



OCT 19 2018

Helia van der Vis
Turning Leaf Organics
25948 Road 92
Tulare, CA 93274

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: C-9196
Project Number: C-1171609

Dear Ms. van der Vis:

Enclosed for your review and comment is the District's analysis of Turning Leaf Organics's application for an Authority to Construct for the construction of a co-composting operation, at 25948 Road 92, Tulare.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. 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 (559) 230-5887.

Sincerely,



Arnaud Marjollet
Director of Permit Services

AM:jy

Enclosures

cc: Tung Le, CARB (w/ enclosure) via email

Samir Sheikh
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Co-Composting Operation

Facility Name:	Turning Leaf Organics	Date:	October 18, 2018
Mailing Address:	25948 Road 92 Tulare, CA 93274	Engineer:	John Yoshimura
Contact Person:	Helia van der Vis	Lead Engineer:	Joven Refuerzo
Telephone:	(559) 467-8456		
E-Mail:	helia@turningleaforganics.com		
Application #:	C-9196-1-0		
Project #:	C-1171609		
Deemed Complete:	July 19, 2017		

I. Proposal

Turning Leaf Organics has requested an Authority to Construct (ATC) permit for a co-composting (dairy manure and green waste) composting operation. The applicant has proposed to compost a maximum of 20,000 tons of manure per year, 5,000 tons of green waste per year, and may have 25,000 tons of compost on site on any given day. The applicant has proposed to use sprinklers when building or turning the compost windrows to reduce PM₁₀ emissions and apply either a waterproof cover or finished compost cover over the compost windrows to reduce VOC and NH₃ emissions.

II. Applicable Rules

Rule 1081	Source Sampling (12/16/93)
Rule 2010	Permits Required (12/17/92)
Rule 2020	Exemptions (12/18/14)
Rule 2201	New and Modified Stationary Source Review Rule (2/18/16)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
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 4201	Particulate Matter Concentration (12/17/92)
Rule 4202	Particulate Matter – Emission Rate (12/19/92)
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)
California Health & Safety Code Section 41700 (Public Nuisance)
California Health & Safety Code Section 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 25948 Road 92 in Tulare, CA. 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

Composting is the aerobic decomposition of organic materials by microorganisms under controlled conditions into a soil-like substance called compost.

Turning Leaf Organics has proposed to compost up to 25,000 wet-tons of material per year. The composting will be performed using covered windrows and each windrow will be turned (by windrow turner) up to ten times, depending on the temperature and moisture content, over the expected 90-day active phase. If a waterproof cover is used, employees will pull the cover back to allow the compost to be turned, then recover each windrow. If a finished compost cover is used, a 6 inch layer of finished compost, i.e. a "cap", will be applied over the windrow by means of a truck after each turning. At any one time, there may be up to 22 active windrows (i.e. active or curing phase). No screening of the manure prior to composting or of the finished compost will be performed.

The facility has proposed to use a waterproof cover or finished compost cover to trap VOC, NH₃, dust, or bacteria. The cover also serves as an insulating barrier between the windrow and its environment, isolating it from the weather, liquid water, pests, and heat loss.

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 NH₃ 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.

Upon completion of the active phase, the organic material has minimal odor and has been reduced in volume by 10 – 25%. 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 screening, storage, and loadout.

V. Equipment Listing

C-9196-1-0: CO-COMPOSTING OPERATION WITH SPRINKLER SYSTEM AND EITHER A WATERPROOF OR FINISHED COMPOST COVER SERVING THE ACTIVE AND CURING PHASES, MANURE AND GREEN WASTE RECEIVING, AND FINISHED COMPOST LOADOUT OPERATION

VI. Emission Control Technology Evaluation

The co-composting operation produces VOC, NH₃, and PM₁₀ emissions. There is also the potential for other odorous emissions. To minimize VOC and NH₃ emissions, the facility will utilize good management practices listed in District Rule 4565. The applicant is required by Rule 4565 to implement four Class One mitigation measures, as shown below:

- Measure #1 – Scrape or sweep, at least once per day, all areas where compostable material is mixed, screened, or stored.
- Measure #2 – Maintain a minimum oxygen concentration of at least five percent (5%), by volume, in the free air space of every active and curing compost pile.
- Measure #3 – Maintain the moisture content of every active and curing compost pile between 40% and 70%, by weight.
- Measure #4 – Manage every active pile such that the initial carbon to nitrogen ratio of every pile is at least twenty (20) to one (1).

The facility is proposing to use a waterproof cover or finished compost cover for the control of air contaminants. If finished compost is used, the compost cap acts as a pseudo-biofilter. During the composting process, when emissions from the pile migrate into the finished compost layer, they are degraded by microorganisms present in the finished compost. If a waterproof cover is used, a film of condensate develops on the inside of the cover. The VOC emitted from the compost are alcohols, which have a high water solubility, facilitating their transfer back into liquid water. Gaseous pollutants dissolve in this film, which ultimately drips back into the composting material where the dissolved organics and NH₃ continue to be broken down by micro-organisms. In this water, the cover retains potential air contaminants and gives biological processes the time to more fully decompose them. The District has assumed a finished compost cap controls 56% of the VOC and NH₃ emissions¹. District Rule 4565 lists a waterproof cover and finished compost cover as an equivalent mitigation measure, therefore, the District will assume a waterproof cover controls 56% of the VOC and NH₃ emissions as well.

For PM₁₀ emissions (fugitive dust), the facility has proposed to use a water sprinkler system, as needed, to control emissions during the mixing and turning of the composted materials. Fugitive dust (PM₁₀) emissions from the windrows are controlled by the high moisture content of the

¹ The effect of a finished compost cap on green waste composting has been studied by the CIWMB (CalRecycle) with support from South Coast AQMD in Best Management Practices for Green waste Composting Operations (2003); and in a District Technology Advancement Program study, Green waste Compost Site Emissions Reductions from Solar Powered Aeration and Biofilter Layer (2012-2013). In the CalRecycle study, NH₃ measurements were generally below the detection limit, from which they concluded NH₃ should not be a regulatory concern for green waste composting. In the District study, the finished compost cover reduced NH₃ emissions by 53-83% compared to 98% for VOC. However, the baseline NH₃ emissions against which the % reductions were measured were already very low for NH₃ emissions; therefore, the results may not be representative for a composting operation where the NH₃ emissions are known to be significantly greater than for green waste composting.

composting material (typically 40% to 65%) and by facility sprinkling when required. The District assumes implementing this measure will reduce PM₁₀ emissions by 70%.

VII. General Calculations

A. Assumptions

Manure and Green waste Receiving and Storage

1. The manure and green waste receiving and transport is a source of PM emissions.
2. This operation will qualify as a low emitting unit under Rule 2020, Exemptions, Section 6.19 and is therefore exempt from permits. The uncontrolled potential to emit, shown in Section VII.C.2, will be below 75 lb-PM² per year.
3. The maximum amount of manure received daily is 100 tons (per applicant).
4. The maximum amount of manure received annually is 25,000 tons, i.e. equal to the permitted amount of manure that may be composted (per applicant).
5. The number of material transfer points will be two: (1) from truck to manure pile, and (2) from manure pile to compost windrows.
6. The maximum time the manure will spend in a storage pile prior to being transferred to a compost pile is 18 hours (per applicant).

Windrow Building and Turning

1. The windrow building and turning is a source of PM emissions.
2. The maximum amount of co-compost used to build windrows or turned on any given day is 25,000 tons, i.e. equal to the permitted amount of manure that may be composted (per applicant).
3. The applicant has proposed to sprinkle water to maintain adequate moisture content of the process materials to prevent visible emissions in excess of 5% opacity when turning or building the compost windrows. The District assumes implementing this measure will reduce PM₁₀ emissions by 70%.

Co-Composting

1. VOC and NH₃ will be emitted from the windrows during the active and curing phases.
2. Fugitive PM₁₀ will be emitted during the building of the windrow and from the turning of material by the windrow turner. The windrows will be turned a maximum of 10 times (per applicant).
3. Green waste may include bulking agent, which is a carbon-based material that adds structure (or bulk) to the compost (examples include wood chips, wood shavings, and dry leaves).
4. Co-compost material shall consist of 20,000 wet-tons/year of manure and 5,000 wet-tons/year of green waste (per applicant)
5. Maximum amount of material composting at any one time = 25,000 wet-tons/day (per applicant).
6. The material will be composted 120 days (per applicant).
7. The baseline emission factors for open windrow co-composting, 1.78 lb-VOC/wet-ton and 2.93 lb-NH₃/wet-ton, will be applied to the 120-day cycle.
8. The applicant proposes to use a finished compost cover or waterproof cover, which is equivalent to a finished compost cap, for both the active and curing phases. The

² PM rather than PM₁₀ will be calculated since PM is the pertinent air contaminant for purposes of the "low emitting unit" exemption in Rule 2020.

proposed mitigation will reduce VOC emissions by 56% per Rule 4565 Staff Report, Appendix B (2007). There is no data on the effect of a finished compost cap on NH₃ emissions from manure composting. Source test data on the biofilter from South Kern Industrial Center (S-4212) where they compost biosolids shows that a biofilter reduces NH₃ by a percentage comparable to VOC. Therefore, in this project, the assumption will be made that the finished compost cap reduces NH₃ by the same percentage as VOC.

Finished Compost Storage and Loadout

1. The finished compost stockpiling and loadout is a source of PM emissions.
2. This operation will qualify as a low emitting unit under Rule 2020, Exemptions, Section 6.19 and is therefore exempt from permits. The uncontrolled potential to emit, shown in Section VII.C.2, will be below 75 lb-PM per year.
3. The maximum amount of finished compost that will be loaded out in one year is 25,000 tons, i.e. equal to the permitted amount of manure that may be composted. Since there is a mass reduction that takes place during the composting process, the amount of finished compost produced must be less than 15,000 tons per year. However, as a conservative assumption, no mass reduction will be assumed.
4. The number of material transfer points after the material has completed composting will be two: (1) from compost pile to truck, and (2) either from the truck applied to the field or taken off-site.

