordance with the requirements of District Rule 8041, Section 5.0. [District Rules 8011 and 8041]

21. On any unpaved road segment with 26 or more annual average daily vehicle trips (AADT), the owner/operator shall limit visible dust emissions (VDE) to 20% opacity and comply with the requirements of a stabilized unpaved road by application and/or reapplication/maintenance of at least one of the following control measures: (1) Watering; (2) Uniform layer of washed gravel; (3) Chemical/organic dust stabilizers/suppressants; (4) Roadmix; (5) Paving; or (6) Any other Any other method that can be demonstrated to the satisfaction of the APCO that effectively limits VDE to 20% opacity and meets the conditions of a stabilized unpaved road. [District Rules 8011 and 8061]

22. For unpaved vehicle or equipment traffic areas that have 50 or more annual average daily trips (AADT), or 150 or more vehicle daily trips (VDT) or 25 or more VDT with vehicles having 3 axles or more, the permittee shall apply water, washed gravel, road mix, chemical/ organic dust stabilizers/suppressants, vegetative materials, or other District-approved control measure as required to limit Visible Dust Emissions to 20% opacity and comply with the requirements for a stabilized unpaved road as defined in District Rule 8011. [District Rules 8071 and 8011]

CONDITIONS CONTINUE ON NEXT PAGE

23. Whenever any portion of the site becomes inactive, the permittee shall restrict access and periodically stabilize any disturbed surface to comply with the conditions for a stabilized surface as defined in District Rule 8011. [District Rules 8071 and 8011]

24. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070 and 4566]

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: N-8534-8-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: FORWARD, INC. COMPOSTING FACILITY
MAILING ADDRESS: 1145 W CHARTER WY
STOCKTON, CA 95206

LOCATION: 9999 S AUSTIN RD
MANTECA, CA 95336

EQUIPMENT DESCRIPTION:
SOUTHEAST COMPOST OPERATION - ORGANIC WASTE (GREEN WASTE) COMPOSTING OPERATION WITH A POSITIVE AERATED STATIC PILE (ASP) SYSTEM WITH COVER (FABRIC OR FINISHED COMPOST) SERVING THE ACTIVE AND CURING PHASES AND PERMIT EXEMPT FINISHED COMPOST STORAGE AND LOADOUT OPERATIONS

CONDITIONS

1. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 7,390 lb, 2nd quarter - 7,390 lb, 3rd quarter - 7,391 lb, and 4th quarter - 7,391 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19). [District Rule 2201]
2. ERC Certificate Number S-5300-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
5. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
6. All composting (active and curing phases) shall take place in a positively aerated static pile system with a cover. [District Rules 2201 and 4566]

CONDITIONS CONTINUE ON NEXT PAGE

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Samir Sheikh, Executive Director / APCO

DRAFT

Brian Clements, Director of Permit Services
N-8534-8-0 : Aug 31 2023 11:52AM -- YOSHIMUJ : Joint Inspection NOT Required

7. The total daily quantity of organic materials composted shall not exceed 9,025 wet-tons in any day. [District Rules 2201, 4102, and 4566]
8. The total daily quantity of organic materials composted shall not exceed 52,000 wet-tons in any one calendar year. [District Rules 2201, 4102, and 4566]
9. The total quantity of material transferred to the active phase shall not exceed 4,700 tons per day. [District Rules 2201 and 4566]
10. The total quantity of material transferred to the curing phase shall not exceed 3,000 tons per day. [District Rules 2201 and 4566]
11. PM10 emissions from the transfer of material shall not exceed 0.0003 lb-PM10/wet-ton/transfer point. [District Rules 2201 and 4102]
12. VOC emissions from composting shall not exceed either of the following limits: 76.9 lb/day or 9,308 lb/yr. [District Rules 2201 and 4102]
13. Ammonia (NH3) emissions from composting shall not exceed either of the following limits: 67.0 lb/day or 8,112 lb/yr. [District Rules 2201 and 4102]
14. The operator shall perform one of the following to organic material within 24 days of receipt at the facility to satisfy the stockpile requirements: (a) Remove the organic material from the facility; (b) Place the organic material in the active-phase composting windrow and start active phase composting; (c) Cover the organic material with a waterproof cover that have at least a six-feet overlap of adjacent sheets and be securely anchored. [District Rule 4566]
15. The controlled VOC emission rate from the active and curing phases combined shall not exceed 0.179 lb-VOC/wet-ton of organic materials. This controlled VOC emission rate is equivalent to a 95% or greater reduction in VOC emissions over a baseline uncontrolled windrow emission rate of 3.58 lb-VOC/wet-ton. [District Rules 2201, 4102, and 4566]
16. The controlled ammonia (NH3) emission rate from the active and curing phases combined shall not exceed 0.156 lb-NH3/wet-ton of organic materials. This controlled NH3 emission rate is equivalent to an 80% or greater reduction in NH3 emissions over a baseline uncontrolled windrow emission rate of 0.78 lb-NH3/wet-ton. [District Rules 2201, 4102, and 4566]
17. Feedstock materials are green material, wood material, and food material or any mixture of these materials. [District Rule 2201]
18. Green material is defined as vegetative material generated from gardening, agriculture, or landscaping activities including, but not limited to, a mixture of grass clippings, leaves, tree and shrub trimmings, and plant remains. [District Rule 2201]
19. Wood material is defined as untreated lumber and the woody-material portion of mixed demolition wastes and mixed-construction wastes. Wood material also includes overs, and the woody material portion of trees. Wood material or wood material chips to which other organic material has been added are not considered to be wood material. [District Rule 2201]
20. Food material is defined as food scraps collected from the food processing industry, food service industry, grocery stores, or residential food scrap collection. Food material also includes food material that is chipped or ground. [District Rule 2201]
21. Initial source testing for VOC and NH3 shall be performed no sooner than 90 days, but no later than 270 days after composting commences in the new +ASP bunkers used in the active and curing phases (i.e. after the first mixing of organic materials for introduction into active phase compost pile). Source testing will not be required during compost pile breakdowns and transfer of material between the active and curing phases. [District Rules 2201 and 4566]
22. Periodic source testing for VOC shall be performed at least once every 27 months. [District Rules 2201 and 4566]
23. District approved independent testing lab(s) shall perform the source testing. [District Rules 2201 and 4566]
24. The source test protocol shall be developed in accordance with the guidelines in South Coast AQMD, Rule 1133.3, Attachment A. [District Rules 2201 and 4566]

CONDITIONS CONTINUE ON NEXT PAGE

25. A daily operations log shall be maintained and shall include the following: (a) The date and time each compost pile was formed and covered with finished compost; (b) Total quantity of organic material transferred from the stockpiles to the active-phase composting windrows (in wet tons); (c) Total quantity of active-phase composting windrows (in wet tons); (d) Total quantity of curing-phase composting windrows (in wet tons); (e) Any other information necessary to demonstrate compliance with Rule 4566. [District Rules 1070 and 4566]

26. {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]

27. All source testing shall take place under conditions representative of normal source operation, and, to the extent practicable, the emission measurements shall be representative of the emissions that occur over the active phase and curing phase cycles. [District Rules 2201 and 4566]

28. Source testing for the controlled VOC and NH3 emissions shall be performed above the cover for both active phase and curing phase piles. At least two active phase piles of different ages shall be tested. One of the active phase piles selected for testing shall be representative of the day when the expected maximum VOC emission rate occurs (as indicated by temperature or other process data). At least one curing phase pile shall be tested. The age of the curing phase piles tested shall be representative of the day when the expected maximum VOC emission rate occurs. Additional piles or days may be included to ensure emission measurements are representative for the compost cycle. [District Rules 2201 and 4566]

29. The source test summary shall include the following for VOC and NH3 emissions: (1) The controlled emission rates (lb/wet-ton) for the active phase pile; (2) The controlled emission rates (lb/wet-ton) for the curing phase pile; and (3) The total controlled emission rates (lb/wet-ton) for the active and curing phases combined. [District Rules 2201 and 4566]

30. The operator shall conduct maintenance inspections of the cover each time a cover is placed on a compost pile. Any tears or other abnormalities in the cover that could compromise the ability of the cover to act as an air pollution control device shall be repaired immediately, or the cover shall be replaced. [District Rules 2201 and 4566]

31. The operator shall conduct an inspection of the blower and air distribution system in each bunker prior to building a compost pile in that bunker. Any abnormalities that adversely affect the ability of the air distribution system to provide air to the compost pile shall be repaired prior to constructing the pile. [District Rules 2201 and 4566]

32. The operator shall maintain aerobic conditions in active phase of composting at all times. Compliance with this requirement may be demonstrated by computer records of data obtained in the controlling software that demonstrate that the blowers are operating and pushing air in a positive direction into the composting bunkers in total duration for a minimum 100 minutes of operating time in a 24-hour period each day of active phase composting. [District Rules 2201 and 4566]

33. The operator shall maintain aerobic conditions in curing phase of composting at all times. Compliance with this requirement may be demonstrated by computer records of data obtained in the controlling software that demonstrate that the blowers are operating and pushing air in a positive direction into the composting bunkers for a minimum of one (1) minute of operating time in a 24-hour period each day of curing phase composting. [District Rules 2201 and 4566]

34. At least quarterly, the operator shall demonstrate that the organic materials completing the active phase meet one of the following stability criteria: (1) The organic material respiration rate is no more than 20 milligrams of oxygen consumed per gram of volatile solids per day as measured by direct respirometry using the TMECC Method 05-08-A - SOUR: Specific Oxygen Uptake Rate; or (2) The organic material emits no more than 7 mg CO2-C per gram of organic material per day, as measured using the TMECC Method 05-08-B - Carbon Dioxide Evolution Rate; or (3) The organic material has a Solvita® Maturity Index of 5 or greater, as measured using the TMECC Method 05-08-E - Solvita® Maturity Test. [District Rules 2201 and 4566]

CONDITIONS CONTINUE ON NEXT PAGE

35. At least quarterly, the operator shall demonstrate that the organic materials completing the curing phase meet one of the following stability criteria: (1) The organic material respiration rate is no more than 10 milligrams of oxygen consumed per gram of volatile solids per day as measured by direct respirometry using the TMECC Method 05-08-A - SOUR: Specific Oxygen Uptake Rate; or (2) The organic material emits no more than 4 mg CO2-C per gram of organic material per day, as measured using the TMECC Method 05-08-B - Carbon Dioxide Evolution Rate; or (3) The organic material has a Solvita® Maturity Index of 7 or greater, as measured using the TMECC Method 05-08-E - Solvita® Maturity Test. [District Rules 2201 and 4566]
36. The operator shall record the cumulative wet-tons of green, wood, and food materials introduced into active phase composting during the current calendar year. [District Rules 2201 and 4566]
37. The operator shall keep a record of the wet-tons of compost material introduced into curing phase and finished phase that day and the cumulative wet-tons of compost material introduced into the curing phase and finished phase during that calendar year. [District Rules 2201 and 4566]
38. The operator shall keep a record of (1) the date each compost cover and blower are inspected; (2) the cover and blower ID number; (3) the condition of the cover and blower; and (4) a description of the repairs made, if any. [District Rules 2201 and 4566]
39. The operator shall keep a record of the compost maturity test(s) conducted on active and curing phase piles consisting of (1) the pile ID or lot number; (2) the mix ratio (by mass) of feedstock materials used; (3) the date the test was conducted; (4); the name of the test conducted; (5) the result of the compost maturity test. [District Rules 2201 and 4566]
40. All bulk material transport vehicles shall limit Visible Dust Emissions to 20% opacity by either limiting vehicular speed, maintaining sufficient freeboard on the load, applying water to the top of the load, or covering the load with a tarp or other suitable cover. [District Rules 8011 and 8031]
41. An owner/operator shall prevent or cleanup any carryout or trackout in accordance with the requirements of District Rule 8041, Section 5.0. [District Rules 8011 and 8041]
42. On any unpaved road segment with 26 or more annual average daily vehicle trips (AADT), the owner/operator shall limit visible dust emissions (VDE) to 20% opacity and comply with the requirements of a stabilized unpaved road by application and/or reapplication/maintenance of at least one of the following control measures: (1) Watering; (2) Uniform layer of washed gravel; (3) Chemical/organic dust stabilizers/suppressants; (4) Roadmix; (5) Paving; or (6) Any other Any other method that can be demonstrated to the satisfaction of the APCO that effectively limits VDE to 20% opacity and meets the conditions of a stabilized unpaved road. [District Rules 8011 and 8061]
43. For unpaved vehicle or equipment traffic areas that have 50 or more annual average daily trips (AADT), or 150 or more vehicle daily trips (VDT) or 25 or more VDT with vehicles having 3 axles or more, the permittee shall apply water, washed gravel, road mix, chemical/ organic dust stabilizers/suppressants, vegetative materials, or other District-approved control measure as required to limit Visible Dust Emissions to 20% opacity and comply with the requirements for a stabilized unpaved road as defined in District Rule 8011. [District Rules 8071 and 8011]
44. Whenever any portion of the site becomes inactive, the permittee shall restrict access and periodically stabilize any disturbed surface to comply with the conditions for a stabilized surface as defined in District Rule 8011. [District Rules 8071 and 8011]
45. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070 and 4566]