B. Emission Factors

Co-Compost Feedstock Storage Emission Factors

The District is not aware of reliable VOC or NH₃ emission factors specifically for the storage or stockpiling of manure, co-composting biosolids, or litter. Therefore, the District has not formally adopted a general purpose VOC or NH₃ emission factor for the storage of manure, co-composting biosolids, or litter. However, as shown in project N-1150015, the District derived VOC and NH₃ emissions factors based on a 2007 source test conducted at Los Angeles County Sanitation District's Joint Water Pollution Control Plant. The following table summarizes the derived emission factors for manure, co-composting biosolids, or litter:

Manure Feedstock Stockpiling Emission Factors (Uncontrolled)		
Pollutant	lb/wet-ton-day	lb/wet-ton-hr
VOC	0.026	0.0011
NH ₃	0.011	0.0005

Co-Composting Emission Factors

The District is not aware of reliable VOC or NH₃ emission factors specifically for manure composting. Therefore, the VOC emission factor used in this project will be the co-composting emission factor indicated in the District's report "Compost VOC Emission Factors" (2010), Table 1. This emission factor is also cited in South Coast AQMD Rule 1133.2, Emission Reductions from Co-composting Operations as the approved baseline VOC emission factor for uncontrolled, unmitigated windrow co-composting with biosolids and animal manure.

The District's report "Compost VOC Emission Factors" (2010) does not recommend a composting emission factor for NH₃, although in Table 5 of the report, South Coast AQMD's emission factor for NH₃ is included. This NH₃ emission factor is also referenced in South

Coast AQMD Rule 1133.2, Emission Reductions from Co-composting Operations. Therefore, in the absence of a District recommended factor, this project will use the South Coast AQMD NH₃ emission factor. This NH₃ emission factor is based on the same source tests as the VOC emission factor.

Baseline Uncontrolled Emission Factors for Co-Composting			
Pollutant	Emission Source	Uncontrolled Emission Factors (lb/wet-ton)	Source
VOC	Active and Curing Phases Combined	1.78	Compost VOC Emission Factors, Table 1 (SJVAPCD Report, 9/15/10)
NH ₃	Active and Curing Phases Combined	2.93	Compost VOC Emission Factors, Table 5 (SJVAPCD Report, 9/15/10) and South Coast AQMD, Rule 1133.2

Derivation of Overall Control Efficiency

The applicant has proposed a waterproof cover or finished compost cover for the active and curing phases of composting. Since the control proposed by the applicant applies to both the active and curing phases, the control efficiency achieved by a finished compost cap (56% for VOC and NH₃) can be applied directly to the baseline uncontrolled emission factors indicated in the table above as a shortcut.

Nevertheless, as this project may serve as a template for the next composting project, the following paragraphs will explain each step of the derivation of an overall VOC (and NH₃) control efficiency, which will be necessary in projects where different controls or mitigations are proposed for active and curing phases.

SCAQMD Technology Assessment Report for Rule 1133, Emission Reductions from Composting and Related Operations, indicates 80% of the VOC emissions and 50% of the NH₃ emissions occur during the active phase, and 20% of the VOC and 50% of the NH₃ occur during the curing phase for co-composting operations.

The overall control VOC efficiency³ =

$$(weight\ fraction\ of\ VOC\ emissions\ from\ active\ phase \times VOC\ control\ efficiency)_{active\ phase} + (weight\ fraction\ of\ VOC\ emissions\ from\ curing\ phase \times VOC\ control\ efficiency)_{curing}$$

$$\text{The overall control VOC efficiency} = (0.80 \times 0.56)_{active\ phase} + (0.20 \times 0.56)_{curing} = 0.56$$

The overall control NH₃ efficiency =

$$(weight\ fraction\ of\ NH_3\ emissions\ from\ active\ phase \times NH_3\ control\ efficiency)_{active\ phase} + (weight\ fraction\ of\ NH_3\ emissions\ from\ curing\ phase \times NH_3\ control\ efficiency)_{curing}$$

$$\text{The overall control } NH_3 \text{ efficiency} = (0.50 \times 0.56)_{active\ phase} + (0.50 \times 0.56)_{curing} = 0.56$$

³ An additional factor, "collection efficiency" would be included in this equation for a control technology such as negative aerated static piles venting to a control device. For a finished compost cap, vapors are not collected; therefore, there is not a separate variable. The % reductions attributed to the finished compost cap is in comparison to an uncontrolled window.

Feedstock and Co-Compost Transfer

The emission factor is based on AP-42, 11.19.1 Sand and Gravel Processing, (8/04) and has been used on a number of composting projects including Sanitation Districts of Los Angeles County, facility C-6048, projects C-1073961, C-1101871, C-1111582 and Mid Valley Disposal, project C-1141302.

Uncontrolled Emission Factors for Feedstock and Co-Compost Transfer			
Pollutant	Emission Source	Emission Factor	Source
PM ₁₀	Transfer Point	0.00033 lb-PM ₁₀ /wet-ton	AP-42, Table 11.19.2-2, Crushed Stone (uncontrolled) (amended 8/04)

Windrow Turning and Building

The emission factor is based on AP-42, 11.19.1 Sand and Gravel Processing, (8/04) and has been used on a number of composting projects including Sanitation Districts of Los Angeles County, facility C-6048, projects C-1073961, C-1101871, C-1111582 and Mid Valley Disposal, project C-1141302.

The applicant has proposed to sprinkle water to maintain adequate moisture content of the process materials to prevent visible emissions in excess of 5% opacity when turning or building the compost windrows. The District assumes implementing this measure will reduce PM₁₀ emissions by 70%.

Controlled Emission Factors for Co-Compost Windrow Turning and Building			
Pollutant	Emission Source	Emission Factor	Source
PM ₁₀	Transfer Point	0.000099 lb-PM ₁₀ /wet-ton	AP-42, Table 11.19.2-2, Crushed Stone (controlled w/ water spray control)

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since this is a new emissions unit, PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

Permit-Exempt Feedstock Material Receiving

The following calculation is performed for purposes of demonstrating the receiving operation is exempt from permitting requirements per Rule 2020, Section 6.19 as a low emitting unit having a daily uncontrolled potential to emit of less than or equal to 2 lb per day or an annual uncontrolled potential to emit of less than 75 lb per year of each air contaminant emitted (PM) and not causing a significant health risk to the nearest receptors (see discussion under Rules 2020 and 4102).

The facility has proposed to receive a maximum of 100 ton-manure/day and 25,000 ton-manure/year. Therefore, the PE for receiving is calculated as follows:

$$\text{Daily PE2}_{\text{PM10}} = \# \text{ Transfers/day} \times \text{Number of Windrows} \times \text{Windrow Size (tons)} \times \text{EF (lb-PM10/ton/transfer)}$$

Daily and Annual PE2 for PM₁₀ – Feedstock Material Receiving				
Pollutant	Transfer Points	Throughput	EF	PE2
PM ₁₀	1	100 wet tons/day	0.00033 lb-PM ₁₀ /wet-ton	0.0 lb/day
PM ₁₀	1	25,000 wet tons/year	0.00033 lb-PM ₁₀ /wet-ton	8 lb/year

Permit-Exempt Feedstock Material Storage

The following calculation is performed for purposes of demonstrating the receiving operation is exempt from permitting requirements per Rule 2020, Section 6.19 as a low emitting unit having a daily uncontrolled potential to emit of less than or equal to 2 lb per day or an annual uncontrolled potential to emit of less than 75 lb per year of each air contaminant emitted (PM) and not causing a significant health risk to the nearest receptors (see discussion under Rules 2020 and 4102).

The facility has proposed to receive a maximum of 100 ton-feedstock material/day and will store the feedstock material on site up to 6 hours before transferring the material to a compost windrow. Therefore, the PE for the feedstock storage is calculated as follows:

$$\text{Daily PE}_{2\text{PM}_{10}} = \text{Storage Time (hr/day)} \times \text{Daily Receiving Throughput (tons/day)} \times \text{EF (lb/ wet-ton-hr)}$$

Daily and Annual PE2 for PM₁₀ – Feedstock Material Storage				
Pollutant	Storage time (hr/day)	Daily Throughput (wet-ton/day)	EF (lb/wet-ton-hr)	PE2
VOC	18	100 wet-tons/day	0.0011	2.0 lb/day
NH ₃	18	100 wet-tons/day	0.0005	0.9 lb/day

Permit-Exempt Finished Compost Loadout

The following calculation is performed for purposes of demonstrating the stockpiling and loadout operation is exempt from permitting requirements per Rule 2020, Section 6.19 as a low emitting unit having a daily uncontrolled potential to emit of less than or equal to 2 lb per day or an annual uncontrolled potential to emit of less than 75 lb per year of each air contaminant emitted (PM) and not causing a significant health risk to the nearest receptors (see discussion under Rules 2020 and 4102).

The finished compost is a stable material, no longer undergoing decomposition. Therefore, the only emissions are PM from material handling.

- Maximum annual tons of finished compost loaded out = 25,000 tons
- Maximum number of transfer points from windrow to loadout = 2

$$\text{Annual PE}_{2\text{PM-Transfer}} = \text{Finished compost stockpiling and loadout (ton/year)} \times \text{EF}_{\text{PM Transfer Point (lb-PM/ton)}} \times \# \text{ Transfer Points}$$

$$\text{Annual PE}_{2\text{PM-Loadout}} = 25,000 \text{ ton/year} \times 0.00033 \text{ lb-PM/ton/transfer} \times 2 \text{ transfers}$$

$$\text{Annual PE}_{2\text{PM-Loadout}} = 17 \text{ lb-PM/year}$$

Windrow Building and Turning

PM₁₀ is emitted by (1) the transfer of material by the truck from the storage piles to windrows, and (2) turning of the windrows. Windrows will be turned up to 10 times over

the course of the 90 day composting cycle. Assuming the pile builder represents 1 material transfer point and each turning event of a windrow represents 1 transfer point, the material in each windrow over its composting life will be transferred 11 times. This number will be used to calculate the annual PE for PM₁₀.