APPENDIX B
BACT Guideline

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 6.4.3*

Emissions Unit: Green Waste, Wood Waste, And Compost Material - Transfer & Screening

Industry Type: Commercial Composting

Equipment Rating: All

Last Update: 7/16/18

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
PM_{10}	Process materials with moisture content >= 25% and =< 30%; visible emissions not to exceed 5% opacity	1) Baghouse serving screen and enclosed conveyors 2) Baghouse serving screen and process materials with moisture content >= 25% and =< 30%	

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source - Permit Specific BACT**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 6.4.15

Emissions Unit: Composting Feedstock Receiving, Mixing, and Stockpiles (Non-biosolids)

Industry Type: Commercial Composting

Equipment Rating: All

Last Update: 3/29/2023

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	For facilities with a throughput ≥ 100,000 tons/year, process green waste, animal manure, and poultry litter within 3 days of receipt and process food waste within 48 hours of receipt by removing the feedstock from the facility, starting the active phase of composting, covering the feedstock material with a waterproof cover that has at least six feet of overlap of adjacent sheets and is securely anchored, or implementing an APCO approved alternative mitigation measure. (10% control efficiency) For facilities with a throughput < 100,000 tons/year, process green waste, animal manure, and poultry litter within 7 days of receipt and process food waste within 48 hours of receipt by removing the feedstock from the facility, starting the active phase of composting, covering the feedstock material with a waterproof cover that has at least six feet of overlap of adjacent sheets and is securely anchored, or implementing an APCO approved alternative mitigation measure. (10% control efficiency)	1. Organic feedstock materials received, mixed, and stockpiled in an enclosed building vented to a scrubber. (99% combined capture and control efficiency) 2. Organic feedstock materials received, mixed, and stockpiled in an enclosed building vented to a carbon adsorption system. (95% combined capture and control efficiency) 3. Organic feedstock materials received, mixed, and stockpiled in an enclosed building vented to a biofilter. (80% combined capture and control efficiency)	
NH_3	For facilities with a throughput ≥ 100,000 tons/year, process green waste, animal manure, and poultry litter within 3 days of receipt and process food waste within 48 hours of receipt by		

	removing the feedstock from the facility, starting the active phase of composting, covering the feedstock material with a waterproof cover that has at least six feet of overlap of adjacent sheets and is securely anchored, or implementing an APCO approved alternative mitigation measure. (10% control efficiency) For facilities with a throughput < 100,000 tons/year, process green waste, animal manure, and poultry litter within 7 days of receipt and process food waste within 48 hours of receipt by removing the feedstock from the facility, starting the active phase of composting, covering the feedstock material with a waterproof cover that has at least six feet of overlap of adjacent sheets and is securely anchored, or implementing an APCO approved alternative mitigation measure. (10% control efficiency)	1. Organic feedstock materials received, mixed, and stockpiled in an enclosed building vented to a scrubber. (99% combined capture and control efficiency) 2. Organic feedstock materials received, mixed, and stockpiled in an enclosed building vented to a carbon adsorption system. (95% combined capture and control efficiency) 3. Organic feedstock materials received, mixed, and stockpiled in an enclosed building vented to a biofilter. (80% combined capture and control efficiency)	

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source - Permit Specific BACT**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 6.4.XX*

Emissions Unit: Organic Material Composting with Green and Food Waste

Industry Type: Commercial Composting

Equipment Rating: ≥ 50,000 wet tons/year

Last Update: TBD

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Organic Material Composting: Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) or negatively aerated static piles venting to biofilter or equivalent during the active and curing phases. Control Efficiency: ≥ 80%	Organic Material Composting: 1. Enclosed negatively aerated static piles and vented to a wet scrubber during the active and curing phase of composting. Capture Efficiency: 90 to 99% Control Efficiency: 99% 2. Enclosed negatively aerated static piles and vented to a carbon adsorption system during the active and curing phase of composting. Capture Efficiency: 90 to 99% Control Efficiency: 95% 3. Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) during active and curing phase. Control Efficiency: ≥ 80% 4. Negatively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) venting to biofilter or equivalent during active and curing phases. Control Efficiency: ≥ 80%	
NH_3	Organic Material Composting: Positively aerated static piles with cover (cover is engineered,	Organic Material Composting: 1. Enclosed negatively aerated static piles and vented to a wet scrubber during the active and curing phase of composting. Capture Efficiency: 90 to 99% Control Efficiency: 99%	

	12 inches of finished compost, or equivalent) or negatively aerated static piles venting to biofilter or equivalent during the active and curing phases. Control Efficiency: ≥ 80%	2. Enclosed negatively aerated static piles and vented to a carbon adsorption system during the active and curing phase of composting. Capture Efficiency: 90 to 99% Control Efficiency: 95% 3. Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) during active and curing phase. Control Efficiency: ≥ 80% 4. Negatively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) venting to biofilter or equivalent during active and curing phases. Control Efficiency: ≥ 80%	

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source - Permit Specific BACT**

APPENDIX C
BACT Analysis

Top-Down BACT Analysis for Green Waste, Wood Waste, and Composted Material – Transfer & Screening Operations

1. Top-Down BACT Analysis for PM10 Emissions:

This BACT discussion applies to the proposed compost feedstock material transfer operation.

a. Step 1 - Identify All Possible Control Technologies

The following options were identified as possible controls for VOC and NH3 emissions from the operation:

- Process materials with moisture content >= 25% and =< 30%; visible emissions not to exceed 5% opacity
- Baghouse serving screen and enclosed conveyors
- Baghouse serving screen and process materials with moisture content >= 25% and =< 30%

b. Step 2 - Eliminate Technologically Infeasible Options

The facility will transfer the compost material from outdoor storage/stockpiles and all other transfer points, such as the compost system, will be located outdoors. As a result, it's not feasible for the material transfer operation to be enclosed. Therefore, options #1 and #2 will not be considered as potential BACT requirements.

c. Step 3 - Rank Remaining Control Technologies by Control Effectiveness

- Use of a water spray system or maintaining adequate moisture content of the process material at $\geq$ 25% and $\leq$ 30% to prevent visible emissions in excess of 5% opacity. (Achieved in practice)

d. Step 4 - Cost Effectiveness Analysis

Per District BACT Policy, a cost effectiveness analysis is not required for AIP controls since the control must be implemented.

e. Step 5 - Select BACT

The applicant has proposed to use a water spray system to maintain adequate moisture content between 25% and 30% to prevent visible emissions in excess of 5% opacity. Therefore, BACT for this operation is satisfied.

Top-Down BACT Analysis for Composting Feedstock Receiving, Mixing, and Stockpiling Operations

1. Top-Down BACT Analysis for VOC and NH3 Emissions:

This BACT discussion applies to the proposed compost feedstock material receiving and stockpiling operation.

a. Step 1 - Identify All Possible Control Technologies

The following options were identified as possible controls for VOC and NH3 emissions from the operation:

1. Composting feedstock received, mixed, and stockpiled in an enclosed building vented to a biofilter.
2. Process food waste within 48 hours of receipt.
3. For composting operations with ≥ 100,000 tons/year throughput, process received green waste and food waste within 3 days of receipt.
4. For composting operations with < 100,000 tons/year throughput, process received green waste and food waste within 10 days of receipt.
5. Process green material and animal material within 7 days of receipt, process food waste within 48 hours of receipt.

In addition to the above options, it is technologically feasible to use a scrubber or activated carbon system to control emissions from an enclosed building, in lieu of a biofilter.

b. Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options.

c. Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Rank	Control Option	% VOC Control	% NH_3 Control	Achieved in Practice
1.	Composting feedstock received mixed, and stockpiled in an enclosed building vented to a scrubber.	99	99	No
2.	Composting feedstock received mixed, and stockpiled in an enclosed building vented to an activated carbon system.	95	95	No
3.	Composting feedstock received mixed, and stockpiled in an enclosed building vented to a biofilter.	80	80	No*
4.	For facilities with a throughput ≥ 100,000 tons/year, process green waste, animal manure, and poultry litter within 3 days of receipt and process food waste within 48 hours of receipt by removing the feedstock from the facility, starting the active phase of composting, covering the feedstock material with a waterproof cover that has at least six feet of overlap of adjacent sheets and is securely anchored, or implementing an APCO approved alternative mitigation measure. For facilities with a throughput < 100,000 tons/year, process green waste, animal manure, and poultry litter within 7 days	< 26	< 26	Yes

	of receipt and process food waste within 48 hours of receipt by removing the feedstock from the facility, starting the active phase of composting, covering the feedstock material with a waterproof cover that has at least six feet of overlap of adjacent sheets and is securely anchored, or implementing an APCO approved alternative mitigation measure.			
5.	For facilities with a throughput ≥ 100,000 tons/year, process green waste, animal manure, and poultry litter within 3 days of receipt and process food waste within 48 hours of receipt by removing the feedstock from the facility, starting the active phase of composting, covering the feedstock material with a waterproof cover that has at least six feet of overlap of adjacent sheets and is securely anchored, or implementing an APCO approved alternative mitigation measure. For facilities with a throughput < 100,000 tons/year, process green waste, animal manure, and poultry litter within 10 days of receipt and process food waste within 48 hours of receipt by removing the feedstock from the facility, starting the active phase of composting, covering the feedstock material with a waterproof cover that has at least six feet of overlap of adjacent sheets and is securely anchored, or implementing an APCO approved alternative mitigation measure.	< 26	< 26	Yes

* Biofilters were only found to be utilized at facilities processing biosolids. The scope of this BACT has been limited to facilities that do not process biosolids; therefore, this option is not achieved in practice for the type of facilities subject to this BACT.

d. Step 4 - Cost Effectiveness Analysis

A cost-effective analysis will now be performed for each control technology which has not been proposed.

The applicant has proposed option #5 from the table above. Options #1 through #3 are more effective VOC and NH_3 controls; therefore, a cost analysis must be performed to determine if options #1 through #3 are cost effective controls for VOC and NH_3.

Control Option #1 – Enclosed and vented to a wet scrubber (99% control of VOC and NH3)

An enclosed building that vents to a wet scrubber achieve 99% control for VOC and NH_3 emissions was determined to be technologically feasible. This type of unit will control both VOC and NH_3 emissions; therefore, a Multi-Pollutant Cost Effectiveness Threshold (MCET) will be performed to determine if this control option is cost effective.

The District does not have a cost effective threshold for NH_3 emissions; however, NH_3 forms ammonium nitrate in the atmosphere, which is a precursor for PM_{10}. Therefore, as established in District Project S-1032219, the PM_{10} cost effectiveness threshold ($11,400/ton-reduced) will be used as a surrogate value for the NH_3 cost effectiveness threshold.

Uncontrolled Emissions	
VOC	10,400 lb/yr ⇒ 5.2 ton/year
NH_3	1,040 lb/yr ⇒ 0.52 ton/year

Emissions Reduction (99% control)	
VOC	10,296 lb/yr ⇒ 5.15 ton/year
NH_3	1,030 lb/yr ⇒ 0.515 ton/year

Annual Operating Cost:

Compost Control Costs – Enclosed and vented to a wet scrubber

Capital recovery factor (4%, 10 yrs): 0.123

For the capital cost, the equivalent annual cost is calculated as shown below:

$$A = P \frac{i(1+i)^n}{(1+i)^n - 1}$$

Where,

A = Equivalent annual control equipment capital cost
P = Present value of the control equipment, including installation cost
i = Interest rate (generally assumed to be 4%, unless the applicant demonstrates that a different rate is more representative of the specific operation)
n = Equipment life (generally assumed to be 10 years, unless the applicant demonstrates that a different rate is more representative of the specific operation)

Cost Estimate to Enclose Composting Operations
Capital Expenditure = $300/wet ton (2017 estimate from Brian Fuchs, GORE – project C-9196, 1171609)
Operational Expenditure = $25/wet ton (2017 estimate from Brian Fuchs, GORE – project C-9196, 1171609)

The capital and operational expenditure estimates were collected in 2017. Therefore, the current cost will be adjusted to account for inflation (21.96% inflation increases as referenced from https://www.bls.gov/data/inflation_calculator.htm):

Adjusted Capital Expenditure = $365.88/wet ton
Adjusted Operational Expenditure = $55.49/wet ton

Thus,

Cost Estimate ($/wet-ton)		Annual Throughput (wet-ton/yr)	Capital Cost ($)*	Annualized Capital Cost ($/yr)	O&M ($/yr)	Incremental Total Cost ($/yr)
Capital	365.88	52,000	19,025,760	2,340,168	-	5,225,648
Operational	55.49		-	-	2,855,480	

MCET Calculation:

District BACT policy, APR 1305, was recently updated on June 1, 2022, which revised the cost effectiveness threshold ($/ton) for VOC and PM10/PM2.5 to $23,600/ton and

$11,900/ton, respectively. However, this project was deemed complete on January 25, 2022, prior to the revised BACT policy date. Therefore, the cost effectiveness threshold ($/ton) will be based on the previous thresholds of $22,600/ton and $11,400/ton, respectively.