The facility has proposed to use a water sprinkler to control PM₁₀ emissions and prevent visible emissions in excess of 5% opacity while building and turning the compost windrows. The District assumes implementing this measure will reduce PM₁₀ emissions by 70%.

For the daily PE₂, the worst case assumption is either 1 pile is built while the other 21 are turned on the same day, or, alternatively, all 22 piles are turned on the same day. The maximum amount of material transferred in one day is thus equal to 22 windrows × 1,136 tons/windrow = 25,000 wet-ton undergoing 1 drop point in a day.

$$\text{Daily PE}_{2\text{PM}_{10}} = \# \text{ Transfers/day} \times \text{Number of Windrows} \times \text{Windrow Size (tons)} \times \text{EF (lb-PM}_{10}\text{/ton/transfer)} \times \text{Sprinkler Control Efficiency}$$

$$\text{Annual PE}_{2\text{PM}_{10}} = \# \text{ Transfers} \times \text{Annual Throughput (ton/year)} \times \text{EF (lb-PM}_{10}\text{/ton/transfer)} \times \text{Sprinkler Control Efficiency}$$

Daily and Annual PE ₂ for PM ₁₀ - Windrow Building and Turning					
Pollutant	Transfer Points	Throughput	Emission Factor (lb/wet-ton)	Control Efficiency	PE ₂
PM ₁₀	1	25,000 wet tons/day	0.00033	70%	2.5 lb/day
PM ₁₀	11	25,000 wet tons/year	0.00033	70%	27 lb/year

Co-Composting

Daily PE₂ - VOC and NH₃

$$\text{Daily PE}_{2-\text{VOC}} = \text{Number of Windrows} \times \text{Windrow Size (tons)} \times \text{EF (lb-VOC/ton)} \times (1/\# \text{ Days Composted}) \times (1 - \text{Control Efficiency}/100)$$

$$\text{Daily PE}_{2-\text{NH}_3} = \text{Number of Windrows} \times \text{Windrow Size (tons)} \times \text{EF (lb-NH}_3\text{/ton)} \times (1/\# \text{ Days Composted}) \times (1 - \text{Control Efficiency}/100)$$

Since the same control method is being applied to both the active and curing phases, the PE calculation below will be based on the cycle as a whole, rather than breaking the calculation into active phase and curing phase.

After the start-up period, the maximum daily VOC and NH₃ emissions will be based on 22 windrows composting at one time with each windrow containing 1,136 tons of material.

Since the manure is generated onsite at a steady rate, it is reasonable to assume the compost piles will be built at a steady rate. Thus, the pile ages of the 22 windrows will be distributed uniformly over the 120 day composting cycle. Therefore, the emission factors for VOC and NH₃, which represent the VOC and NH₃ emissions over the whole cycle, will be divided by 120 days to calculate the daily PE.

Daily PE2 Co-Compost with Cover						
Pollutant	Piles	Capacity (tons)	Emission Factor (lb/wet-ton)	# Days Composted	Control Efficiency (%)	PE2 (lb/day)
VOC	22	1,136	1.78	120	56	163.1
NH ₃	22	1,136	2.93	120	56	268.5

Annual PE2 - VOC and NH₃

$$\text{Annual PE2 - VOC} = \text{Annual Throughput (wet-ton/year)} \times \text{EF (lb-VOC/wet-ton)}_{\text{cycle}} \times (1 - \text{Control Efficiency}/100)$$

$$\text{Annual PE2 - NH}_3 = \text{Annual Throughput (wet-ton/year)} \times \text{EF (lb-NH}_3\text{/wet-ton)}_{\text{cycle}} \times (1 - \text{Control Efficiency}/100)$$

Annual PE2 Co-Compost with Cover				
Pollutant	Annual Throughput (ton/year)	Emission Factor (lb-VOC/ton-cycle)	Control Efficiency (%)	PE2 (lb/year)
VOC	25,000	1.78	56	19,580
NH ₃	25,000	2.93	56	32,230

The total daily and annual emissions from windrow building and turning and composting are summarized in the table below.

Total Facility PE2		
Pollutant	Daily PE2 (lb/day)	Annual PE2 (lb/year)
PM ₁₀	2.5	27
VOC	163.1	19,580
NH ₃	268.5	32,230

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.

Since this is a new facility, there are no valid ATCs, PTOs, or ERCs at the Stationary Source; therefore, the SSPE1 is equal to zero.

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
C-9196-1-0	0	0	27	0	19,580	32,230
SSPE2	0	0	27	0	19,580	32,230

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)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year) (Non-Fugitive Emissions)						
	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC
SSPE1	0	0	0	0	0	0
SSPE2	0	0	27	27	0	19,580
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No	No

Note: PM_{2.5} assumed to be equal to PM₁₀

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.

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	0
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	N	N	N	N	N	N

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.

C-9196-1-0:

Since this is a new emissions unit, BE = PE1 = 0 for all pollutants.

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 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.

8. 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.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification.

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)

- PM
- PM10

I. Project Emissions Increase - New Major Source Determination

The post-project 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)(i). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO₂	VOC	SO₂	CO	PM	PM₁₀
Total PE from New and Modified Units	0.0	16.1	0.0	0.0	0.0	0.0
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

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

Section 1.0 Purpose

This rule specifies emissions units that are not required to obtain an Authority to Construct or Permit to Operate.

Section 2.0 Applicability

This rule shall apply to any source that emits or may emit air contaminants.

The feedstock receiving, feedstock storage, and finished compost loadout are sources of PM, which is an air contaminant; therefore, this rule applies.

Section 6.0 District Exempt Source Categories

Except as required by Section 5.0, no Authority to Construct or Permit to Operate shall be required for an emission unit specified below. All other equipment within that source category shall require an ATC or PTO.

None of the source categories in Sections 6.1 through 6.18 apply to feedstock receiving, feedstock storage, or finished compost loadout.

Section 6.19 Low Emitting Units⁵, except those which belong to a source category listed in Sections 6.1 through 6.18, shall not require an Authority to Construct or Permit to Operate.

⁵ Section 3.10 defines a Low Emitting Unit as an emissions unit with an uncontrolled emissions rate of each air contaminant,

1. Less than or equal to two pounds per day, or
2. If greater than two pounds per day, is less than or equal to 75 pounds per year.

- 6.19.1 Low Emitting Units, which belong to a source category listed in Sections 6.1 through 6.18, shall require an Authority to Construct or Permit to Operate unless they are specifically exempted in the applicable source category section.
- 6.19.2 Notwithstanding Sections 6.19 and 6.19.1, Low Emitting Units, with uncontrolled HAP emissions that may cause a significant health risk to the public, shall require an Authority to Construct or Permit to Operate.

As shown by the calculations performed in Section VII.C.2 of this application review, the feedstock receiving, feedstock storage, and finished compost loadout uncontrolled potential to emit totals will not be more than 75 lb-PM per year. The risk management review performed for this project shows the feedstock receiving, feedstock storage, and finished compost loadout operation will not cause a significant health risk to the public. Therefore, the feedstock receiving, feedstock storage, and finished compost loadout operations are exempt from permitting requirements as low emitting units.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

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 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 windrow building and turning operation with a PE greater than 2 lb/day for PM₁₀ emissions. Therefore, BACT is required for PM₁₀ emissions for the windrow building and turning operation.

The applicant is also proposing to install a new composting operation with a PE greater than 2 lb/day for VOC and NH₃ emissions. Therefore, BACT is required for VOC and NH₃ emissions for the co-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

This project is subject to BACT Guidelines 6.4.1 and 6.4.8, which applies to windrow building and turning and co-composting operations, respectively.

BACT Guideline 6.4.1 - Compost Materials - Screening, Transportable, Wood Waste Processing (See Appendix B)

BACT Guideline 6.4.11 – Co-Composting with Green and Food Materials and Manure < 100,000 wet-tons per year (See Appendix B)

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.

BACT 6.4.1 – Compost Materials – Screening, Transportable, Wood Waste Processing
Pursuant to the attached Top-Down BACT Analysis (see Appendix C), BACT 6.4.1 has been satisfied with the following:

PM₁₀: Use of a water sprinkler system or maintaining adequate moisture content of the process materials to prevent visible emissions in excess of 5% opacity

The following condition will be added to the ATC to ensure compliance with this requirement:

- Permittee shall sprinkle water over the windrows, when forming or turning, to maintain adequate moisture content of the compost materials to prevent visible emissions in excess of 5% opacity. [District Rule 2201]

BACT 6.4.11 – Co-Composting with Green and Food Materials and Manure < 100,000 wet-tons per year

Pursuant to the attached Top-Down BACT Analysis (see Appendix C), BACT 6.4.8 has been satisfied with the following:

VOC: Implement composting or co-composting facility mitigation measures pursuant to District Rule 4565

NH₃: Implement composting or co-composting facility mitigation measures pursuant to District Rule 4565

The following conditions will be added to the ATC to ensure compliance with this requirement:

- Permittee shall apply a waterproof cover or finished compost cover to each windrow within 3 hours of initial windrow formation and within 3 hours after turning the windrow. [District Rule 2201]
- Each day a windrow is formed or turned, the operator shall record (1) the windrow ID or lot number; (2) the date the windrow was formed or turned and the waterproof cover or finished compost cover applied; (3) the wet tons of co-compost in the windrow. The wet tons may be calculated from the volume of co-compost used upon first forming a windrow multiplied by the co-compost density. [District Rules 2201 and 4565]
- The permittee shall scrape or sweep, at least once a day all areas where compostable material is mixed, screened, or stored such that no compostable material greater than one inch (1") in height is visible in the areas scraped or swept immediately after scraping or sweeping, except for compostable material in process piles or storage piles. [District Rule 4565]
- The permittee shall maintain a minimum oxygen concentration of at least five percent (5%), by volume, in the free air space of every active and curing compost pile. [District Rule 4565]
- The permittee shall maintain the moisture content of every active and curing compost pile between 40% and 70%, by weight. [District Rule 4565]
- The permittee shall manage every active pile such that the initial carbon to nitrogen ratio of every pile is at least twenty (20) to one (1). [District Rule 4565]
- The permittee shall test the oxygen concentration of each active compost pile and each curing pile at least once each week using TMECC Method 05.08-C (In- Situ Oxygen Refresh Rate). [District Rule 4565]
- The permittee shall test the moisture content of each active compost pile at least once each week using TMECC Method 03.09. [District Rule 4565]
- The carbon to nitrogen ratio test shall be performed when the material is prepared for active composting using test method TMECC Method 05.02-A (Carbon to Nitrogen Ratio). Testing shall be done each day that materials are mixed. Samples shall be representative of the initial composition of the active compost pile. [District Rule 4565]

B. Offsets

1. Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to 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	0	0	62	0	19,580
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

2. Quantity of Offsets Required

As seen above, the SSPE2 is not greater than the offset thresholds for all the pollutants; therefore, offset calculations are not necessary, and offsets will not be required for this project.

C. Public Notification

1. Applicability

Public noticing is required for:

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

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

New Major Sources are new facilities, which are also Major Sources. As shown in Section VII.C.5 above, the SSPE2 is not greater than the Major Source threshold for any pollutant. Therefore, public noticing is not required for this project for new Major Source purposes.

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			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	0.0	100 lb/day	No
SO _x	0	100 lb/day	No
PM ₁₀	2.5	100 lb/day	No
CO	0.0	100 lb/day	No
VOC	163.1	100 lb/day	Yes
NH ₃	268.5	100 lb/day	Yes

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

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	0	0	20,000 lb/year	No
SO _x	0	0	54,750 lb/year	No
PM ₁₀	0	27	29,200 lb/year	No
CO	0	0	200,000 lb/year	No
VOC	0	19,580	20,000 lb/year	No
NH ₃	0	32,230	n/a	No

As detailed 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	0	0	0	20,000 lb/year	No
SO _x	0	0	0	20,000 lb/year	No
PM ₁₀	27	0	27	20,000 lb/year	No
CO	0	0	0	20,000 lb/year	No
VOC	19,580	0	19,580	20,000 lb/year	No
NH ₃	32,230	0	32,230	20,000 lb/year	Yes

As demonstrated above, the SSIPE for NH₃ is greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is 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 and NH₃ emissions in excess of 100 lb/day and NH₃ emissions for SSIPE > 20,000 lb/year. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation 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.

Proposed Rule 2201 (DEL) Conditions

- Only co-compost (a mixture of dairy manure and green waste) shall be composted. Dairy manure includes cow, bull, calf, and heifer excretions and waste, including, but not limited to, dried solids and urine from cows. Green waste includes vegetative material generated from gardening, agriculture, bulking agent, or landscaping activities including, but not limited to, a mixture of grass clippings, leaves, tree and shrub trimmings, and plant remains. [District Rule 2201]
- The combined amount of dairy manure and green waste received shall not exceed 100 wet-tons/day. [District Rules 2201 and 4565]
- The amount of co-compost shall not exceed 25,000 wet tons in any one day or any one calendar year. [District Rules 2201 and 4565]
- The amount of dairy manure received shall not exceed 20,000 wet-tons/calendar year. [District Rules 2201 and 4565]
- The amount of green waste received shall not exceed 5,000 wet-tons/calendar year. [District Rules 2201 and 4565]
- VOC emissions from composting shall not exceed either of the following limits: 163.1 lb/day or 19,580 lb/year. [District Rules 2201 and 4102]
- Ammonia (NH₃) emissions from composting shall not exceed either of the following limits: 268.5 lb/day or 32,230 lb/year. [District Rules 2201 and 4102]
- PM₁₀ emissions from material transfer shall not exceed either of the following limits: 2.5 lb/day or 27 lb/year. [District Rules 2201 and 4102]
- Permittee shall apply a waterproof cover or a finished compost cover to each windrow within 3 hours of initial windrow formation and within 3 hours after turning the windrow. [District Rules 2201 and 4565]
- Permittee shall sprinkle water over the windrows, when forming or turning, to maintain adequate moisture content of the compost materials to prevent visible emissions in excess of 5% opacity. [District Rule 2201]
- Permittee shall not stockpile manure and green waste for more than 18 hours prior to transferring the compost material to an active phase composting windrow. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

District Policy APR 1705, Source Testing Frequency, does not directly address composting operations; however, none of the general criteria for testing discussed in APR 1705, would apply to a composting operation making use of a finished compost cap as a control method.

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

The following recordkeeping requirements will ensure compliance with the assumptions used to calculate the potential to emit:

- Permittee shall keep daily records of the amount of time the compost material is stockpiled prior to transferring to an active phase composting windrow. [District Rule 2201]
- Each day a windrow is formed or turned, the operator shall record (1) the windrow ID or lot number; (2) the date the windrow was formed or turned and the waterproof cover or finished compost cover applied; (3) the wet tons of co-compost in the windrow. The wet tons may be calculated from the volume of co-compost used upon first forming a windrow multiplied by the co-compost density. [District Rules 2201 and 4565]
- Permittee shall maintain a daily record of the quantity (in tons/day) and type (i.e. green waste and animal manure) of each material received or generated onsite used in the co-composting operation. [District Rule 4565]
- 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 1070]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix D of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for the state's PM₁₀ as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM₁₀ and PM_{2.5}.

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 co-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 co-composting operations.

Rule 4101 Visible Emissions

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity).

The following condition will ensure compliance with the Rule 4101 requirements:

- Visible emissions shall not exceed 20% opacity for a period or periods aggregating more than three (3) minutes in any one (1) hour. [District Rule 4101]

Rule 4102 Nuisance

Rule 4102 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, compliance with this rule is expected.

The District nuisance prohibition authority is derived from the California Health and Safety Code, Section 41700.

41700. (a) Except as otherwise provided in Section 41705, a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property.

However, Section 41705 (a)(2) excludes odors emanating from composting operations from the nuisance prohibition authority in Section 41700:

41705. (a) Section 41700 does not apply to odors emanating from any of the following:

(2) Operations that produce, manufacture, or handle compost, as defined in Section 40116 of the Public Resources Code, if the odors emanate directly from the compost facility or operations.

The following condition will be included on the ATC to ensure compliance with this rule and the California Health and Safety Code:

- No air contaminant shall be released into the atmosphere which causes a public nuisance. This prohibition shall not apply to odors emanating from composting operations, which are not under the jurisdiction of the San Joaquin Valley Air Pollution Control District. [District Rule 4102 and CH&SC 41705 (a)(2)]

California Health & Safety Code 41700 (Health Risk Assessment)

The District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, 3/2/01) requires that a risk management review (RMR) be performed for all projects that result in any increases in emissions of hazardous air pollutants. Since this project may result in an increase in hazardous emissions exposure to nearby receptors, an RMR was performed.

According to the Technical Services Memo for this project (Appendix D), the total facility prioritization score including this project was less than 1.0. Therefore, no further analysis is required to determine the impact from this project. Compliance with the District's Risk Management Policy is expected.

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required?	Special Permit Requirements?
Unit '-1-0	2.86	0.95	0.05	2.94E-08	No	No
Project Totals	2.86	0.95	0.05	2.94E-08		
Facility Totals	>1	0.95	0.05	2.94E-08		

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 not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

Rule 4202 Particulate Matter – Emission Rate

This rule establishes a maximum allowable PM emission rate (E) as a function of the process weight rate (P) in tons/hour.

The formula for establishing the allowable PM emissions rate is a function of the process weight. The definition of process weight in the rule includes "the total weight of all materials introduced into any specific process ..."

$$E = 3.59 \times P^{0.62} \text{ if } P \leq 30 \text{ tons/hour}$$

$$E = 17.31 \times P^{0.16} \text{ if } P > 30 \text{ tons/hour}$$

Where,

E = allowable PM emissions in lb/hour

P = process weight rate in tons/hour

Assumptions:

- At most, all the compost material will be built or turned in one day (25,000 tons). Assuming this occurs within an 8-hour period, $P = 25,000 \text{ ton} \div 8 \text{ hour/day} = 3,125 \text{ tons/hour}$.
- 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 assumption, all the PM potentially emitted by the composting operation will be regarded as a single source operation.
- Assuming an 8-hour day, and a daily $PE_{PM10} = 2.5 \text{ lb/day}$, the hourly $PE_{PM10} = 0.31 \text{ lb/hour}$. Assuming the PM10 emission rate is 50% of the total PM emission rate, the $PE_{PM} = 0.62 \text{ lb/hour}$.

Calculations of Allowed PM Emission Rate under Rule 4202:

$$P = 3,125 \text{ ton/hour}$$

Since $P \geq 30 \text{ tons/hour}$ Since P

$$\begin{aligned} E &= 17.31 \times P^{0.16} \\ &= 17.31 (3,125)^{0.16} \\ &= 62.7 \text{ lb-PM/hour} \end{aligned}$$

Source Operation	P process weight (ton/hour)	E allowable emission rate (lb-PM/hour) under Rule 4202	PE _{hourly} (lb-PM/hour) under Rule 2201	PE < E?
Each windrow	3,125	62.7	0.62	Yes

Since the hourly PE for PM of all the units combined from Rule 2201 is less than the allowable PM emission rate E under Rule 4202, compliance with the Rule 2201 conditions is sufficient to ensure compliance with Rule 4202. No additional permit conditions are required to ensure compliance with this rule.

Rule 4565 Biosolids, Animal Manure, and Poultry Litter Operations

Section 2.0, Applicability:

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.

Turning Leaf Organics' proposal is to use co-compost consisting of dairy manure and green waste; therefore, this rule applies.

Section 5.1 Landfill Requirements

Turning Leaf Organics is not proposing to landfill the co-compost; therefore, this section does not apply.

Section 5.2 Land Application Requirements

Turning Leaf Organics is not proposing to land apply any of the co-compost; therefore, this section does not apply.