Pollutant	Controlled Emissions (ton/year)	Cost Threshold ($/ton-reduced)	MCET ($/ton-reduced)
VOC	5.15	22,600	116,345
NH_3	0.515	11,400	5,869
Total			**$122,214**

Since the MCET threshold is $122,214/ton-reduced and below the Incremental Cost ($5,225,648) of an enclosed system vented to a wet scrubber, this option is not cost effective and cannot be required as BACT.

Control Option #2 – Enclosed building vented to an activated carbon system (95% control of VOC and NH3)
Like Control Option #1, this option requires that the stockpiles be fully enclosed and vented to an emissions control device. The cost to enclose the stockpiles will be the same as calculated for Option #1 ($5,225,648), while the control efficiency and emission reductions will be less. Thus, this option will be even less cost effective that what was calculated for Option #1 and is not cost effective.

Control Option #3 – Enclosed building vented to a biofilter (80% control of VOC and NH3)
Like Control Option #1, this option requires that the stockpiles be fully enclosed and vented to an emissions control device. The cost to enclose the stockpiles will be the same as calculated for Option #1 ($5,225,648), while the control efficiency and emission reductions will be less. Thus, this option will be even less cost effective that what was calculated for Option #1 and is not cost effective.

Proposed Option - The facility has proposed to incorporate all organic material into the active phase compost system within 24 hours of receipt, which is expected to achieve a maximum of 26% control of VOC and NH3 emissions. As a result, a cost effectiveness analysis will not be required for the other equivalent options.

e. Step 5 - Select BACT

Since the higher-ranked options are not cost effective, the proposed control option is determined to satisfy BACT. Therefore, BACT for this operation is satisfied with incorporating all organic material into the active phase compost system within 24 hours of receipt.

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 8.X.X

Emission Unit: Organic Waste Composting Operating with Positive Aerated Static Pile (ASP) System with Cover

Equipment Rating: ≥ 50,000 tons/year

References: N-8537-8-0

Date of Determination: March 2, 2023

Facility: Forward, Inc. Composting Facility

Location: 9999 S Austin Rd
Manteca, CA

Pollutant	BACT Requirements
VOC	Organic Material Composting: Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) or negatively aerated static piles venting to biofilter or equivalent during the active phase.
NH3	Organic Material Composting: Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) or negatively aerated static piles venting to biofilter or equivalent during the active phase.

BACT Status:

X Achieved in practice
Small Emitter
T-BACT
Technologically feasible BACT
Contained in EPA approved SIP
Alternate Basic Equipment
The following alternate basic equipment was not cost effective:

Mail to: CAPCOA BACT Clearinghouse Project Assessment Branch P.O. Box 2815 Sacramento, CA 95812	For CAPCOA use only Record No.: ;Form No.: ;BLIS District Code: Codes - EPA Source: ;SCAQMD: ;EPA ID No.: ARB Sc: ,Ctrl: ;BLIS Process: ;AIRS Facility No.:

SECTION A. Source Information

Company and Project Name: Forward, Inc. Composting Facility

Facility Address: 9999 S Austin Rd, Manteca, CA SIC Code: 2875

Application No.: N-1212824 ; Authority to Construct No.: N-8534-8-0 Authority to Construct Issue Date:

District: SJVUAPCD ; District Contact: Nick Peirce; Phone No.: (209) 557-6400

Est. Startup Date: ; Today's Date: ; Permit Unit Status: *New*

Basic Equip./Process (include make and model): Organic Waste Composting Operating with Positive Aerated Static Pile (ASP) System with Cover

Rated Capacity: ≥ 50,000 tons/year ; Output: N/A ; SCC Code:
Fuel Type: n/a ; Backup Fuel(s): N/A ; Project Cost: $

SECTION B. Control Data Pollutant: VOC and NH3

Control Equip. none

Emissions: Uncontrolled: 1,538.5 lb-VOC/day and 335.2 lb-NH3/day Controlled Limit: N/A

Enforceable Permit Emissions Limit(s): 3.58 lb-VOC/ton and 0.78 lb-NH3/ton
Emission Type: area; Cost of Control Equipment: N/A
Regulatory Requirement: *District-Defined BACT District-Defined LAER Other:* N/A

BACT/LAER Specification: Reference or Basis: SJVUAPCD

Mass Emission Rate: N/A ; Destruction efficiency (%): N/A

Normalized Mass Emission Rate: N/A lbm/MMBtu; N/A g/bhp-hr; N/A lbm per ton input

Emission Concentration N/A *ppmvd or gr/dscf* at

Other: N/A
Method of Compliance Verification: N/A
Other Relevant Permit Limits: Time of Operation: N/A
Fuel use: N/A Percent Capacity/Use: N/A
Throughput: N/A
Other: N/A Remarks:

BACT ANALYSIS

Organic Waste Composting Operation

Facility Name:	Forward, Inc. Composting Facility
Mailing Address:	9999 S Austin Rd Manteca, CA 95336
Contact Person:	Chris Seney
Telephone:	(760) 272-1224
Application #:	N-8534-8-0
Project #:	N-1212824
Deemed Complete:	January 25, 2022

Date: August 31, 2023

I. Proposal

Forward, Inc. Composting Facility (Forward Compost) has requested an Authority to Construct (ATC) permit for the installation of a feedstock material receiving and stockpiling operation (permit unit N-8534-7-0) and an organic waste composting operation (permit unit N-8534-8-0) utilizing a positively aerated static pile (ASP) system with a fabric or finished compost cover. Additionally, they have proposed to install a new finished compost storage and loadout operation (permit-exempt).

II. Process Description

After the organic waste material is mixed, ground and screened, a front-end loader delivers the blended feedstocks to the composting area and builds the active phase. The covering of the blended organic materials marks the beginning of the active phase of composting. Fans push air through the dual track piping underneath the windrow and up into the material to maintain aerobic conditions throughout the pile and to maintain the required temperature for biological activity and pathogen destruction.

In the active phase of composting, micro-organisms rapidly break down the more easily decomposable organic material first. The effect of this high rate of exothermic biochemical activity is the production of VOCs and NH_3 and a rise in temperature of the compost pile, up to 160 degrees Fahrenheit. Generally, the peak pile temperature corresponds to the peak VOC emission rate. According to the District's Compost VOC Emissions Factors Report, 90% of the VOC emissions from composting occur during the active phase. The facility has indicated there will be 14 positive ASP compost heaps used in the active phase of composting.

Upon completion of the active phase, the organic material has minimal odor and has been reduced in volume. A front-end loader will be used to move the material to commence the curing phase of composting. Due to the rapid decomposition that has taken place over the course of the active phase, the pile has lost its original porosity. Moving the material serves to "fluff it up," thereby promoting a more uniform aeration in the curing phase. After the pile is rebuilt, the windrow will be covered and aerated as needed for two weeks.

At the end of the curing phase, the compost is considered stable, meaning its decomposition rate, and, in turn, its air contaminant emission rate, is negligible. In the finishing phase, the material is not normally covered or aerated. The purpose of the finishing phase is to cool the composted material and allow excess moisture to evaporate in preparation for loadout.

III. EMISSION CONTROL TECHNOLOGY EVALUATION:

A. BACT Applicability

District Rule 2201 Section 4.1 requires that BACT shall be applied to any unit with a BACT IPE of any pollutant greater than 2 lb/day. The IPE for this project is less than 2 lb/day, however, the equipment triggered Toxic-BACT (T-BACT) from the Health Risk Assessment (HRA). As a result, T-BACT is satisfied with implementing the requirements from BACT.

B. BACT Policy

Since there is no BACT Guideline in the most recent District BACT Clearinghouse which governs this class and category of emissions unit, a new BACT Analysis shall be performed.

The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse, the California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse, and the Bay Area Air Quality Management District (BAAQMD) BACT Guidelines were reviewed to determine potential control technologies for this class and category of operation but no applicable guidelines were found.

In addition, Federal, State, and Air Pollution Control/Air Quality Management District Rules and Regulations were reviewed to determine applicable emission limits currently imposed on scrap metal shredding operations, but no applicable rules or regulations were found.

C. BACT Analysis for Permit Unit N-8534-8-0 PM10 Emissions

Step 1 - Identify All Possible Control Technologies

The following published BACT Guidelines were reviewed to determine potential control technologies for this class and category of operation:

- The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse,
- California Air Resources Board (CARB) BACT Clearinghouse,
- Bay Area Air Quality Management District (BAAQMD),
- Sacramento Metropolitan Air Quality Management District (SMAQMD),
- San Diego County Air Pollution Control District (SDCAPCD),
- Santa Barbara County Air Pollution Control District (SBCAPCD),
- South Coast Air Quality Management District (SCAQMD),
- Ventura County Air Pollution Control District (VCAPCD),
- Yolo-Solano Air Quality Management District (YSAQMD), and
- San Joaquin Valley Air Pollution Control District (SJVAPCD)

In addition, Federal, State, and Air Pollution Control/Air Quality Management District Rules and Regulations were reviewed to determine applicable emission limits currently imposed on organic material composting operations. The following applicable rules and regulations were found:

- BAAQMD Regulation 13 Rule 2 (Organic Material Handling) and Rule 3 (Composting Operations). These rules are currently under development and has not been adopted.
- SMAQMD Regulation 489 (Composting Operations). This rule is currently under development and has not been adopted.
- SDCAPCD Rule 67.25 (Composting and Related Operations). This rule is currently under development and has not been adopted.
- SCAQMD Rule 1133.3 (Emission Reductions from Greenwaste Composting Operations).
- VCAPCD Rule 74.32 (Organic Material Conversion Operations). This rule is currently under development and has not been adopted.
- SJVAPCD Rule 4566 (Organic Material Composting Operations).

No applicable rules for organic material composting operations were found in the rules and regulations for the USEPA, SBCAPCD, or YSAQMD.

1. Survey of BACT Guidelines:

The USEPA RACT/BACT/LAER clearinghouse does not include general guidelines, only determinations made by individual agencies. This database was searched using SIC Code 2875 for fertilizers, mixing only (includes compost) and for "compost". However, no applicable BACT guidelines were found for composting operations.

The CARB BACT clearinghouse does not include general guidelines, only determinations made by individual agencies. This database was searched using SIC Code 2875 for fertilizers, mixing only (includes compost) and for source category "Compost: Co-Composting". However, no applicable BACT guidelines were found for composting operations.

The SMAQMD, SDCAPCD, SBCAPCD, VCAPCD, YSAQMD, and SJVAPCD BACT clearinghouses were searched for organic material composting operations with green and food waste, and no applicable BACT guidelines were found.

The SCAQMD BACT clearinghouse for major polluting facilities was searched for organic material composting operations. However, no applicable BACT guidelines were found.

The applicable BACT guidelines from the BAAQMD and SCAQMD (for non-major polluting facilities) are shown in the table below:

Agency	Guideline	Process and Range	Control Technology
BAAQMD	Section 8: Waste Processing Industry for Organic Waste Processing	Composting for Green and Food Waste	POC (Precursor Organic Compounds): BACT: 1.6 lb/wet ton of feedstock (Pending) Typical Tech.: Covered Aerated Static Pile (CASP) with biofilter, and either positive or negative aeration.
SCAQMD	Non-Major Polluting Facilities	Greenwaste composting (composting where green and food waste are mixed with bulking agents to produce compost.)	VOC and NH_3: Compliance with SCAQMD Rule 1133.3 (2/1/2019).

For emission control technology transfer purposes, BACT guidelines for co-composting operations were searched. The following BACT guidelines from the SCAQMD (for non-major polluting facilities) and the SJVAPCD were found and are shown in the table below:

Agency	Guideline	Process and Range	Control Technology
SCAQMD	Non-Major Polluting Facilities	Co-composting (composting where biosolids and/or manure are mixed with bulking agents to produce compost.)	VOC and NH_3: Compliance with SCAQMD Rule 1133.2 (12/5/2003).
SJVAPCD	6.4.7 (Rescinded)	Co-Composting with Green and Food Materials and Biosolids	VOC and NH_3 (Achieved in Practice): • Active Phase (only): Negatively aerated static piles with engineered, under pile, grid aeration system venting to a control device with ≥ 80% control efficiency. VOC and NH_3 (Technologically Feasible): • Active Phase: (1). Enclosed aerated static piles and vent to control device with ≥ 80% control efficiency. (2). Enclosed windrows and vent to control device with ≥ 80% control efficiency. • Curing Phase: (1). Enclosed aerated static piles and vent to control device with ≥ 80% control efficiency. (2). Negatively aerated static piles with engineered, under grid, grid aeration system venting to a control device ≥ 80% control efficiency. (3). Enclosed windrows and vent to control device with ≥ 80% control efficiency.
	6.4.9 (Rescinded)	Co-Composting with Green and Food Materials and Manure: < 20,000 ton/year throughput	VOC and NH_3 (Achieved in Practice): • Mitigation Measures from Rule 4565. VOC (Technologically Feasible): • (1). Enclosed aerated static pits and vent to control device, such as thermal/catalytic incineration system (98% control efficiency), carbon adsorption system (95% control efficiency), and biofilter system (80% control efficiency).