Section 5.3, Composting/Co-composting Requirements

Section 5.3.1 applies to composting/co-composting facilities with throughputs less than 20,000 wet tons per year and requires the facility to meet either Section 5.3.1.1 or 5.3.1.2. The facility proposes to comply with Section 5.3.1.1, which requires the implementation of at least three Class One mitigation measures from Table 2. The mitigation measures selected by the facility are indicated in bold in the following table (#1, #2, #3, and #4).

Table 2 – Composting/Co-composting Facility Mitigation Measures	
<i>Class One Mitigation Measures</i>	
1.	Scrape or sweep, at least once a day, all areas where compostable material is mixed, screened, or stored such that no compostable material greater than one inch (1”) in height is visible in the areas scraped or swept immediately after scraping or sweeping, except for compostable material in process piles or storage piles.
2.	Maintain a minimum oxygen concentration of at least five percent (5%), by volume, in the free air space of every active and curing compost pile.
3.	Maintain the moisture content of every active and curing compost pile between 40% and 70%, by weight.
4.	Manage every active pile such that the initial carbon to nitrogen ratio of every pile is at least twenty (20) to one (1).
5.	Cover all active compost piles within 3 hours of each turning with one of the following: a waterproof covering; at least six (6) inches of finished compost; or at least six (6) inches of soil.
6.	Cover all curing compost piles within 3 hours of each turning with one of the following: a waterproof covering; at least six (6) inches of finished compost; or at least six (6) inches of soil.
7.	Implement an alternative Class One mitigation measure(s) not listed above that demonstrates at least a 10% reduction, by weight, in VOC emissions.
<i>Class Two Mitigation Measures</i>	
8.	Conduct all active composting in aerated static pile(s) vented to a VOC emission control device with a VOC control efficiency of at least 80% by weight.
9.	Conduct all active composting in an in-vessel composting system vented to a VOC emission control device with a VOC control efficiency of at least 80% by weight.
10.	Conduct all curing composting in aerated static pile(s) vented to a VOC emission control device with a VOC control efficiency of at least 80% by weight.
11.	Conduct all curing composting in an in-vessel composting system vented to a VOC emission control device with a VOC control efficiency of at least 80% by weight.
12.	Implement an alternative Class Two mitigation measure(s) not listed above that demonstrates at least 80% reduction, by weight, in VOC emissions.

The following ATC conditions will ensure compliance with the requirements of this section:

- The amount of co-compost shall not exceed 25,000 wet tons in any one day or any one calendar year. [District Rules 2201 and 4565]
- The permittee shall scrape or sweep, at least once a day all areas where compostable material is mixed, screened, or stored such that no compostable material greater than one

inch (1") in height is visible in the areas scraped or swept immediately after scraping or sweeping, except for compostable material in process piles or storage piles. [District Rule 4565]

- The permittee shall maintain a minimum oxygen concentration of at least five percent (5%), by volume, in the free air space of every active and curing compost pile. [District Rule 4565]
- The permittee shall maintain the moisture content of every active and curing compost pile between 40% and 70%, by weight. [District Rule 4565]
- The permittee shall manage every active pile such that the initial carbon to nitrogen ratio of every pile is at least twenty (20) to one (1). [District Rule 4565]
- The permittee shall test the oxygen concentration of each active compost pile and each curing pile at least once each week using TMECC Method 05.08-C (In- Situ Oxygen Refresh Rate). [District Rule 4565]
- The permittee shall test the moisture content of each active compost pile at least once each week using TMECC Method 03.09. [District Rule 4565]
- The carbon to nitrogen ratio test shall be performed when the material is prepared for active composting using test method TMECC Method 05.02-A (Carbon to Nitrogen Ratio). Testing shall be done each day that materials are mixed. Samples shall be representative of the initial composition of the active compost pile. [District Rule 4565]

Section 5.3.6 states that if a tested parameter is found to be outside the applicable limits specified above in Table 1, the operator shall take remedial action within 24 hours of discovery to bring the pile characteristics within the specified limits. The following condition will be added to the permit to assure compliance with the requirement of this section.

- If the tested parameters of the mitigation measures are found to be outside the applicable limits the permittee shall take corrective action, within 24 hours of discovery, to bring the pile characteristics to within the specified limits. [District Rule 4565]

The facility is not proposing the use of Aerated Static Piles, In-Vessel Systems, Biofilters, or any other type of VOC Emission Control Devices. Therefore, Sections 5.4, 5.5, 5.6, and 5.7 are not applicable to this project and no further discussion is necessary.

Section 5.4, VOCs from Aerated Static Piles and In-Vessel Systems:

This section does not apply since none of the co-compost piles are aerated static piles or in-vessel systems.

Section 5.5, Biofilter Requirements:

This section does not apply since the co-compost piles are not controlled by biofilters.

Section 5.6, Non-Biofilter VOC Emission Control Device Requirements:

This section does not apply since the facility does not use a VOC emission control device.

Section 5.7, Source Testing Requirements for VOC Emission Control Device:

This section does not apply since the facility does not use a VOC emission control device.

Section 6.0 (Administrative Requirements):

An operator of a composting facility subject to this rule shall keep the following records:

6.1.4.1 Throughput Records.

On a daily basis, an operator shall record the quantity of materials received that would be used in the compost/co-compost operation. These materials include, but are not limited to, material that may be recovered from the composting from the composting process for reuse in another batch of compostable material; biosolids; animal manure; poultry litter; and green waste.

Since this composting facility is subject to this rule, the following condition will be added to the permit to assure compliance with the requirements of this section.

- Permittee shall maintain a daily record of the quantity (in tons/day) and type (i.e. green waste and animal manure) of each material received or generated onsite used in the co-composting operation. [District Rule 4565]

6.1.4.2 Class One Mitigation Measure Records.

An operator shall keep records that demonstrate that the facility meets the Class One mitigation measures selected for the facility each day that a mitigation measure is performed. For operators using an approved alternative Class One mitigation measure, the operator shall keep records for the alternative mitigation measure each day the alternative mitigation measure is performed.

The facility is proposing to utilize Class One mitigation measure #1 as indicated in Table 1, above. Therefore, the following condition will be added to the permit to assure compliance with the requirements of this section.

- The permittee shall maintain a daily record indicating the date and areas where compostable materials are mixed, screened, or stored have been scraped or swept such that no compostable material is greater than one inch (1") in height is visible in the areas, except for compostable material process piles or storage piles. [District Rule 4565]

For its second Class One mitigation measure, the facility is proposing to utilize Class One mitigation measure #2 as indicated in Table 1, above. Therefore, the following conditions will be added to the permit to assure compliance with the requirements of this section.

- The permittee shall maintain a record indicating the date and the tested oxygen concentration of each active compost pile. [District Rule 4565]

For the third Class One mitigation, the facility is proposing to utilize Class One mitigation measure #3 as indicated in Table 1 above. Therefore, the following condition will be added to the permit to assure compliance with the requirements of this section.

- The permittee shall maintain a record indicating the date and the tested moisture content of each active compost pile. [District Rule 4565]

For the fourth Class One mitigation, the facility is proposing to utilize Class One mitigation measure #4 as indicated in Table 1 above. Therefore, the following condition will be added to the permit to assure compliance with the requirements of this section.

- The permittee shall maintain a record indicating the initial carbon to nitrogen ratio of every pile is at least twenty (20) to one (1). [District Rule 4565]

6.1.4.3 Class Two Mitigation Measure Records

The facility is not proposing the use of any Class Two Mitigation Measures. Therefore, Sections 6.1.4.3, 6.1.5, 6.1.6, and 6.1.7 are not applicable to this project and no further discussion is necessary.

Section 6.1.8 requires operators to retain applicable records on-site for a period of five years and to make the records available on-site during normal business hours to the APCO, ARB, or EPA, and to submit the records to the APCO, ARB, or EPA upon request. Therefore, the following condition will be added to the permit to assure compliance with the requirements of this section.

- {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]

Section 6.3 Alternative Mitigation Measures Compliance Plan

The facility has not proposed an alternative mitigation measures compliance plan.

There are no other applicable requirements in this rule.

Conclusion

Conditions will be incorporated into the permit in order to ensure compliance with each section of this rule. Therefore, compliance with District Rule 4565 requirements is expected.

Therefore, compliance with this rule is expected.

Rule 4566 Organic Material Composting Operations

The provisions of this rule apply to composting facilities that compost and/or stockpile organic material.

Stockpiles used for composting operations that are subject to Rule 4565 (Biosolids, Animal Manure, and Poultry Litter Operations) and have organic material and biosolids, animal manure, or poultry litter on site are exempt from all stockpile requirements of this rule for the materials associated with those operations.

Composting operations that are subject to Rule 4565 (Biosolids, Animal Manure, and Poultry Litter Operations) are exempt from all requirements of this rule.

Since the composting operation in this project is subject to Rule 4565, it is exempt from the requirements of Rule 4566.

Rule 8011 General Requirements

The definitions, exemptions, requirements, administrative requirements, recordkeeping requirements, and test methods set forth in this rule are applicable to all rules under Regulation VIII (Fugitive PM10 Prohibitions) of the Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District.

The composting operation has been determined to be non-agricultural; therefore, Regulation 8 requirements may apply.

The following recordkeeping condition will be included on the ATC:

- Records and other supporting documentation shall be maintained as required to demonstrate compliance with the requirements of the rules under Regulation VIII only for those days that a control measure was implemented. Such records shall include the type of control measure(s) used, the location and extent of coverage, and the date, amount, and frequency of application of dust suppressant, manufacturer's dust suppressant product information sheet that identifies the name of the dust suppressant and application instructions. Records shall be kept for one year following project completion that results in the termination of all dust generating activities. [District Rule 8011]

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 no earthmoving activities are proposed at this facility, this rule is not applicable to this project.

Rule 8031 Bulk Materials

This rule is applicable to the outdoor handling and storage of any bulk material, which emits visible dust when stored or handled.

Rule 8011 defines *bulk material* as any unpackaged material with a silt content of more than 5%.

Based on discussions with Ellyce Baldwin, Supervising Inspector, and Jason Lawler, Senior Inspector, in their experience, compost does not normally have a silt content of more than 5%, which inspectors have measured using a sieve. Therefore, the requirements of this rule would not be applicable.

Rule 8041 Carryout and Trackout

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.

Rule 8011 defines *carryout and trackout* as any and all materials that adhere to and agglomerate on vehicles, haul trucks, and/or equipment (including trailers, tires, etc.) and falls onto a paved public road or the paved shoulder of a paved public road.

A public road borders the area where the facility will be conducting composting operations; therefore, this rule could apply to carryout and trackout caused by the composting operation. The following condition will be included on the ATC:

- An owner/operator shall prevent or cleanup any carryout or trackout in accordance with the requirements of District Rule 8041 Section 5.0, unless specifically exempted under Section 4.0 of Rule 8041 (8/19/04) or Rule 8011(8/19/04). [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.

The area set aside for composting will not have open areas associated with it. The open areas adjacent to the composting site are agricultural and would be exempt from the requirements in this rule. 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 may have a segment of unpaved gravel road where Section 5.2, Unpaved Road Segment, could apply. The following condition will be included on the ATC to ensure compliance:

- 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

This rule applies to any unpaved vehicle/equipment traffic area.

The composting operation is expected to have some unpaved equipment traffic areas; therefore, the requirements of this rule apply.

The following conditions will ensure compliance with 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 operator shall implement at least one of following control measures to limit visible dust emissions (VDE) to 20% opacity and comply with the requirements for a stabilized unpaved road as defined in District Rule 8011: (1) Watering; (2) Uniform layer of washed gravel; (3) Chemical/organic dust stabilizers/suppressants; (4) Vegetative materials; (5) Paving; (6) Roadmix; or (7) 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 8071]
- 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 8011 and 8071]

Rule 8081 Agricultural Sources

This rule applies to off-field agricultural sources.

Since the co-composting operation has been determined to be non-agricultural, this rule does not apply.

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 Tulare (County) is the public agency having principal responsibility for approving the Project. As such, the County served as the Lead Agency for the Project. The County determined the project to be exempt from CEQA according to CEQA Guidelines §15303. Consistent with CEQA Guidelines §15062, a Notice of Exemption was prepared and adopted by the County.

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).

The District's engineering evaluation of the project (this document) demonstrates that compliance with District rules and permit conditions would reduce Stationary Source emissions from the project to levels below the District's thresholds of significance for criteria pollutants. Thus, the District concludes that through a combination of project design elements and permit conditions, project specific stationary source emissions will be reduced and mitigated to less than significant levels. The District does not have authority over any of the other project impacts and has, therefore, determined that no additional findings are required (CEQA Guidelines §15096(h)).

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, however, there is the potential for public concern for this facility/operation. Therefore, an Indemnification Agreement and a Letter of Credit will be required for this project.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATC C-9196-1-0 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
C-9196-1-0	3020-06	Co-Composting Operation	\$116

Appendixes

- A: Draft ATC
- B: BACT Guideline
- C: BACT Analysis
- D: HRA Summary
- E: Quarterly Net Emissions Change

APPENDIX A
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-9196-1-0

LEGAL OWNER OR OPERATOR: TURNING LEAF ORGANICS

MAILING ADDRESS: 25948 RD 92
TULARE, CA 93274

LOCATION: 25948 ROAD 92
TULARE, CA 93274

EQUIPMENT DESCRIPTION:

CO-COMPOSTING OPERATION WITH SPRINKLER SYSTEM AND EITHER A WATERPROOF OR FINISHED COMPOST COVER SERVING THE ACTIVE AND CURING PHASES, MANURE AND GREEN WASTE RECEIVING, AND FINISHED COMPOST LOADOUT OPERATION

CONDITIONS

1. Visible emissions shall not exceed 20% opacity for a period or periods aggregating more than three (3) minutes in any one (1) hour. [District Rule 4101]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. This prohibition shall not apply to odors emanating from composting operations, which are not under the jurisdiction of the San Joaquin Valley Air Pollution Control District. [District Rule 4102 and CH&SC 41705(a)(2)]
3. Only co-compost (a mixture of dairy manure and green waste) shall be composted. Dairy manure includes cow, bull, calf, and heifer excretions and waste, including, but not limited to, dried solids and urine from cows. Green waste includes vegetative material generated from gardening, agriculture, bulking agent, or landscaping activities including, but not limited to, a mixture of grass clippings, leaves, tree and shrub trimmings, and plant remains. [District Rule 2201]
4. The combined amount of dairy manure and green waste received shall not exceed 100 wet-tons/day. [District Rules 2201 and 4565]
5. The amount of co-compost shall not exceed 25,000 wet tons in any one day or any one calendar year. [District Rules 2201 and 4565]
6. The amount of dairy manure received shall not exceed 20,000 wet-tons/calendar year. [District Rules 2201 and 4565]
7. The amount of green waste received shall not exceed 5,000 wet-tons/calendar year. [District Rules 2201 and 4565]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

C-9196-1-0 Oct 17 2018 1:23PM - YOSHIMUJ : Joint Inspection NOT Required

8. VOC emissions from composting shall not exceed either of the following limits: 163.1 lb/day or 19,580 lb/year. [District Rules 2201 and 4102]
9. Ammonia (NH₃) emissions from composting shall not exceed either of the following limits: 268.5 lb/day or 32,230 lb/year. [District Rules 2201 and 4102]
10. PM₁₀ emissions from material transfer shall not exceed either of the following limits: 2.5 lb/day or 27 lb/year. [District Rules 2201 and 4102]
11. The permittee shall scrape or sweep, at least once a day all areas where compostable material is mixed, screened, or stored such that no compostable material greater than one inch (1") in height is visible in the areas scraped or swept immediately after scraping or sweeping, except for compostable material in process piles or storage piles. [District Rule 4565]
12. The permittee shall maintain a minimum oxygen concentration of at least five percent (5%), by volume, in the free air space of every active and curing compost pile. [District Rule 4565]
13. The permittee shall maintain the moisture content of every active and curing compost pile between 40% and 70%, by weight. [District Rule 4565]
14. The permittee shall manage every active pile such that the initial carbon to nitrogen ratio of every pile is at least twenty (20) to one (1). [District Rule 4565]
15. The permittee shall test the oxygen concentration of each active compost pile and each curing pile at least once each week using TMECC Method 05.08-C (In- Situ Oxygen Refresh Rate). [District Rule 4565]
16. The permittee shall maintain a record indicating the date and the tested oxygen concentration of each active compost pile. [District Rule 4565]
17. The permittee shall test the moisture content of each active compost pile at least once each week using TMECC Method 03.09. [District Rule 4565]
18. The permittee shall maintain a record indicating the date and the tested moisture content of each active compost pile. [District Rule 4565]
19. The carbon to nitrogen ratio test shall be performed when the material is prepared for active composting using test method TMECC Method 05.02-A (Carbon to Nitrogen Ratio). Testing shall be done each day that materials are mixed. Samples shall be representative of the initial composition of the active compost pile. [District Rule 4565]
20. If the tested parameters of the mitigation measures are found to be outside the applicable limits the permittee shall take corrective action, within 24 hours of discovery, to bring the pile characteristics to within the specified limits. [District Rule 4565]
21. The permittee shall maintain a daily record of the quantity (in tons/day) and type (i.e. green waste and animal manure) of each material received or generated onsite used in the co-composting operation. [District Rule 4565]
22. The permittee shall maintain a daily record indicating the date and areas where compostable materials are mixed, screened, or stored have been scraped or swept such that no compostable material is greater than one inch (1") in height is visible in the areas, except for compostable material process piles or storage piles. [District Rule 4565]
23. Permittee shall not stockpile manure for more than 18 hours prior to transferring the compost material to an active phase composting windrow. [District Rule 2201]
24. Permittee shall keep daily records of the amount of time the compost material is stockpiled prior to transferring to an active phase composting windrow. [District Rule 2201]
25. Each day a windrow is formed or turned, the operator shall record (1) the windrow ID or lot number; (2) the date the windrow was formed or turned and the waterproof cover or finished compost cover applied; (3) the wet tons of co-compost in the windrow. The wet tons may be calculated from the volume of co-compost used upon first forming a windrow multiplied by the co-compost density. [District Rules 2201 and 4565]
26. Permittee shall apply a waterproof cover or a finished compost cover to each windrow within 3 hours of initial windrow formation and within 3 hours after turning the windrow. [District Rules 2201 and 4565]

27. Permittee shall sprinkle water over the windrows, when forming or turning, to maintain adequate moisture content of the compost materials to prevent visible emissions in excess of 5% opacity. [District Rule 2201]
28. Permittee shall maintain a daily record of the quantity (in tons/day) and type (i.e. green waste and animal manure) of each material received or generated onsite used in the co-composting operation. [District Rule 2201]
29. Permittee shall keep a record of the total wet tons of dairy manure composted during the calendar year and shall update that record monthly. [District Rules 2201 and 4565]
30. Records and other supporting documentation shall be maintained as required to demonstrate compliance with the requirements of the rules under Regulation VIII only for those days that a control measure was implemented. Such records shall include the type of control measure(s) used, the location and extent of coverage, and the date, amount, and frequency of application of dust suppressant, manufacturer's dust suppressant product information sheet that identifies the name of the dust suppressant and application instructions. Records shall be kept for one year following project completion that results in the termination of all dust generating activities. [District Rule 8011]
31. An owner/operator shall prevent or cleanup any carryout or trackout in accordance with the requirements of District Rule 8041 Section 5.0, unless specifically exempted under Section 4.0 of Rule 8041 (8/19/04) or Rule 8011(8/19/04). [District Rules 8011 and 8041]
32. 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]
33. 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 operator shall implement at least one of following control measures to limit visible dust emissions (VDE) to 20% opacity and comply with the requirements for a stabilized unpaved road as defined in District Rule 8011: (1) Watering; (2) Uniform layer of washed gravel; (3) Chemical/organic dust stabilizers/suppressants; (4) Vegetative materials; (5) Paving; (6) Roadmix; or (7) 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 8071]
34. 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 8011 and 8071]
35. {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 Rule 1070]