			(2). Negatively aerated static pits with engineered, under pit, grid aeration system venting to thermal/catalytic oxidizer incineration system with control efficiency of 98%. (3). Negatively aerated static pits with engineered, under pit, grid aeration system venting to a carbon adsorption system (95% control efficiency). (4). In-vessel composting system with control efficiency of 91%. (5). Negatively aerated static pits with engineered, under pit, grid aeration system venting to biofilter system with control efficiency of 80%. NH_3 (Technologically Feasible): • (1). Enclosed aerated static pits and vent to control device, such as wet scrubber system (99% control efficiency), and biofilter system (80% control efficiency). (2). Negatively aerated static pits with engineered, under pit, grid aeration system venting to wet scrubber with control efficiency of 99%. (3). Negatively aerated static pits with engineered, under pit, grid aeration system venting to biofilter system with control efficiency of 80%. (4). In-vessel composting system with control efficiency of 56%.
	6.4.11 (Rescinded)	Co-Composting with Green and Food Materials and Manure: > 20,000 ton/year throughput	VOC and NH_3 (Achieved in Practice): • Class One Mitigation Measures from Rule 4565. VOC and NH_3 (Technologically Feasible): • (1). Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent). (Active and Curing Phase) (2a). Negatively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) venting to biofilter or equivalent. (Active and Curing Phase). (2b). In-vessel or container with forced aeration venting to biofilter or equivalent. (Active and Curing Phase) (3). Negatively aerated static piles venting to biofilter or equivalent. Active phase is covered by 12 inches of finished compost or equivalent, (4). Cover with 6 inches of finished compost upon initial windrow formation and within 3 hours of turning, and watering system. (5). Negatively aerated static piles venting to biofilter or equivalent. No cover.

2. Survey of Applicable Rules and Regulations:

South Coast AQMD Rule 1133.3 (Emission Reduction from Greenwaste Composting Operations) applies to new and existing composting operations that produce active or finished compost from greenwaste or greenwaste in combination with manure or foodwaste, unless exempted under subdivision (g) of this rule.

- The operator of greenwaste composting operations shall comply with the following requirements: (A) Chip or grind, as necessary, and use greenwaste for on-site composting as allowed by the Local Enforcement Agency.; (B) Use foodwaste for on-site composting within 48 hours of receipt or cover foodwaste with screened or unscreened finished compost until used, unless otherwise required by the Local Enforcement Agency.
- For new and existing greenwaste composting operations that processes ≤ 20% manure, by volume, or ≤ 5,000 tons/year of foodwaste throughput are required to cover each active phase pile with finished compost within 24 hours of initial pile formation and the pile shall not be turned for the first 7 days of active phase composting unless required for temperature management or pathogen reduction. For the first 15 days after initial pile formation for active phase composting, within 6 hours before turning, apply water to the top half of the pile or use a windrow turner equipped with water spray used during the entire turning process. Instead of utilizing the above mitigation measures, the facility may use of an alternative mitigation measure that is approved by SCAQMD, CARB, and USEPA, and that demonstrates emission reductions by at least 40% by weight for VOC and 20% by weight for NH_3.
- For new and existing greenwaste composting operations processing > 5,000 tons/year of foodwaste throughput shall use an emission control device to achieve at least 80% control for VOC and NH_3 during the active phase of composting.

District Rule 4566 (Organic Material Composting Operations) applies to composting facilities that compost organic materials unless exempt under Section 4.0 of this rule. This rule requires facilities to comply composting requirements based on the facilities total annual organic material throughput.

- For composting at facilities with annual throughputs of < 200,000 wet tons/year, the operator shall comply with one of the following during the active phase of composting: (a). For windrow composting only, implement at least 3 turns during the active phase and utilize an independent or integrated watering system to maintain adequate water content; (b). Implement an APCO and EPA approved mitigation measure that demonstrates at least 19% reduction, by weight, in VOC emissions.
- For composting at facilities with annual throughputs of ≥ 200,000 wet tons/year and < 730,000 wet tons/year, the operator shall comply with one of the following during the active phase of composting: (a). For windrow composting only, implement at least 3 turns during the active phase, utilize an independent or integrated watering system to maintain adequate water content, and utilize a finished compost cover; (b). Implement an APCO and EPA approved alternative mitigation measure that demonstrates at least 60% reduction, by weight, in VOC emissions.

- For composting at facilities with annual throughputs of ≥ 730,000 wet tons/year, the operator shall implement an APCO and EPA approved mitigation measure that demonstrates at least 80% reduction, by weight, in VOC emissions during the active phase.

3. Survey of Permits Issued for Organic Material Composting:

The following are permits issued for organic material composting operations from air pollution control agencies located in the states of California and Washington.

A. SJVAPCD Permits:

SJVAPCD currently has 18 facilities, which are permitted to compost green and food waste, which are subject to District Rule 4566 (Organic Material Composting Operations). All 18 facilities utilize the applicable composting requirements for compliance with District Rule 4566.

Two facilities (N-4912 and S-2843) are proposing to utilize emission control systems as an alternative composting option to comply with Rule 4566 requirements as indicated in the table below.

Facility Name Permit Number	Type and Processing Limits	Control Technology
Recology Blossom Valley Organics – North N-4912-7-1, '-8-3, '-9-0, '-23-0 & '-23-1	Green and Food Waste Composting 2,000 wet tons/day & 730,000 wet tons/year (Composting Rate)	1. Turn windrow at least 3 times during active-phase of composting, use of an integrated watering system, and use of a finished compost cover (60% control for VOC). 2. During active-phase of composting option of using Aerated Static Pile (ASP) with negative aeration and finished compost cap (74% control for VOC) vented to a biofilter or ASP with positive aeration and finished compost cap (95% control for VOC).
Bakersfield City Wood Site S-2843-10-1, '-11-2 & '-12-0	Green Waste, Food Waste, and Animal Manure (separately from green and food waste) 976 wet tons/day & 351,360 wet tons/year (Green & Food Waste Composting Rate) 55.6 wet tons/day & 19,999 wet tons/year (Co-Composting Rate with Animal Manure and wood waste)	1. If throughput is < 200,000 wet tons/year, turn windrow at least 3 times during active-phase of composting and use of an independent watering system (19% control for VOC). 2. If throughput is ≥ 200,000 and < 730,000 wet tons/year, turn windrow at least 3 times during active-phase of composting, use of an independent watering system, and use of a finished compost cover (60% control for VOC). 3. During active-phase of composting, option of using extended Aerated Static Pile (eASP) with positive aeration and finished compost cap (98% control for VOC).

B. SCAQMD Permits:

Per information obtained from the permitting staff at SCAQMD, the following table lists the permitted organic material composting facilities in SCAQMD.

Facility Name Permit Number	Type and Processing Limits	Control Technology
Agromin OC Chino Green Material Compost G47273	Green and Food Waste Composting 75 wet tons/day & 23,400 wet tons/year (Composting Rate)	1. Only green waste up to 60% by volume, food waste up to 40% by volume, and biochar up to 5% by volume shall be processed. 2. Composting shall be performed only by the covered aerated static pile (CASP) method using perforated pipes and blower system to provide positive pile aeration. Active piles shall be covered with at least a 12-inch layer of finished compost (80% control for VOC & NH_3).
Agua Mansa MRF, LLC G46480 & G46481	Green and Food Waste Composting 166.67 wet tons/month & 2,000 wet tons/year (Composting Rate)	1. All active compost piles shall be covered with a breathable fabric cover and sealed at the edges, except when piles are moved from one cell to another, and shall not be operated unless the emissions captured from the piles are vented to an air pollution control equipment (biofilter) that is operating and has a valid Permit to Construct and Operate issued by the SCAQMD.
West Valley MRF, LLC 559590 (Permit to Construct)	Green and Food Waste Composting 100.0 wet tons/day & 26,000 wet tons/year (Composting Rate)	1. Each composting phase operation (active/curing/finishing) shall be covered with Gore cover, all edges of cover are sealed and temperature and oxygen monitoring probes are in place. 2. Composting shall be performed only by the positive aerated static pile (ASP) composting system.

C. BAAQMD Permits:

Per information obtained from the permitting staff at BAAQMD, the following table lists the permitted organic material composting facilities in BAAQMD.

Facility Name Permit Number	Type and Processing Limits	Control Technology
Redwood Landfill S-34	Green and Food Waste Composting 160,368 wet tons/year (Composting Rate)	1. Active composting at this facility shall be performed only by the covered aerated static pile (CASP) method using perforated pipes and blower system to provide positive or negative pile aeration. Negative aeration operations shall include a condensate trap upstream and an active biofilter device downstream of the blower. Active piles shall be covered with at least a 6-inch layer of finished compost (80% control for VOC & NH_3).
West Contra Costa Sanitary Landfill S-117	Green and Food Waste Composting 130,000 wet tons/year (Composting Rate)	1. Active composting at this facility shall be performed only by the covered aerated static pile (CASP) method using perforated pipes and a blower system to provide positive or negative aeration of the active composting piles. Negative aeration operations (drawing air through the pile) shall include a condensate trap upstream and an active biofilter downstream of the blower. For positive aeration operations, active piles shall be covered with at least a 6-inch layer of finished compost to act as a biofilter (80% control for VOC & NH_3).
International Disposal Corp. of California Newby Island Landfill (Republic Services) S-15 & S-1003	Green and Food Waste Composting 700 wet tons/day & 160,680 wet tons/year (Composting Rate)	1. Active composting at this facility shall be performed only by the covered aerated static pile (CASP) method using perforated pipes and a blower system to provide positive aeration of the active composting piles. Active piles shall be covered with at least a 6-inch layer of processed wood chips, unscreened compost, compost overs or other approved materials. However, the biofilter shall not consist solely of compost overs. Each compost pile shall have documentation or tagging of creation date. (80% control for VOC & NH_3)

D. YSAQMD Permits:

Per information obtained from the permitting staff at YSAQMD, the following table lists the permitted organic material composting facilities in YSAQMD.

Facility Name Permit Number	Type and Processing Limits	Control Technology
Jepson Prairie Organics Compost Facility P-4-06(a3) & P-61-07(a5)	Green and Food Waste Composting <u>Feedstock Material Limits:</u> 1,800 tons/day 216,600 tons/year <u>Material Composting Limits:</u> 750 tons/day 219,000 tons/year	1.Operate four separate fan groups with each fan group to be continuously ducted to at least two biofilters, except during periods of approved biofilter re-construction, maintenance, or repair, or periods of covered compost zone turning.
Northern Recycling Compost P-64-09(a2)	Green and Food Waste Composting <u>Material Composting Limits:</u> 30 tons/day (Mixed Waste Feedstock) 10,950 tons/year (Mixed Waste Feedstock) 270 tons/day (Green Waste Feedstock) 98,550 tons/year (Green Waste Feedstock)	1.Optional use of open windrow composting, biocover with positive ASP, or ECS Compost System with negative ASP vented to a biofilter.

E. Puget Sound Clean Air Agency (PSCAA) Permits (Washington State):

Per information obtained from the permitting staff at PSCAA, the following table lists the permitted organic material composting facilities in PSCAA's jurisdiction.

Facility Name Permit Number	Type and Processing Limits	Control Technology
Cedar Grove Composting, Inc. 24934	Green and Food Waste Composting 228,521 tons/year (Composting Rate)	1. Four 41,000 tons/year Gore Composting System with ASP positive aeration and engineered cover for first phase of composting.
Cedar Grove Composting, Inc. 25994	Green and Food Waste Composting	1. One six-zone primary compost pad using negative aeration and a biofiltration system rated at 130,000 cfm. 2. One enclosed Zone 7 compost pad and 48,000 cfm biofilter. 3. Twelve secondary zones using negative aeration and a 66,000 cfm biofilter. 4. One in-vessel Gore Cover Technology Composting System rated at 41,000 tons/year.
Lenz Enterprises Inc. 28983	Green and Food Waste Composting 30,000 tons/year	1. Aerated pile composting system controlled with a biofilter.
Pacific Topsoils, Inc. 18478	Green Waste Composting 160,000 cu-yards or 53,333 tons/year	1. Odorous compost piles to be sealed with a bulking agent. If section of pile becomes anaerobic, the section shall be covered with at least a 2 feet thick layer of hog fuel (chipped wood residue) to act as a biofilter.

Misich Farms 18656	Green Waste 15,000 cu-yard/year	1. Odorous compost piles to be sealed with a bulking agent. If section of pile becomes anaerobic, the section shall be covered with a layer of mature compost or wood chips at least 2 feet in thickness to act as a biofilter.
Land Recovery 6970	Organic Waste 160 tons/day	1. Use of two biofilters rated at a total of 107,000 cfm.

F. Olympic Region Clean Air Agency (ORCAA) Permits (Washington State):

Per information obtained from the permitting staff at ORCAA, the following table lists the permitted organic material composting facilities in ORCAA's jurisdiction.

Facility Name Permit Number	**Type and Processing Limits**	**Control Technology**
Silver Springs Organics, LLC 10NOC754	Green Waste, Food Waste, and Animal Manure Composting 500 tons/day & 120,000 tons/year (Co-Composting Rate)	1. Stage 1 composting area contained under covered roof structure on aerated floor capable of positive and negative aeration, which consists of 14 separate zones and each zone served by its own dedicated fan and controlled independently using ECS CompTroller™. During negative aeration, blowers will exhaust through Stage 1 biofilter beds. Compost piles will be turned every 1 to 4 days with expected cycle time to be approximately 15 days. 2. Stage 2 composting area contained under covered roof structure on at least two lengthwise aeration tunnels per windrow served by two dedicated blowers. The Stage 2 blowers will exhaust through Stage 2 biofilter beds. Stage 2 compost piles will be covered with an AC Composter© cover or 1-ft layer of stabilized material such as finished compost or woody biofilter material. Stage 2 compost piles will be turned and reformed every 15 days with expected cycle time to be approximately 30 days.
North Mason Fiber Co. 12MOD911	Green Waste, Food Waste, Fin Fish, and Hatchery Pond Slurry Composting 80,000 tons/year (Co-Composting Rate)	1. Active composting and curing to take place on extended aerated static piles with forced aeration.
City of Port Angeles Compost Facility 95-NOC-681	Yard Waste and De-Watered Sludge (20% solids) from Waste Water Treatment Facility (Processing rate limit is not available.)	1. 350 ft long by 70 ft wide composting building, which is open on three sides. 35,000 ft^2 of paved area including area within the composting building. Eight composting bays each equipped with

		its own aeration system with blowers rated at 300 cfm. 2. Composting performed in composting building only. 3. Compost piles shall be aerated either by the forced air aeration system or by turning as necessary to avoid anaerobic conditions in the piles and odors.

4. List of Control Options:

Based on the above surveys of the BACT guidelines, applicable rules and regulations, and permits issued for organic material composting, the following are possible control technology options:

Organic Material Composting:

- Conduct all co-composting (active and curing phase) within an enclosure vented to a scrubber.
- Conduct all co-composting (active and curing phase) within an enclosure vented to a carbon adsorption unit.
- Conduct all co-composting (active and curing phase) within an enclosure vented to a biofilter.
- Positively aerated static piles (ASP) with cover (cover is engineered, 12 inches of finished compost, or equivalent) (active and curing phase).
- Conduct all active co-composting within the confines of an enclosure and curing co-composting with an aeration system under negative pressure all vented to an emission control system with a control efficiency ≥ 80% by weight for VOC and NH_3.
- Negatively aerated static piles (ASP) with cover (cover is engineered, 12 inches of finished compost, or equivalent) venting to biofilter or equivalent (active and curing phase).
- In-vessel or container with forced aeration venting to a biofilter or equivalent (active and curing phase).
- Positively aerated static piles (ASP) with cover (cover is engineered, 12 inches of finished compost, or equivalent) only for the active phase. Curing phase is uncovered and uncontrolled.
- Negatively aerated static piles (ASP) venting to biofilter or equivalent only for the active phase. Active phase is covered with 12 inches of finished compost or equivalent. Curing phase is uncovered and uncontrolled.
- Mitigation measures from District Rule 4566 (at least three turns of windrow during active phase and watering system).

Step 2 - Eliminate Technologically Infeasible Options

Thermal or catalytic oxidation is listed as a technologically feasible control option for VOC in District guideline 6.4.9. However, organic composting can generate significant amounts of NH_3 along with the VOC. This NH_3 is a potential source of NOx emissions if it is not removed before the oxidation of VOC or treated (as NOx) after the oxidation of VOC. Thus, the thermal oxidizer would also require either the use of a wet scrubber to remove the NH_3 prior to entering the thermal/catalytic oxidizer, or a reducing catalyst (e.g. similar to SCR)

after the thermal/catalytic oxidizer capable of reducing the NOx to N_2. Because of the potential for large amount of collateral NOx emissions due to the presence of large amounts of NH_3, thermal or catalytic incineration is not an ideal technology to control VOC emissions from an organic composting operation; consequently, it will be removed from consideration for this class and category of source at this time.

Carbon adsorption is also listed as a Technologically Feasible VOC control option in District guideline 6.4.9. Assuming activated carbon can absorb roughly 20% of its weight in VOC, even a small scale composting operation will require an enormous tonnage of activated carbon to serve as a control. Generally speaking, activated carbon is a feasible control where the mass flow rates are relatively low (e.g. soil remediation), which is not the case with composting operations. However, this control option will not be eliminated at this time because it is a technologically feasible option should site specific circumstances warrant its use.

Wet scrubbing is listed as a Technologically Feasible NH_3 control option in District guideline 6.4.9. NH_3 is extremely soluble in water; however, a wet scrubber's effectiveness at controlling VOC is dependent on the types of VOC compounds emitted. Emissions testing on green material and biosolids feedstocks have indicated a large percentage of VOCs generated are alcohols (e.g. ethanol, methanol, and isopropanol), which are water soluble.

The disadvantage of using a wet scrubber is that the technology works by phase transfer of contaminants (i.e. cross-media contamination) from the air into a solid or liquid medium so that the scrubber solution must be disposed of or treated in such a way to avoid re-emitting the adsorbed air contaminants.

By comparison, a biofilter controls the air contaminants by biological degradation, thereby eliminating the contaminant disposal problem. However, this control option will not be eliminated at this time because it is a technologically feasible option should site specific circumstances warrant its use.

Step 3 - Rank Remaining Control Technologies by Control effectiveness

Organic Material Composting:

Rank	Control Option	% VOC Control	% NH_3 Control	Achieved in Practice
1	Enclosed negatively aerated static piles and vented to a wet scrubber (Active and Curing Phases).	99	99	No
2	Enclosed negatively aerated static piles and vented to a carbon adsorption system (Active and Curing Phases).	95	95	No
3	Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) (Active and Curing Phase).	80	80	No
4.	Negatively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) venting to biofilter or equivalent (Active and Curing Phases).	80	80	No

	Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) (Active and Curing Phases)	80	80	Yes, Proposed
	Enclosed aerated static piles and vent to control device with ≥ 80% control efficiency (Active and Curing phase).	80	80	No
	Enclosed negatively aerated static piles vented to a biofilter (Active and Curing phase).	80	80	No
	In-vessel or container with forced aeration venting to a biofilter or equivalent (Active and Curing phase).	80	80	No
5.	Positive aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) only for active phase. Curing phase is uncovered and uncontrolled.	80	80	Yes (≥ 30,000 wet tons/yr)
6.	Negatively aerated static piles venting to biofilter or equivalent only for the active phase. Active phase is covered is covered with 12 inches of finished compost or equivalent. Curing phase is uncovered and uncontrolled.	80	80	Yes (≥ 30,000 wet tons/yr)
7.	At least three turns of windrow during active phase, cover with 6 inches of finished compost within 3 hours of turning, and watering system.	60	20	Yes (≥ 200,000 wet tons/yr and < 730,000 wet tons/yr)
8.	Negatively aerated static piles venting to biofilter or equivalent. No cover for windrows.	26	23	No
9.	Mitigation measures from District Rule 4566 (at least three turns of windrow during active phase and watering system).	19	19	Yes (< 200,000 wet tons/yr)

Step 4 - Cost Effectiveness Analysis

A cost-effective analysis will now be performed for each control technology which has not been proposed.

The applicant has proposed option #7 from the table above. Options #1 through #6 are more effective VOC and NH_3 controls; therefore, a cost analysis must be performed to determine if options #1 through #6 are cost effective controls for VOC and NH_3.

Control Option #1 – Enclosed and vented to a wet scrubber (99% control)

Negatively aerated static piles that vent to a wet scrubber achieve 99% control for VOC and NH_3 emissions. This type of unit will control both VOC and NH_3 emissions; therefore, a Multi-Pollutant Cost Effectiveness Threshold (MCET) will be performed to determine if this control option is cost effective.

The District does not have a cost effective threshold for NH_3 emissions; however, NH_3 forms ammonium nitrate in the atmosphere, which is a precursor for PM_{10}. Therefore, as established in District Project S-1032219, the PM_{10} cost effectiveness threshold ($11,400/ton-reduced) will be used as a surrogate value for the NH_3 cost effectiveness threshold.

Uncontrolled Emissions	
VOC	186,160 lb/yr ⇒ 93.1 ton/year
NH_3	40,560 lb/yr ⇒ 28.3 ton/year

Emissions Reduction (99% control)	
VOC	184,298 lb/yr ⇒ 92.2 ton/year
NH_3	40,154 lb/yr ⇒ 20.1 ton/year

Annual Operating Cost:

Compost Control Costs – Enclosed and vented to a wet scrubber

Capital recovery factor (4%, 10 yrs): 0.123

For the capital cost, the equivalent annual cost is calculated as shown below:

$$A = P \frac{i(1+i)^n}{(1+i)^n - 1}$$

Where,

A = Equivalent annual control equipment capital cost
P = Present value of the control equipment, including installation cost
i = Interest rate (generally assumed to be 4%, unless the applicant demonstrates that a different rate is more representative of the specific operation)
n = Equipment life (generally assumed to be 10 years, unless the applicant demonstrates that a different rate is more representative of the specific operation)

Cost Estimate to Enclose Composting Operations
Capital Expenditure = $300/wet ton (2017 estimate from Brian Fuchs, GORE – project C-9196, 1171609)
Operational Expenditure = $25/wet ton (2017 estimate from Brian Fuchs, GORE – project C-9196, 1171609)

The capital and operational expenditure estimates were collected in 2017. Therefore, the current cost will be adjusted to account for inflation (21.96% inflation increases as referenced from https://www.bls.gov/data/inflation_calculator.htm):

Adjusted Capital Expenditure = $365.88/wet ton
Adjusted Operational Expenditure = $55.49/wet ton

Thus,

Cost Estimate ($/wet-ton)		Annual Throughput (wet-ton/yr)	Capital Cost ($)*	Annualized Capital Cost ($/yr)	O&M ($/yr)	Incremental Total Cost ($/yr)
Capital	365.88	52,000	19,025,760	2,340,168	-	5,225,648
Operational	55.49		-	-	2,855,480	

MCET Calculation:

District BACT policy, APR 1305, was recently updated on June 1, 2022, which revised the cost effectiveness threshold ($/ton) for VOC and PM10/PM2.5 to $23,600/ton and $11,900/ton, respectively. However, this project was deemed complete on January 25, 2022, prior to the revised BACT policy date. Therefore, the cost effectiveness threshold ($/ton) will be based on the previous thresholds of $22,600/ton and $11,400/ton, respectively.

Pollutant	Controlled Emissions (ton/year)	Cost Threshold ($/ton-reduced)	MCET ($/ton-reduced)
VOC	92.2	22,600	2,038,520
NH_3	20.1	11,400	229,140
Total			**$2,267,660**

Since the MCET threshold is $2,267,660/ton-reduced and below the Incremental Cost ($5,225,648) of an enclosed system vented to a wet scrubber, this option is not cost effective and cannot be required as BACT.

Control Option #2 – Enclosed and vented to a carbon adsorption unit (95% control)
As shown in Control Option #1, an enclosed system vented to a wet scrubber is not cost effective based solely on the cost of an enclosure. Control Option #2 will also require an enclosure and has an even lower control efficiency compared to Control Option #1, therefore, this option will not be cost effective either.

Control Option #3 – Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent) (Active and Curing Phase) (80% VOC and 80% NH3 control)
The applicant has proposed to implement the next highest control technology.

Step 5 - Select BACT

Since the higher-ranked options are not cost effective, the proposed control option is determined to be BACT. Therefore, BACT for this operation is satisfied with utilizing a positively aerated static pile system with cover.

APPENDIX D
HRA Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review and Ambient Air Quality Analysis

To:	John Yoshimura – Permit Services
From:	Will Worthley – Technical Services
Date:	August 15, 2022
Facility Name:	FORWARD, INC. COMPOSTING FACILITY
Location:	9999 S AUSTIN RD, MANTECA
Application #(s):	N-8534-7-0, -8-0
Project #:	N-1212824

Summary

Risk Management Review (RMR)

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
7-0	0.56	0.60	0.00	1.29E-06	Yes	Yes
8-0	0.51	0.17	0.03	2.31E-06	Yes	Yes
Project Totals	1.07	0.77	0.04	3.60E-06		
Facility Totals	>1	0.82	0.05	6.20E-06		

Ambient Air Quality Analysis (AAQA)

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
PM10				Pass[1]	Pass[1]
PM2.5				Pass[2]	Pass[2]

Notes:
1. Modeled PM10 concentrations were below the District SIL for fugitive sources of 10.4 µg/m^3 for the 24-hour average concentration and 2.08 µg/m^3 for the annual concentration.
2. Modeled PM2.5 concentrations were below the District SIL for fugitive sources of 2.5 µg/m^3 for the 24-hour average concentration and 0.63 µg/m^3 for the annual concentration.

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Unit # 7-0 & 8-0

1. The amount of green material and food material received onsite shall not exceed either of the following limits: 7,500 tons per day or 52,000 tons per year.
2. The total quantity of material transferred to the active phase shall not exceed 4,700 tons per day.
3. The total quantity of material transferred to the curing phase shall not exceed 3,000 tons per day.