DRAFT

APPENDIX B
BACT Guideline

**San Joaquin Valley
Unified Air Pollution Control District**

Revised Best Available Control Technology (BACT) Guideline 6.4.1

Emission Unit: Composted Materials – Screening, Transportable, Wood Waste Processing **Industry Type:** Composting

Equipment Rating:

Last Update: 4/3/1998

Pollutants	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
PM ₁₀	Use of a water sprinkler system or maintaining adequate moisture content of the process materials to prevent visible emissions in excess of 5% opacity		

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 Determinations on Next Page(s)**

**San Joaquin Valley
Unified Air Pollution Control District**

Revised Best Available Control Technology (BACT) Guideline 6.4.11

Emission Unit: Co-Composting with Green And Food Materials and Manure < 100,000 wet-tons/year

Industry Type: Co-Composting

Equipment Rating: < 100,000 wet-tons/year

Last Update: 12/21/2015

Pollutants	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC and NH ₃	Class One Mitigation Measures from District Rule 4565	<ol style="list-style-type: none"> 1. Positively aerated static piles with cover (cover is engineered, 12 inches of finished compost, or equivalent). (Active and Curing Phases) 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 Phases) Enclosed and vented to biofilter 2b. In-vessel or container with forced aeration venting to biofilter or equivalent. (Active and Curing Phases) 3. Negatively aerated static piles venting to biofilter or equivalent. Active Phase is covered with 12 inches of finished compost or equivalent. 4. At least three turns of windrow during Active Phase, cover with 6 inches of finished compost within 3 hours of turning, and watering system. 5. Negatively aerated static piles venting to biofilter or equivalent. No cover. 	

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 Determinations on Next Page(s)**

APPENDIX C
BACT Analysis

BACT Analysis for Emissions from the Transportation of Composted Materials Permit Unit C-9196-1-0:

1. BACT Analysis for PM₁₀ Emissions from Composted Materials – Screening, Transportable, Wood Waste Processing

a. Identify all control technologies

1) Water spray system or maintaining adequate moisture content

Use of a water spray system or maintaining adequate moisture content of the process material to prevent visible emissions in excess of 5% opacity.

b. Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate in Step 1.

c. Rank remaining options by control effectiveness

No ranking needs to be done because there is only one control option listed in Step 1.

d. Cost Effectiveness Analysis

The applicant has proposed this option; therefore a cost effectiveness analysis is not required.

e. Select BACT

The most effective PM₁₀ control technology is the use of a water spray system or maintaining adequate moisture content of the process material to prevent visible emissions in excess of 5% opacity.

Since the applicant is proposing the above mentioned PM₁₀ control technology, the applicant is meeting BACT required for this class and category of source.

BACT Analysis for Emissions from the Co-Composting Operation Permit Unit C-9196-1-0:

1. BACT Analysis for VOC and NH₃ Emissions from Co-Composting Operations

a. Identify all control technologies

Achieved-in-Practice Determination:

Achieved in practice (AIP) shall be an emission level or an emission control technology or technique that has been identified by the District, CARB, EPA, or any other air pollution control District as having been AIP for the same class and category of source. An emission control technology or technique is considered to be AIP provided all of the following are satisfied:

- At least one vendor must offer this equipment for regular or full-scale operation. A performance guarantee should be (but is not required to be) available with the purchase of the control technology.
- The control technology must have been installed and operated reliably at one or more commercial facilities for at least 180 days.
- The control technology must be verified to perform effectively over the range of operation expected for that class and category of source. The verification shall be based on a performance test or tests, when possible, or other performance data.

Only one type of control technology for manure composting meets the requirements stated above:

- 1) Class One Mitigation measures from District Rule 4565 with 10% control for VOC emissions

Rule 4565 requires manure composting operations to choose from a menu of VOC mitigation options. The Class One mitigation options result in a 10% reduction in VOC emissions (compared to the Rule 4565 baseline of 1.78 lb-VOC/wet-ton).

Technologically Feasible Control Alternatives:

- 1) Positively aerated static piles with cover (cover is engineered, 6-12 inches of finished compost, or equivalent) (active phase and curing phase if cured) (95% control)
- 2) Negatively aerated static piles with cover (cover is engineered, 6-12 inches of finished compost, or equivalent) (active phase and curing phase if cured) (80% control)
- 3) Negatively aerated static piles with cover (cover is engineered, 6-12 inches of finished compost, or equivalent) (active phase) (74% control)

ASP with biofilter(s), finished compost cover(s) (acting as a pseudo bio-filter), or engineered/synthetic cover(s) (e.g. semi-permeable membrane cover) have demonstrated significant reductions for both VOC and NH₃.

The effectiveness of a well maintained 12 inch cover was demonstrated in a District Technology Advancement Program study Greenwaste Compost Site Emissions Reductions from Solar Powered Aeration and Biofilter Layer, http://www.valleyair.org/Grant_Programs/TAP/documents/C-15636-ACP/C-15636_ACP_FinalReport.pdf). Twelve inches of finished compost resulted in a 98.8% reduction over baseline for VOC and 53 – 83% reduction for NH₃. However, the types of windrows utilized were “extended”, i.e. square shaped rather than elongated. Hence the exposed surface area to cover was much less than a typical elongated windrow that one would find at a dairy. A 12 inch cover may require an unreasonably large quantity of finished compost to be used for a dairy that uses typical windrows. Thus, a range of 6 – 12 inches will be specified, rather than simply requiring 12 inches.

Biofilters use microbiological organisms (microbes) or “bugs” to decompose or breakdown a VOC into less reactive compounds such as CO₂ and water. This decomposition typically takes place aerobically (in the presence of O₂). An established type of biofilter involves a porous medium (typically soil, compost or wood chips - Green Waste), that contain large populations of microbes. This type of system can be used as an after control. Other types of after control biofilters may be referred to as biotrickling or bioscrubbers. These types of filters and bioscrubber types function with the microbes suspended or mobilized in liquid phase. Per the Final Staff Report for SCAQMD Rule 1133.2, biofilters can achieve 80% and 90% control for VOC and NH₃ respectively for well-designed, well-operated, and well-maintained biofilters.

- 4) Enclosed and vented to biofilter (80% control)
- 5) Negatively aerated static piles venting to biofilter or equivalent and without a cover (26% control)

VOC is extracted by mechanically drawing air through the compost pile. This is done by connecting a vacuum pump with blower motor to extraction wells. When suction is applied to the wells it induces a subsurface airflow radially toward perforations in the well casings. Organic vapors are then removed by adsorption as the gas stream passes through a biofilter.

- 6) Cover piles (cover is engineered, 6-12 inches of finished compost or soild, or equivalent), upon initial windrow formation and within 3 hours of each turning and watering system (60% control)

The above control is based on a Rule 4566 mitigation measure for green waste windrow composting facilities having throughputs above 200,000 wet-tons/year. The details of the finished compost cover are described in Rule 4566, Table 1, Composting Mitigation Measures, Finished (or equivalent) Compost Cover:

b. Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate.

c. Rank remaining options by control effectiveness

Control efficiencies in the table below are relative to the District’s baseline VOC emission factor for uncontrolled, unmitigated open windrow biosolids co- composting, 1.78 lb-VOC/wet-ton.⁶ The calculated control efficiencies below are tentative and subject to revision as more emissions data is obtained. For this reason, as well as site specific circumstances (e.g. feedstock composition) which might cause a variation in the expected control efficiencies, no control efficiencies will be included in the BACT guideline summary.

Rank of VOC Control Options by Effectiveness			
Rank	Option	Overall Control	Achieved in Practice
1	Positively aerated static piles with cover (cover is engineered, 6-12 inches of finished compost, or equivalent) (active phase and curing phase if cured)	95%	No
2	Negatively aerated static piles with cover (cover is engineered, 6-12 inches of finished compost, or equivalent) (active phase and curing phase if cured)	80%	No
3	Enclosed and Vented to a Biofilter	80%	No
4	Negatively aerated static piles with cover (cover is engineered, 6-12 inches of finished compost, or equivalent) (active phase)	74%	No
5	Cover piles (cover is engineered, 6-12 inches of finished compost or soild, or equivalent), upon initial windrow formation and within 3 hours of each turning and watering system	60%	Applicant Proposed
6	Negatively aerated static piles venting to biofilter or equivalent and without a cover	26%	No
7	Mitigation Measures	10%	No

d. Cost Effectiveness Analysis

The applicant has proposed option #6 from the table above. Options #1 through 5 are more effective VOC controls; therefore, a cost analysis must be performed to determine if options #1 through 5 are cost effective controls for VOC.

Control Option #1 – Positively aerated static piles with cover (cover is engineered, 6-12 inches of finished compost, or equivalent)

Positvely aerated static piles that vent to a biofilter achieve ≥ 95% control for VOC and NH₃ emissions. This type of unit will control both VOC and NH₃ emissions; therefore, a Multi-Pollutant Cost Effectiveness Threshold (MCET) will be performed to determine if this control option is cost effective. As previously mentioned, the PM₁₀ cost effectiveness threshold will be used as a surrogate value for the NH₃ cost effectiveness threshold.

⁶ Compost VOC Emission Factors, Table 1 (SJVAPCD Report, 9/15/10)

The District does not have a cost effective threshold for NH₃ emissions; however, NH₃ forms ammonium nitrate in the atmosphere, which is a precursor for PM₁₀. Therefore, as established in District Project S-1032219, the PM₁₀ cost effectiveness threshold (\$11,400/ton-reduced) will be used as a surrogate value for the NH₃ cost effectiveness threshold.

Two main areas of the total cost are the capital and operating expenditures.