T-BACT is required for these units because of emissions of Naphthalene which is a VOC.

Project Description

Technical Services received a revised request on June 1, 2022 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- *Unit -7-0: GREEN WASTE MATERIALS RECEIVING AND STORAGE OPERATION*
- *Unit -8-0: ORGANIC WASTE (GREEN WASTE) COMPOSTING OPERATION WITH A POSITIVE AERATED STATIC PILE (ASP) SYTEM WITH FINISHED COMPOST COVER SERVING THE ACTIVE AND CURING PHASES AND PERMIT EXEMPT FINISHED COMPOST STORAGE AND LOADOUT OPERATIONS*

RMR Report

Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- *A unit's prioritization score is less than the District's significance threshold and;*
- *The project's prioritization score is less than the District's significance threshold and;*
- *The facility's total prioritization score is less than the District's significance threshold*

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than 1.0. If a preliminary analysis demonstrates that either the units', the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required.

If a refined assessment is greater than one in a million but less than 20 in a million for carcinogenic impacts (cancer risk) and less than 1.0 for the acute and chronic hazard indices (non-carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For units that exceed a cancer risk of one in a million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- *Particulate matter (PM) emissions from this proposed operation were provided by the Permit Engineer. These emissions were speciated into the toxic air contaminants using emission factors derived from the 2010 report, Landfill-Based Anaerobic Digester-Compost Pilot Project at Yolo County Central Landfill.*
- *Volatile organic compound (VOC) emissions from this proposed operation were provided by the Permit Engineer. These emissions were speciated into toxic air contaminants using emission factors derived from a 2011 VOC profile, "Green Waste Composting" in the EPA's speciation program.*

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.

The AERMOD model was used, with the parameters outlined below and meteorological data for 2010-2014 from Stockton (rural dispersion coefficient selected) to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and

Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Source Process Rates					
Unit ID	**Process ID**	**Process Material**	**Process Units**	**Hourly Process Rate**	**Annual Process Rate**
7	1	Green waste PM10	Lbs	0.1875[1]	16[1]
7	2	Green waste VOC	Lbs	14.17	10,400
8	1	Green waste PM10	Lbs	0.1875[1]	16[1]
8	2	Green waste VOC	Lbs	3.2	9,308

1. Combined emission rate for the receiving and transfer of organic compost materials.

Area Source Parameters					
Unit ID	**Unit Description**	**Release Height (m)**	**X-Length (m)**	**Y -Length (m)**	**Area (m^2)**
7	Storage	1.52	61.57	17.68	1088.43
7	Receiving	1.52	61.69	17.68	1090.59
8	Curing Phase Composting	1.52	46.90	63.15	2961.74
8	Active Phase Composting	1.52	100.67	60.03	6043.22

AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA's Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO_2 standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses predicts the maximum air quality impacts using the appropriate emissions for each standard's averaging period. Required model inputs for a refined AAQA include background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions. These inputs are described in the sections that follow.

Ambient air concentrations of criteria pollutants are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. The following stations were used for this evaluation:

Monitoring Stations				
Pollutant	**Station Name**	**County**	**City**	**Measurement Year**
PM10	HAZELTON-HD, STOCKTON	San Joaquin	Stockton	2018
PM2.5	HAZELTON-HD, STOCKTON	San Joaquin	Stockton	2018

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

Emission Rates (lbs/hour)			
Unit ID	**Process**	**PM10**	**PM2.5**
7 (receiving)	1	0.19	0.19
8 (active phase)	1	0.19	0.19
8 (curing phase)	2	0.19	0.19

Emission Rates (lbs/year)			
Unit ID	**Process**	**PM10**	**PM2.5**
7 (receiving)	1	16	16
8 (active phase)	1	16	16
8 (curing phase)	2	16	16

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state of federal air quality standard. The parameters outlined below and meteorological data for 2010-2014 from Stockton (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Area Source Parameters					
Unit ID	**Unit Description**	**Release Height (m)**	**X-Length (m)**	**Y -Length (m)**	**Area (m^2)**
7	Receiving	1.52	61.69	17.68	1090.59
8	Curing Phase Composting	1.52	46.90	63.15	2961.74
8	Active Phase Composting	1.52	100.67	60.03	6043.22

Conclusion

RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. However, the cancer risk for one or more units in this project is greater than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit requirements listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

AAQA

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

Attachments

A. Modeling request from the project engineer
B. Additional information from the applicant/project engineer
C. Prioritization score w/ toxic emissions summary
D. Facility Summary
E. AAQA results

San Joaquin Valley Air Pollution Control District
Permit Exemption

To:	John Yoshimura – Permit Services
From:	Will Worthley – Technical Services
Date:	August 15, 2022
Facility Name:	FORWARD, INC. COMPOSTING FACILITY
Location:	9999 S AUSTIN RD, MANTECA
Application #(s):	N-8534-Permit Exemption Determination
Project #:	N-1212824

Summary

Risk Management Review (RMR)

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
Permit Exempt Finished Compost Loadout	0.51	0.03	0.00	3.45E-08	No	No
Project Totals	1.07	0.03	0.00	3.45E-08		
Facility Totals	>1	0.82	0.05	6.20E-06		

Notes:
1. Permit exemption to be based on engineering determination.

Proposed Permit Requirements

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:
Unit # Permit Exempt Finished Loadout

4. No special requirements.

The RMR was submitted to help determine permit exemption status. The permitting engineer shall inform Technical Services if permits are required for this unit so Technical Services can update the facility risk score.

Project Description

Technical Services received a request on June 1, 2022 to perform a Risk Management Review (RMR) for the following:

- *Unit -8-0: ORGANIC WASTE (GREEN WASTE) COMPOSTING OPERATION WITH A PERMIT EXEMPT FINISHED COMPOST STORAGE AND LOADOUT OPERATIONS*

RMR Report

Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- *A unit's prioritization score is less than the District's significance threshold and;*
- *The project's prioritization score is less than the District's significance threshold and;*
- *The facility's total prioritization score is less than the District's significance threshold*

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than 1.0. If a preliminary analysis demonstrates that either the units', the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required.

If a refined assessment is greater than one in a million but less than 20 in a million for carcinogenic impacts (cancer risk) and less than 1.0 for the acute and chronic hazard indices (non-carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For units that exceed a cancer risk of one in a million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- *Particulate matter emissions from this proposed operation were provided by the Permit Engineer. These emissions were speciated into the toxic air contaminants using emission factors derived from the 2010 report, Landfill-Based Anaerobic Digester-Compost Pilot Project at Yolo County Central Landfill.*

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.

The AERMOD model was used, with the parameters outlined below and meteorological data for 10-14 from Stockton (rural dispersion coefficient selected) to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Source Process Rates					
Unit ID	**Process ID**	**Process Material**	**Process Units**	**Hourly Process Rate**	**Annual Process Rate**
8	3	PM10 (Finished Compost Loadout)	Lbs	0.17	31

Area Source Parameters					
Unit ID	**Unit Description**	**Release Height (m)**	**X-Length (m)**	**Y -Length (m)**	**Area (m^2)**
8	Finished Compost Loadout	1.52	50.65	31.89	1615.23

Conclusion

RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this project is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

Attachments

F. Modeling request from the project engineer
G. Additional information from the applicant/project engineer
H. Prioritization score w/ toxic emissions summary
I. Facility Summary

APPENDIX E
Quarterly Net Emissions Change (QNEC)

Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

QNEC = PE2 - PE1, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
PE2 = Post-Project Potential to Emit for each emissions unit, lb/qtr.
PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$PE2_{quarterly}$ = $PE2_{annual}$ ÷ 4 quarters/year
= 10,400 lb-VOC/year ÷ 4 qtr/year
= 2,600 lb-VOC/qtr

$PE1_{quarterly}$ = $PE1_{annual}$ ÷ 4 quarters/year
= 0 lb-VOC/year ÷ 4 qtr/year
= 0 lb-VOC/qtr

Quarterly NEC [QNEC] – N-8354-7-0			
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**
NO_X	0	0	0
SO_X	0	0	0
PM_{10}	4	0	4
CO	0	0	0
VOC	2,600.0	0	2,600.0

Quarterly NEC [QNEC] – N-8354-8-0			
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**
NO_X	0	0	0
SO_X	0	0	0
PM_{10}	7.75	0	7.75
CO	0	0	0
VOC	2,327.0	0	2,327.0

APPENDIX F
Emission Profiles

SJVUAPCD
NORTHERN

Application Emissions

3/31/23
8:22 am

Permit #: N-8534-7-0 **Last Updated**
Facility: FORWARD, INC. 03/31/2023 YOSHIMUJ
COMPOSTING FACILITY

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	0.0	0.0	16.0	0.0	10400.0
Daily Emis. Limit (lb/Day)	0.0	0.0	2.3	0.0	340.0
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	4.0	0.0	2600.0
Q2:	0.0	0.0	4.0	0.0	2600.0
Q3:	0.0	0.0	4.0	0.0	2600.0
Q4:	0.0	0.0	4.0	0.0	2600.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

SJVUAPCD
NORTHERN

Application Emissions

3/31/23
8:22 am

Permit #: N-8534-8-0 **Last Updated**
Facility: FORWARD, INC. 03/31/2023 YOSHIMUJ
COMPOSTING FACILITY

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	0.0	0.0	31.0	0.0	9308.0
Daily Emis. Limit (lb/Day)	0.0	0.0	2.3	0.0	76.9
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	7.0	0.0	2327.0
Q2:	0.0	0.0	8.0	0.0	2327.0
Q3:	0.0	0.0	8.0	0.0	2327.0
Q4:	0.0	0.0	8.0	0.0	2327.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

APPENDIX G
ERC Withdrawal Calculations

VOC	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
ERC S-5300-1	473,967	416,190	440,637	445,396
Offsets Required (Includes distance offset ratio)	7,390	7,391	7,391	7,390
Amount Remaining	466,577	408,799	433,246	438,006

APPENDIX H
SSPE Calculations

N-8534-1-1: GREEN AND FOOD WASTE ORGANIC MATERIAL RECEIVING, STORAGE AND MIXING OPERATION

N-8534-2-1: OPEN WINDROW ACTIVE AND CURING PHASE GREEN AND FOOD WASTE COMPOSTING OPERATION WITH AN INDEPENDENT WATERING SYSTEM SERVING THE ACTIVE-PHASE COMPOSTING WINDROW PILES

General Calculations

A. Assumptions

1. The maximum stockpile storage time is 10 days (current PTO).
2. VOC and NH_3 will be emitted from the active phase and curing phase windrows.
3. Active and curing phases average 60 days each (project N-1120321).
4. VOC emissions from at least three turns of the windrow piles and use of an integrated watering system all during the active-phase composting period will reduce the VOC emissions by 19%.
5. Pursuant to the District's Compost VOC Emissions Factors Report, 90% of the VOC emission from composting occur during the active phase. The same assumption will be made for NH_3 emissions.

B. Emission Factors

Emission Factors (EF)		
Pollutant (Emission Source)	Uncontrolled EF	Source
VOC (Stockpiles)	0.2 (lb-VOC/wet ton/day)	District Green Waste Compost Emission Factor Report (3/21/23)
NH_3 (Stockpiles)	0.02 (lb-NH_3/wet ton/day)	
VOC (Active Phase Windrows)	3.222 (lb-VOC/wet ton)	
VOC (Curing Phase Windrows)	0.358 (lb-VOC/wet ton/day)	
NH_3 (Active Phase Windrows)	0.702 (lb-NH_3/wet ton)	
NH_3 (Curing Phase Windrows)	0.078 (lb-NH_3/wet ton)	

C. Annual Potential to Emit Calculations

N-8534-1-1:
Maximum Stockpile Storage Time: 10 days

Annual Material Receiving/Mixing/Storage Rate: 95,000 wet tons/year

Annual PE = Annual Storage Weight (wet ton/year) $\times$ Stockpile Storage Time (days) $\times$ $EF_{VOC/Stockpiles}$ (lb/wet ton/day)

Annual PE for Permit N-8534-1-1				
Pollutant	**Storage Days**	**Storage Weight**	**EF**	**Annual PE**
VOC	**10** storage days	95,000 wet tons/year	0.2 lb-VOC/wet ton/day	**190,000 lb/year**
NH_3	**10** storage days	95,000 wet tons/year	0.02 lb-NH_3/wet ton/day	**19,000 lb/year**

N-8534-2-1:

The active phase composting process will be controlled with the use of an independent watering system with three windrow turns which will reduce the VOC emissions by 19%. The daily VOC emissions will be calculated as follows based on the following:

Annual Material Transfer Rate: 95,000 wet tons/year

Mitigation Measure Control Efficiency (CE): 19%

$$\text{Annual PE}_{\text{VOC/Windrow Active-Phase}} = \text{Annual Composting Weight (wet ton/year)} \times \text{EF}_{\text{VOC/Windrow Active Phase}} \text{ (lb/wet ton)} \times (1 - \text{CE})$$

$$\text{Annual PE}_{\text{VOC/Windrow Curing-Phase}} = \text{Annual Composting Weight (wet ton/year)} \times \text{EF}_{\text{VOC/Windrow Curing Phase}} \text{ (lb/wet ton)}$$

Annual PE for Permit N-8534-2-1				
Pollutant	**Control Efficiency (CE)**	**Composting Weight**	**EF**	**Annual PE**
VOC (Active-Phase)	0.19	95,000 wet tons/year	3.22 lb-VOC/wet ton	**247,779 lb/year**
VOC (Curing Phase)	0	95,000 wet tons/year	0.36 lb-VOC/wet ton	**34,010 lb/year**
Combined Annual VOC				**281,943 lb/year**
NH_3 (Active-Phase)	0.19	95,000 wet tons/year	0.702 lb-NH_3/wet ton	**54,019 lb/year**
NH_3 (Curing-Phase)	0	95,000 wet tons/year	0.078 lb-NH_3/wet ton	**7,410 lb/year**
				61,429 lb/year

N-8534-3-0: FINISHED COMPOST LOADOUT OPERATION

General Calculations

A. Assumptions

1. PM_{10} will be emitted from the loading of the finished compost into trucks.
2. No VOC and NH_3 will be emitted from the finished compost since all decomposition of the organic material will be completed at the end of the curing phase.
3. For the loading of the finished compost into trucks there will be a total of 2 drop points consisting of the transfer of the finished compost materials from the storage piles to the truck.

B. Emission Factors

Currently the EPA has suspended the AP-42 emission factors for wood product lumber processing operations. The District is not aware of any generally accepted wood waste or green waste receiving and transfer point emission factors. Therefore, the District will assume the AP-42 crushed stone emission factors as a conservative estimate as utilized under District project #C-1073961 for outdoor feedstock organic waste material receiving and conveyor transfer points with water spray PM_{10} control efficiency of 70%. Therefore:

$$EF_{PM10\ Controlled\text{-}Receiving/Transfer/Mixing} = 0.00033\ lb\text{-}PM_{10}/wet\ ton$$

C. Annual Potential to Emit Calculations

N-8534-3-0:

Annual PM_{10} Emissions due to the loading of the Finished Compost into Trucks:
The annual PM_{10} emissions will be calculated as follows:

$$\text{Annual } PE_{PM10} = \#\text{ of Drop Points} \times \text{Processing Rate (ton/yr)} \times EF_{PM10/Transfer}\ (lb\text{-}PM_{10}/ton)$$

Annual PE for Permit Unit N-8534-3-0				
Process Description	**# of Drop Points**	**Processing Rate (ton/year)**	**EF (lb-PM_{10}/ton)**	**Annual PE_{PM10} (lb-PM_{10}/year)**
Material Transfer from the Storage Piles to Trucks	2	95,000	0.00033	**63**

N-8534-6-0: ORGANIC WASTE MATERIAL GRINDING OPERATION CONSISTING OF A TRANSPORTABLE VERMEER MODEL TG7000 TUB GRINDER POWERED BY A 950 BHP CATERPILLAR MODEL C27 (TIER 4F CERTIFIED) DIESEL FIRED IC ENGINE (REPLACEMENT UNIT FOR THE EQUIPMENT UNDER PERMIT N-8534-5-1)

General Calculations

A. Assumptions

1. Particulate matter (PM) will be emitted from the loading, conveying, and screening of the compost materials.
2. PM emissions will be minimal due to the maintained moisture content with the use of a water sprinkler system to maintain visible emissions to ≤ 5% opacity (proposed by applicant).
3. Fugitive PM emissions will be generated at 3 emissions points: (a) Loading the grinder; (b) Grinding the material; (c) Conveying of the ground material into stockpiles.
4. NOx, CO, VOC, PM_{10}, and SOx will be emitted due to the combustion of diesel fuel from the DICE powering the trommel screen.

Operating parameters for the 950 bhp DICE engine:

Fuel Consumption Rate:	47.5 gal/hr @ 100% load
Density of Diesel Fuel:	7.1 lb/gal
Sulfur Content of fuel:	0.0015 % by weight
kW-hr / bhp-hr conversion:	0.745701 kW-hr / bhp-hr

B. Emission Factors

Wood, Green, and Food Waste Material Handling and Grinding:

PM_{10} emissions for this project will be based on emission factors utilized for wood and green waste material handling and grinding under Project #C-1101871 as indicated in the table below:

Emission Factors for Material Handling & Grinding ($EF_{PM10/Handling\ \&\ Grinding}$)		
Pollutant & Emission Point	**$EF_{PM10/Handling\ \&\ Grinding}$ (lb-PM_{10}/ton)**	**Source**
PM_{10} - Loading & Conveying	0.00033	Current PTO
PM_{10} - Grinding	0.003	

Combustion of Diesel Fuel by the 950 bhp IC Engine (Tier 4F):

Emission factors for the combustion of diesel fuel from the proposed IC engine for NOx, VOC, CO, and PM_{10} emissions will be based on emission factors from the engine manufacturer (refer to Appendix C for a copy of CARB Executive Order U-R-001-0496 for the emission factors). SOx emissions will be based on the mass balance equation as follows based on the maximum allowable fuel sulfur content for CA diesel. Therefore:

EF_{SOx} = 0.000015 lbm S/lbm fuel × 7.1 lbm fuel/gal fuel × 453.6 g/lbm
× 2 lbm SO_2 exhaust/1 lbm S in fuel × 47.5 gal/hr × 1/950 hp
= 0.0048 g/hp-hr

Emission Factors ($EF_{IC\ Engine}$)		
Pollutant	**$EF_{IC\ Engine}$ (g/bhp-hr)**	**Source**
NOx	2.31	Current PTO
CO	0.075	
VOC	0.03	
PM_{10}	0.03	
SOx	0.0048	Calculated Above

C. Annual Potential to Emit Calculations

Annual PM_{10} Emissions due to the Material Handling and Grinding Operation:
The annual emissions will be calculated based on an annual rate of 106,930 wet tons/year using the following equation:

$PE2_{PM10/Grinding\ \&\ Handling}$ = # of Drop Points × Processing Rate (wet ton/day or wet tons/year) × EF_{PM10} (lb-PM_{10}/wet ton)

Daily and Annual PE2 for ATC Permit N-8534-6-0 (Handling & Grinding)				
Process Description	**# of Drop Points**	**Processing Rate tons/year**	**EF_{PM10} (lb-PM_{10}/ton)**	**$PE2_{PM10/Handling\ \&\ Grinding}$ lb/year**
Material Loading into the Grinder	1	106,930	0.00033	**35.3**
Material Grinding	1	106,930	0.003	**320.8**
Material conveying to the Storage Piles	1	106,930	0.00033	**35.3**
Total				**391**

Annual Emissions due to the Combustion of Diesel Fuel from the 950 bhp IC Engine:
The annual emissions will be calculated based on the maximum operating time of 1,258 hr/year using the following equation:

$PE2_{IC\ Engine}$ = Operating Time (hr/day or hr/year) × 950 bhp × $EF_{IC\ Engine}$ (g/bhp-hr) × 1 lbm/453.6 g

IC Engine Daily and Annual PE2 for ATC Permit N-8534-6-0			
Pollutant	**Operating Time (hr/year)**	**$EF_{IC\ Engine}$ (g/bhp-hr)**	**$PE2_{IC\ Engine}$ lb/year**
NOx	1,258	2.31	**6,086**
CO	1,258	0.075	**198**
VOC	1,258	0.03	**79**
PM_{10}	1,258	0.03	**79**
SOx	1,258	0.0048	**13**

Total Annual PE2:
The total annual emissions are the combined total from the grinding and handling of the process materials and the combustion of diesel fuel in the 950 bhp IC engine. Therefore:

Annual $PE2_{Total/N-8534-6-0}$ = Annual $PE2_{PM10/Grinding\ \&\ Handling}$ + Annual $PE2_{IC\ Engine}$

Total Daily and Annual PE2 for ATC Permit N-8534-6-0			
Pollutant	**$PE2_{PM10/Grinding\ \&\ Handling}$**	**$PE2_{IC\ Engine}$**	**$PE2_{Total/N-8534-6-0}$**
	lb/year	**lb/year**	**lb/year**
NOx	0	6,086	**6,086**
CO	0	198	**198**
VOC	0	79	**79**
PM_{10}	391	79	**470**
SOx	0	13	**13**

N-8534-9-0: COMPOST SCREENING OPERATION CONSISTING OF A TRANSPORTABLE MCCLOSKEY MODEL 733RE TROMMEL SCREEN POWERED BY A 174 BHP CATERPILLAR MODEL C4.4 (TIER 4 FINAL CERTIFIED) DIESEL-FIRED IC ENGINE

General Calculations

A. Assumptions

1. Particulate matter (PM) will be emitted from the loading, conveying, and screening of the compost materials.
2. PM emissions will be minimal due to the maintained moisture content with the use of a water sprinkler system to maintain visible emissions to ≤ 5% opacity (proposed by applicant).
3. NOx, CO, VOC, PM10, and SOx will be emitted due to the combustion of diesel fuel from the DICE powering the trommel screen.

Operating parameters for the 174 bhp DICE engine:

Operating Schedule:	9.0 hr/day & 2,816 hrs/year
Fuel Consumption Rate:	7.95 gal/hr @ 100% load
Density of Diesel Fuel:	7.1 lb/gal
Sulfur Content of fuel:	0.0015 % by weight
kW-hr / bhp-hr conversion:	0.745701 kW-hr / bhp-hr

To streamline emission calculations, PM2.5 emissions are assumed to be equal to PM10 emissions. Specific PM2.5 emission calculations will only be performed if needed to determine if a project is a Federal major modification.

B. Emission Factors

1. Currently the EPA has suspended the AP-42 emission factors for wood product lumber processing operations. The District is not aware of any generally accepted wood waste or green waste receiving and transfer point emission factors. Therefore, the District will assume the AP-42 crushed stone emission factors as a conservative estimate as utilized under District project #C-1073961 for outdoor organic waste material handling and conveyor transfer points with water spray PM_{10} control efficiency of 70%. This emission factor was previously used for this facility's permit unit 4. Therefore:

$EF_{PM10\ Controlled\text{-}Handling/Transfer}$ = 0.00033 lb-PM_{10}/wet ton

2. PM_{10} emission rate from the controlled (with a water sprinkler system) material screening of the organic waste material will be 0.003 lb-PM_{10}/ton of material processed (Ref. Project # C-1073961). This emission factor was previously used for this facility's permit unit 4. Therefore:

$EF_{PM10\ Screening}$ = 0.003 lb-PM_{10}/wet ton

3. For the new diesel-fired IC engine, the emissions factors for NO_X, CO, VOC, and PM_{10} are provided by the applicant and are guaranteed by the engine manufacturer. The SO_X emission factor is calculated using the sulfur content in the diesel fuel (0.0015% sulfur).

Diesel-fired IC Engine Emission Factors		
Pollutant	**g/hp·hr**	**Source**
NO_X	0.2059	Current PTO
*SO_X	0.0051	Mass Balance Equation Below
PM_{10}	0.0147	Current PTO
CO	0.0221	
VOC	0.007457	

$$\frac{0.000015\ lb \cdot S}{lb \cdot fuel} \times \frac{7.1\ lb \cdot fuel}{gallon} \times \frac{2\ lb \cdot SO_2}{1\ lb \cdot S} \times \frac{1\ gal}{137{,}000\ Btu} \times \frac{1\ hp\ input}{0.35\ hp\ out} \times \frac{2{,}542.5\ Btu}{hp \cdot hr} \times \frac{453.6\ g}{lb} = 0.0051 \frac{g \cdot SO_x}{hp \cdot hr}$$

C. Annual Potential to Emit Calculations

Compost Screening and Handling

The potential to emit for emissions associated with compost handling and screening are calculated as follows, and summarized in the table below:

$PE2_{PM10}$ = # of Transfer Points ∗ Processing Rate ∗ Emission Factor

Process Description	# of Transfer Points	Processing Rate (ton/year)	EF (lb-PM_{10}/ton)	Annual $PE2_{Screening\ \&\ Handling}$ (lb-PM_{10}/year)
Material Loading into the Trommel	1	95,000	0.00033	31.35
Material Screening	1	95,000	0.003	285.00
Material conveying to the Storage Piles.	1	95,000	0.00033	31.35
Total Annual PM_{10} Emissions from Screening & Handing				**348**

DICE Emissions

The potential to emit for emissions associated with the DICE are calculated as follows, and summarized in the table below:

Annual PE2 (lb-pollutant/yr) = EF (g-pollutant/bhp-hr) x rating (bhp) x operation (hr/yr) / 453.6 g/lb

DICE Post Project Emissions (PE2)				
Pollutant	**Emissions Factor (g/bhp-hr)**	**Rating (bhp)**	**Annual Hours of Operation (hrs/year)**	**Annual PE2 (lb/yr)**
NO_x	0.2059	174	2,816	**222**
SO_x	0.0051	174	2,816	**6**
PM_{10}	0.0147	174	2,816	**16**
CO	0.0221	174	2,816	**24**
VOC	0.007457	174	2,816	**8**

Annual Post Project Emissions are summarized in the tables below:

Pollutant	**Annual $PE2_{Handling\ \&\ Screening}$ (lb/year)**	**Annual $PE2_{IC\ Engine}$ (lb/year)**	**Annual $PE2_{Total/N-8534-9-0}$ (lb/year)**
NOx	0	222	**222**
Sox	0	6	**6**
PM_{10}	348	16	**364**
CO	0	24	**24**
VOC	0	8	**8**

APPENDIX I
Napa Recycling & Waste Services, Inc. Source Test Summary

SOURCE TEST REPORT
2021 QUARTERLY COMPOST EMISSIONS TESTING - 1ST QUARTER
NAPA RECYCLING & WASTE SERVICES, INC.
CASP COMPOSTING SYSTEM
AMERICAN CANYON, CALIFORNIA

Prepared For:

Napa Recycling & Waste Services, Inc.
820 Levitin Way
American Canyon, CA 94503

For Submittal To:

Bay Area Air Quality Management District
375 Beale St, Suite 600
San Francisco, California 94105

Prepared By:

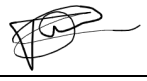
Montrose Air Quality Services, LLC
2825 Verne Roberts Circle
Antioch, CA 94509

Document Number:	**W005AS-005315-RT-1334R1 (NST-6253)**
Test Dates:	**January 6 & 7, 2021**
Submittal Date:	**March 4, 2021**

ACCREDITED TO ASTM D7036 ONLY CERT #3925.01

REVIEW AND CERTIFICATION

All work, calculations, and other activities and tasks performed and presented in this document were carried out by me or under my direction and supervision. I hereby certify that, to the best of my knowledge, Montrose operated in conformance with the requirements of the Montrose Quality Management System and ASTM D7036-04 during this test project.