Uncontrolled Emissions (lb/year)	
VOC	44,500
NH ₃	73,250

Emissions Reduction (95% control)	
VOC	42,275 lb/yr ⇒ 21.1 ton/year
NH ₃	69,588 lb/yr ⇒ 34.8 ton/year

Annual Operating Cost:

See Attachment B: Compost Control Costs – Positive ASP with Cover

Capital recovery factor (10%, 10 yrs): 0.163
 Contingency Cost Factor: 20%

Additional Equipment to Purchase	Capital Cost (\$)	Annualized Capital Cost (\$/yr)	O&M (\$/yr)	Fuel/Energy (\$/yr)	Personnel (\$/yr)	Incremental Total Cost (\$/yr)
Equipment	9,750,000	1,589,250	625,000	-	-	2,128,000
Construction			-	-	-	
Totals	9,750,000	1,589,250	625,000	-	-	2,128,000

MCET Calculation:

Pollutant	Controlled Emissions (ton/year)	Cost Threshold (\$/ton-reduced)	MCET (\$/ton-reduced)
VOC	21.1	17,500	369,250
NH ₃	34.8	11,400	396,720
Total			765,970

Since the MCET threshold is \$765,970/ton-reduced and below the Incremental Cost (\$2,128,000) of an enclosed system vented to a wet scrubber, this option is not cost effective and cannot be required as BACT.

Control Option #2 – Negatively aerated static piles with cover (cover is engineered, 6-12 inches of finished compost, or equivalent)

Per the source test report submitted to the SJVAPCD (Attachment C), the overall VOC and NH₃ control levels for just an enclosure is approximately 80%. This type of unit will control both VOC and NH₃ emissions; therefore, a Multi-Pollutant Cost Effectiveness Threshold (MCET) will be performed to determine if this control option is cost effective. As previously mentioned, the PM₁₀ cost effectiveness threshold will be used as a surrogate value for the NH₃ cost effectiveness threshold.

As stated in the cost analysis for Control Option #1, the cost estimate for an ASP system with engineered cover will be \$9,750,000. Two main areas of the total cost are the capital and operating expenditures.

Uncontrolled Emissions (lb/year)	
VOC	44,500
NH₃	73,250

Emissions Reduction (80% control)	
VOC	35,600 lb/yr ⇒ 17.8 ton/year
NH₃	58,600 lb/yr ⇒ 29.3 ton/year

Annual Operating Cost:

See Attachment B: Compost Control Costs – Negative ASP with Cover

Capital recovery factor (10%, 10 yrs): 0.163
 Contingency Cost Factor: 20%

Additional Equipment to Purchase	Capital Cost (\$)	Annualized Capital Cost (\$/yr)	O&M (\$/yr)	Fuel/Energy (\$/yr)	Personnel (\$/yr)	Incremental Total Cost (\$/yr)
Equipment	9,750,000	1,589,250	625,000	-	-	2,128,000
Construction			-	-	-	
Totals	9,750,000	1,589,250	625,000	-	-	2,128,000

MCET Calculation:

Pollutant	Controlled Emissions (ton/year)	Cost Threshold (\$/ton-reduced)	MCET (\$/ton-reduced)
VOC	17.8	17,500	311,500
NH ₃	29.3	11,400	334,020
Total			645,520

Since the MCET threshold is \$645,520/ton-reduced and below the Incremental Cost (\$2,128,000) of an enclosed system vented to a wet scrubber, this option is not cost effective and cannot be required as BACT.

Control Option #3 - Negatively aerated static piles with cover (cover is engineered, 6-12 inches of finished compost, or equivalent) (active phase)

As shown in Control Option #2, a negative ASP with cover for both composting phases is not cost effective. Control Option #3 has an even lower control efficiency compared to Control Option #2, therefore, this option will not be cost effective either.

Control Option #4 – Enclosed and vented to biofilter

Enclosed aerated static piles that vent to a biofilter achieve ≥ 80% control for VOC and NH₃ emissions. This type of unit will control both VOC and NH₃ emissions; therefore, a Multi-Pollutant Cost Effectiveness Threshold (MCET) will be performed to determine if this control option is cost effective. As previously mentioned, the PM₁₀ cost effectiveness threshold will be used as a surrogate value for the NH₃ cost effectiveness threshold.

Two main areas of the total cost are the capital and operating expenditures.

Uncontrolled Emissions (lb/year)	
VOC	44,500
NH₃	73,250

Emissions Reduction (80% VOC and NH₃ control)	
VOC	35,600 lb/yr ⇒ 17.8 ton/year
NH₃	58,600 lb/yr ⇒ 29.3 ton/year

Annual Operating Cost:

See Attachment B: Compost Control Costs – Enclosed and vented to biofilter

Capital recovery factor (10%, 10 yrs): 0.163

Additional Equipment to Purchase	Capital Cost (\$)	Annualized Capital Cost (\$/yr)	O&M (\$/yr)	Fuel/Energy (\$/yr)	Personnel (\$/yr)	Incremental Total Cost (\$/yr)
Equipment	5,850,000	953,550	375,000	-	-	1,242,300
Construction			-	-	-	
Totals	5,850,000	953,550	375,000	-	-	1,242,300

MCET Calculation:

Pollutant	Controlled Emissions (ton/year)	Cost Threshold (\$/ton-reduced)	MCET (\$/ton-reduced)
VOC	17.8	17,500	311,500
NH ₃	29.3	11,400	334,020
Total			645,520

Since the MCET threshold is \$645,520/ton-reduced and below the Incremental Cost (\$1,242,300) of an ASP system with engineered cover, this option is not cost effective and cannot be required as BACT.

Control Option #5 - Negatively aerated static piles without cover

As shown in Control Option #2, a negative ASP with cover for both composting phases is not cost effective. Control Option #5 has an even lower control efficiency compared to Control Option #2, therefore, this option will not be cost effective either.

Control Option #6 – Cover with waterproof cover or 6 inches of finished compost upon initial windrow formation and within 3 hours of each turning and watering system

A cost-effective analysis is not required as the applicant has proposed to implement type of control technology.

e. Select BACT

BACT for VOC and NH₃ is satisfied with covering with either a waterproof cover or a finished compost cover upon initial windrow formation and within 3 hours of each turning and using a watering system. Since it is not Achieved-in-Practice, it will remain designated as Technologically Feasible until it is successfully implemented as determined by District inspection.

APPENDIX D
HRA Summary

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Johnathan Yoshimura – Permit Services
 From: Jessica Rosas – Technical Services
 Date: December 26, 2017
 Facility Name: Turning Leaf Organics
 Location: 25948 Road 92, Tulare
 Application #(s): C-9196-1-0
 Project #: C-1171609

A. RMR SUMMARY

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required?	Special Permit Requirements?
Unit 1-0 (Windrows)	2.86	0.95	0.05	2.94E-08	No	No
Project Totals	2.86	0.95	0.05	2.94E-08		
Facility Totals	>1	0.95	0.05	2.94E-08		

Proposed Permit Requirements

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

Unit # 1-0

No special requirements are required.

B. RMR REPORT

I. Project Description

Technical Services received a request on July 17, 2017, to perform a Risk Management Review for a proposed installation of a 25,000 wet-tons of dairy manure per year and construction of 25 compost rows of 1,000 lb-manure each. Manure will be received from offsite.

II. Analysis

Toxic emissions for this proposed unit were calculated using emission factors generated from a 1997 source test conducted on the Griffith Park Biosolids Composting Plant and District approved emission factors derived from the 2011 report, Biosolids Co-Composting VOC and Ozone Formation Study, and input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 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 2007-2010 from Visalia 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:

Analysis Parameters Unit 1-0			
Source Type	Area*	Location Type	Rural
X-Length (m)	34	Closest Receptor (m)	609
Y-Length (m)	125	Type of Receptor	Residential
Release Height (m)	1.5	Pollutant Type	VOC/NH3
VOC Emission Rate (lb/hr)	9.067	VOC Emission Rate (lb/yr)	19,580
NH3 Emission Rate (lb/hr)	14.92	NH3 Emission Rate (lb/yr)	32,230

*Area source is for each of the 22 total windrows.

AAQA. In addition to the RMR, Technical Services performed modeling for the criteria pollutant PM₁₀ using AERMOD. The emission rate used was 61.9 lb PM₁₀/year. The results from the Criteria Pollutant Modeling are as follows:

PM₁₀ Pollutant Modeling Results*

Values are in µg/m³

Category	24 Hours	Annual
Net Value	0.17	0.01
Interim Significance Level	10.4 ¹	2.08 ¹
Result	Pass	Pass

¹The District has decided on an interim basis to use a SIL threshold for fugitive dust sources of 10.4 µg/m³ for the 24-hour average concentration and 2.08 µg/m³ for the annual concentration.

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the 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.

The ambient air quality impacts from PM₁₀ emissions at the proposed dairy (modification) (does not) exceed the District's 24-hour or Annual interim threshold for fugitive dust sources.

IV. Attachments

- A. RMR 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 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.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$$\begin{aligned} PE2_{\text{quarterly}} &= PE2_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 27 \text{ lb-PM}_{10}/\text{year} \div 4 \text{ qtr/year} \\ &= 6.75 \text{ lb-PM}_{10}/\text{qtr} \end{aligned}$$

$$\begin{aligned} PE1_{\text{quarterly}} &= PE1_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 0 \text{ lb-PM}_{10}/\text{year} \div 4 \text{ qtr/year} \\ &= 0 \text{ lb-PM}_{10}/\text{qtr} \end{aligned}$$

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	6.75	0	6.75
CO	0	0	0
VOC	4,895.0	0	4,895.0

APPENDIX F
Emission Profile

Permit #: C-9196-1-0	Last Updated
Facility: TURNING LEAF ORGANICS	06/06/2018 YOSHIMUJ

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	27.0	0.0	19580.0
Daily Emis. Limit (lb/Day)	0.0	0.0	2.5	0.0	163.1
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	6.0	0.0	4895.0
Q2:	0.0	0.0	7.0	0.0	4895.0
Q3:	0.0	0.0	7.0	0.0	4895.0
Q4:	0.0	0.0	7.0	0.0	4895.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					