Signature:  Date: 03 / 04 / 2021

Name: Robert Odell Title: Vice President, Technical

I have reviewed, technically and editorially, details, calculations, results, conclusions, and other appropriate written materials contained herein. I hereby certify that, to the best of my knowledge, the presented material is authentic, accurate, and conforms to the requirements of the Montrose Quality Management System and ASTM D7036-04.

Signature: Dan Duncan Date: 03 / 04 / 2021

Name: Dan Duncan Title: Reporting Hub Manager

1.0 INTRODUCTION

1.1 SUMMARY OF TEST PROGRAM

Napa Recycling & Waste Services, Inc. (Napa) subcontracted Montrose Air Quality Services, LLC (Montrose) to perform a compliance emissions test program on the Covered Aerated Static Pile (CASP) composting system at their facility located in American Canyon, California. The tests are conducted to demonstrate compliance with Application No. 27180 at plant No. 17403 issued by Bay Area Air Quality Management District (BAAQMD).

The specific objectives are to:

- Measure emission rates of non-methane, non-ethane organic compounds & ammonia
- Identify and measure which compounds are being emitted through the biofilter
- Conduct the test program with a focus on safety

Montrose provided the test personnel and the necessary equipment to measure emissions as outlined in this test plan. Facility personnel provided the process and production data included in the final report. A summary of the test program and testing schedule is presented in Tables 1-1 and 1-2 respectively.

TABLE 1-1
SUMMARY OF TEST PROGRAM

Activity/ Parameters	Test Methods	No. of Runs	Duration (Minutes)
Moisture	Wet-Bulb / Dry-Bulb Temp.	13	60 min
O_2, CO_2	EPA 3C	13	60 min
Methane & Ethane	EPA 18M	13	60 min
Speciated VOCs – Full List plus naphthalene, propylene, & IPA	TO-15	13	60 min
Non-Methane, Non-Ethane Organic Compounds as NPOC	SCAQMD 25.3	13	60 min
Ammonia	SCAQMD 207.1	13	60 min

Note: Daily field blanks were also collected but are not reflected in this table count.

To simplify this report, a list of Units and Abbreviations is included in Appendix D.1. Throughout this report, chemical nomenclature, acronyms, and reporting units are not defined. Please refer to the list for specific details.

This report presents the test results and supporting data, descriptions of the testing procedures, descriptions of the facility and sampling locations, and a summary of the quality assurance procedures used by Montrose. The maximum possible emission test results are summarized and compared to their respective permit limits and the previous quarterly test results in Table 1-3. Detailed results for individual test runs can be found in Section 4.0. All supporting data can be found in the appendices.

The testing was conducted by the Montrose personnel listed in Table 1-4. The tests were conducted according to the test plan (protocol) dated December 4, 2020 that was submitted to and approved by the BAAQMD. The test program was assigned NST-6253.

TABLE 1-2
TEST SCHEDULE

Day	Parameter	Sample Runs	Sample Duration
Wednesday January 6, 2021	Static Curing Pile (Age: 5-10 days)	--	--
	Canister 1: SCAQMD 25.3	1, 2, 3 of 3	60 minutes
	Canister 2: EPA 3C & 18M, TO-15	1, 2, 3 of 3	60 minutes
	Ammonia: SCAQMD 207.1	1, 2, 3 of 3	60 minutes
	CASP Curing Pile (Age: 5-10 days)	--	--
	Canister 1: SCAQMD 25.3	1, 2, 3 of 3	60 minutes
	Canister 2: EPA 3C & 18M, TO-15	1, 2, 3 of 3	60 minutes
	Ammonia: SCAQMD 207.1	1, 2, 3 of 3	60 minutes
	CASP Compost Pile (Age: 0-5 days)	--	--
	Canister 1: SCAQMD 25.3	1 of 3	60 minutes
	Canister 2: EPA 3C & 18M, TO-15	1 of 3	60 minutes
	Ammonia: SCAQMD 207.1	1 of 3	60 minutes
	CASP Curing Pile (Age: >15 days)	--	--
	Canister 1: SCAQMD 25.3	1 of 3	60 minutes
	Canister 2: EPA 3C & 18M, TO-15	1 of 3	60 minutes
	Ammonia: SCAQMD 207.1	1 of 3	60 minutes
	Daily Field Blank	--	--
	Canister 1: SCAQMD 25.3	1 of 2	--
	Canister 2: EPA 3C & 18M, TO-15	1 of 2	--
	Ammonia: SCAQMD 207.1	1 of 2	--
Thursday January 7, 2021	CASP Compost Pile (Age: 0-5 days)	--	--
	Canister 1: SCAQMD 25.3	2, 3 of 3	60 minutes
	Canister 2: EPA 3C & 18M, TO-15	2, 3 of 3	60 minutes
	Ammonia: SCAQMD 207.1	2, 3 of 3	60 minutes
	CASP Curing Pile (Age: 5-10 days)	--	--
	Canister 1: SCAQMD 25.3	1, 2 of 2	60 minutes
	Canister 2: EPA 3C & 18M, TO-15	1, 2 of 2	60 minutes
	Ammonia: SCAQMD 207.1	1, 2 of 2	60 minutes
	CASP Curing Pile (Age: >15 days)	--	--
	Canister 1: SCAQMD 25.3	2 of 2	60 minutes
	Canister 2: EPA 3C & 18M, TO-15	2 of 2	60 minutes
	Ammonia: SCAQMD 207.1	2 of 2	60 minutes
	Daily Field Blank	--	--
	Canister 1: SCAQMD 25.3	2 of 2	--
	Canister 2: EPA 3C & 18M, TO-15	2 of 2	--
	Ammonia: SCAQMD 207.1	2 of 2	--

TABLE 1-3
SUMMARY OF AVERAGE COMPLIANCE RESULTS

Parameter/Units	Q1: 01/2021 Maximum Emissions[1]	Q4: 11/2020 Maximum Emissions[1]	Q3: 08/2020 Maximum Emissions[1]	Q2: 06/2020 Maximum Emissions[1]	Emission Limits
Annual Throughput, tons/yr	--	--	--	--	63,590
Ammonia					
lb/ton	0.03	0.09	0.07	0.23	0.49
lb/yr	1,667	5,998	4,352	14,412	--
ton/yr	0.8	3.0	2.2	7.2	15.6
lb/hr	0.2	0.7	0.5	1.6	6.4
POC (TNMNEOCs)					
lb/ton	0.03	0.08	0.20	0.22	1.6
lb/yr	2,027	5,041	12,693	13,766	--
ton/yr	1.0	2.5	6.4	6.9	50
lb/hr	0.2	0.6	1.5	1.6	20
Propene (Propylene)[3]					
lb/ton	2.01E-04	1.38E-04	9.50E-05	6.82E-05	--
lb/yr	1.28E+01	8.77E+00	6.04E+00	4.34E+00	3.15E+02
ton/yr	6.40E-03	4.39E-03	3.02E-03	2.17E-03	--
lb/hr	1.46E-03	1.00E-03	6.90E-04	4.95E-04	6.56E-02
Methanol[2]					
lb/ton	3.65E-05	1.79E-04	3.42E-04	2.80E-04	--
lb/yr	2.32E+00	1.14E+01	2.17E+01	1.78E+01	1.83E+04
ton/yr	1.16E-03	5.70E-03	1.09E-02	8.90E-03	--
lb/hr	2.65E-04	1.30E-03	2.48E-03	2.03E-03	3.82E+00
Isopropanol[2]					
lb/ton	6.84E-05	3.36E-04	6.41E-04	4.87E-04	--
lb/yr	4.35E+00	2.14E+01	4.08E+01	3.10E+01	6.06E+04
ton/yr	2.18E-03	1.07E-02	2.04E-02	1.55E-02	--
lb/hr	4.97E-04	2.44E-03	4.65E-03	3.54E-03	1.26E+01
Naphthalene[4]					
lb/ton	2.15E-04	9.79E-04	2.10E-03	1.08E-03	--
lb/yr	1.37E+01	6.23E+01	1.34E+02	6.86E+01	7.16E+02
ton/yr	6.83E-03	3.11E-02	6.68E-02	3.43E-02	--
lb/hr	1.56E-03	7.11E-03	1.52E-02	7.83E-03	1.49E-01
Acetaldehyde[2]					
lb/ton	5.01E-05	2.47E-04	4.70E-04	3.57E-04	--
lb/yr	3.19E+00	1.57E+01	2.99E+01	2.27E+01	2.00E+02
ton/yr	1.59E-03	7.84E-03	1.49E-02	1.14E-02	--
lb/hr	3.64E-04	1.79E-03	3.41E-03	2.59E-03	4.18E-02

1 Emission results are calculated using the maximum permitted annual throughput to represent the maximum emissions rates. All results were below their respective permitted limits.
2 Analyte was not detected in any samples during Q1, Q2, Q3, or Q4.
3 Propylene was detected during Q1, Q3, and Q4 but not detected in any samples during Q2.
4 Naphthalene was detected in a single sample during Q1 and Q2 and not detected in any samples during Q3 or Q4.

2.0 PLANT AND SAMPLING LOCATION DESCRIPTIONS

2.1 PROCESS DESCRIPTION, OPERATION, AND CONTROL EQUIPMENT

Napa Recycling and Waste Services composts materials from the following feedstock sources: food waste (included packaged organics), yard waste, grape pumace, manure, wood waste, and digestate. Feedstock is processed through a green waste processing line and blended to attain the physical and chemical characteristics that are ideal for microbial decomposition. The composting processes currently permitted under Permit No. 27180 for Plant No. 17403 include a Covered Aerated Static Pile (CASP) composting system on an elevated concrete surface and associated curing system made of unaerated curing piles built to BAAQMD-specified dimensions. The first phase of active aerated composting requires at least 6 inches thick of bio-filter media composed of BAAQMD-approved materials such as processed wood chips, unscreened finished/mature compost product, or compost overs. This bio-filter media covers the surface of each active zone throughout the 22-day active phase. Once the active phase is complete the material is tested for stability and prepared to transition from active to curing. The 40-day curing phase may occur in an aerated CASP zone or in an unaerated curing pile. The CASP system consists of three individual components: 1) twenty aerated zones with automatic temperature probes and manually-placed automatic irrigation system; 2) a compost aeration system equipped with four fan groups (one fan/duct system per five zones), automatically/manually-controlled dampers at each zone, and zone in-floor aeration spargers; and 3) a bio-filter cover media for odor and organic emissions control. The aeration system provides metabolic oxygen and cooling air to the twenty CASP zones via in-floor spargers which deliver positively pressurized air upward from the floor to the top of the composting material. The gaseous products of decomposition within the active piles are withdrawn by applying a positive static pressure to the base of the pile using an aeration fan and positively pressurized supply duct. The minimum 62-day composting process yields mature material that is screened to produce compost products. See Figure 2-1 for CASP schematic layout. Figure 2-2 illustrates a more detailed diagram of the compost aeration system.

Table 2-1 outlines the approximate composting cycle parameters used in the emission factor calculations.

TABLE 2-1
COMPOST CYCLE PARAMETERS
NAPA RECYCLING & WASTE SERVICES, LLC

Parameter	Active CASP	Curing CASP	Static CASP
Cycle Length, days/cycle	22	40	40
Zone Volume, ft^3	24,300	24,300	8,953
Est. Zone Tonnage, tons/cycle	382.5	382.5	140.9
Typical Number of zones	14	4	20