Notice of Construction (NOC) Worksheet

pscleanair.org
Puget Sound Clean Air Agency

Source: Crane & Crane Holdings LLC (dba TILZ)	**NOC Number:** 11935
Installation Address: 12112 Miller Road NE | Bainbridge Island, WA 98110	**Registration Number:** 30291
Contact Name: Thomas Crane	**Contact Email:** tom@tilz.com
Applied Date: 12/17/2019	**Contact Phone:** (206) 225-7079
Engineer: Courtney Shernan	**Inspector:** Robert Booher

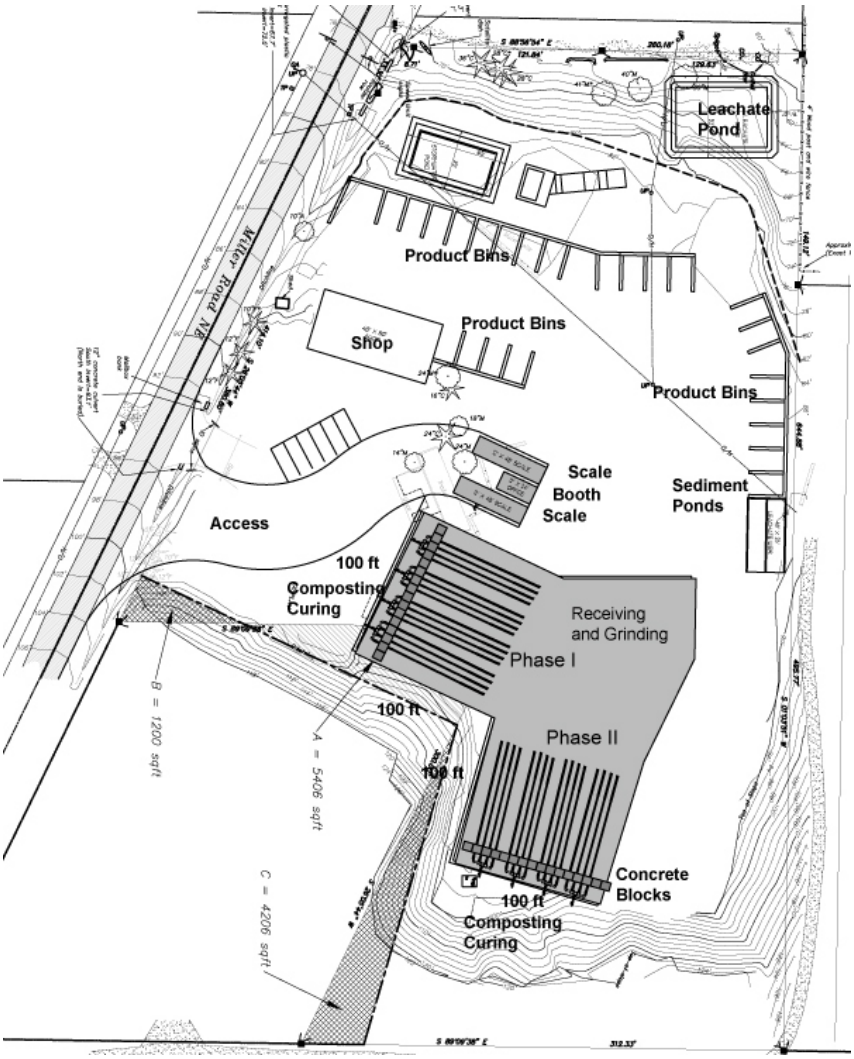
A. DESCRIPTION

For the Order of Approval:

Commercial composting facility (maximum of 14,000 wet tons of feedstock per year) for recycling green yard waste, fish waste, pre-consumer food waste, and agricultural manure and bedding using Extended Aerated Static Pile composting technology. The compost operation consists of a tipping area, two Extended Aerated Static Pile composting bays with four zones each, concrete composting pad (100'x300'), curing piles, final product storage piles, and a leachate pond.

Additional Information:

Crane & Crane Holdings LLC (dba TILZ) is proposing to construct a new commercial composting facility accepting a maximum of 14,000 tons of feedstock per year. TILZ is proposing to accept green yard waste (85%), fish waste (5%), pre-consumer food waste (5%), and agricultural manure and bedding (5%). Wood waste including sawdust, shavings, and ground/chipped wood will be used as a bulking material and carbon source. The compost operation will consist of a tipping area, two Extended Aerated Static Pile composting bays with four zones each, concrete composting pad (100'x300'), curing piles, final product storage piles, and a leachate pond. TILZ provided the following plot plan for the facility in the NOC application:



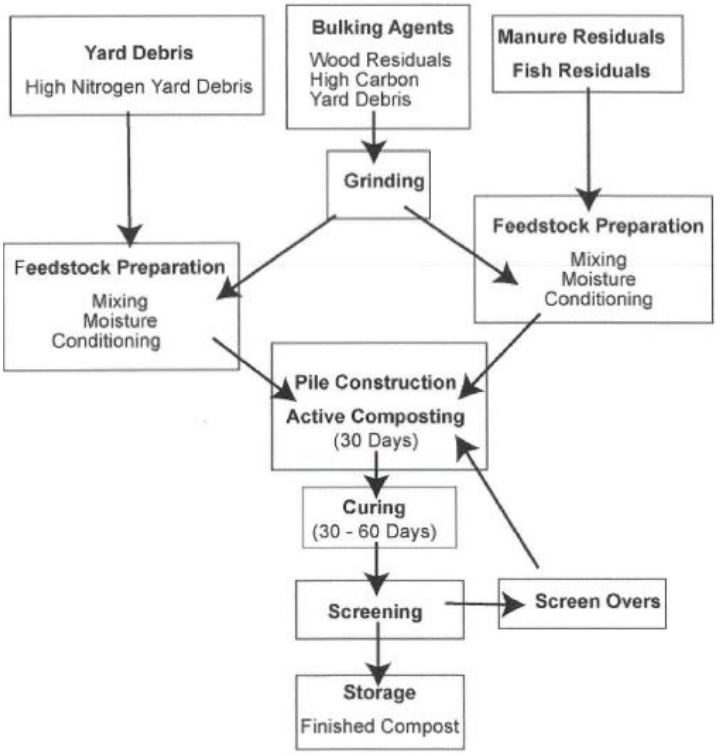
TILZ is proposing to use Extended Aerated Static Pile (EASP) technology for the composting process. The system will use positive aeration to supply oxygen to the piles and maintain aerobic conditions, and a biofilter cover (consisting of unscreened compost) will be used to control volatile organic compound (VOC) and odor emissions from the piles.

The maximum stockpiling times for each feedstock (time from delivery to placement in an EASP) were provided by the applicant and are listed below:[1]

- Wood Waste – 120 days
- Green Waste (grass clippings, high nitrogen materials) – 24 hours
- Green Waste (shrubs, tree prunings, leaves, low nitrogen materials) – 60 days
- Livestock Manure w/ Bedding – 14 days
- Fish Waste – 24 hours
- Pre-consumer food waste – 24 hours

[1] "Tilz Response to PSCAA 7.23.20.docx" provided via email on July 23, 2020.

Once a pile has been constructed, active composting will begin and will last 30 days. Then, the material will enter the curing phase of the process, which lasts an additional 15 to 60 days. The length of time for curing is determined by the time to obtain pathogen destruction efficiency and reach maturity. Curing may occur in the originally constructed pile, or the material may be moved to a separate stockpile for curing. Screening the final product may take place either before or after the curing phase. TILZ provided the following process flow diagram in the NOC application.



The facility will also have one grinder, one screener, two loaders, and one excavator, each powered by an internal combustion engine. Each of these engines is a nonroad engine, as defined in 40 CFR §89.2. Nonroad compression ignition engines subject to 40 CFR Part 89 or 40 CFR Part 1039 are exempt from permitting per Regulation I, Section 6.03(c)(5).

B. DATABASE INFORMATION

Source:
30291 - Crane & Crane Holdings LLC (dba TILZ)

Basic Equipment
Count: 6

Reg	Name	Ite...	NC/No...	BE Code	Year...	Units...	Rate...	Rat...	NOC Not Requ...	NOC Exempted	Comments
30291	Crane &...	1	11935	14 - composting	2020	1	1400...	To...	☐	☐	Compost operation consisting of a tipping area, two Extended Aerated Static
30291	Crane &...	2		32 - IC engine (generator, pum...	2020	1	580.00	Hp	☑	☐	Grinder (non-road engine)
30291	Crane &...	3		32 - IC engine (generator, pum...	2020	1	174.00	Hp	☑	☐	Screener (non-road engine)
30291	Crane &...	4		32 - IC engine (generator, pum...	2020	1	163.00	Hp	☑	☐	Loader (non-road engine)
30291	Crane &...	5		32 - IC engine (generator, pum...	2020	1	316.00	Hp	☑	☐	Loader (non-road engine)
30291	Crane &...	6		32 - IC engine (generator, pum...	2020	1	102.00	Hp	☑	☐	Excavator (non-road engine)

Comment: Compost operation consisting of a tipping area, two Extended Aerated Static Pile composting bays with four zones each, concrete composting pad (100'x300'), curing piles, final product storage piles, and a leachate po

Control Equipment
Count: 0

Reg	Name	Item #	NC/N...	CE Code	Year I...	Units Inst...	Rated...	Rated E...	NOC Not Required	Comments

Comment:

New NSPS due to this NOCOA?	**No**	**Applicable NSPS: None**	**Delegated? N/A**
New NESHAP due to this NOCOA?	**No**	**Applicable NESHAP: None**	**Delegated? N/A**
New Synthetic Minor due to this NOCOA?	**No**		

C. NOC FEES AND ANNUAL REGISTRATION FEES

NOC Fees:
Fees have been assessed in accordance with the fee schedule in Regulation I, Section 6.04. All fees must be paid prior to issuance of the final Order of Approval.

Fee Description	Cost	Amount Received (Date)
Filing Fee	$ 1,150	
Composting Facility	$ 10,000	
Public Notice	$ 700 (plus publication costs)	
Filing received		$ 1,150 (12/17/2019)
Additional fee received		$ 10,700 (8/27/2020)
Total Remaining	**$ 0**	

Registration Fees:
Registration fees are assessed to the facility on an annual basis. Fees are assessed in accordance with Regulation I, Section 5.07.

Applicability		
Regulation I	**Description**	**Note**
Section 5.03(a)(8)(D)	Commercial composting with raw materials from off-site	
Annual Registration Fee		
Regulation I	**Description**	**Fee**
Section 5.07(c)	Base fee	$ 1,150
Section 5.07(c)	Commercial composting with raw materials from off-site (<100,000 tons)	$ 5,750
	Total =	$ 6,900

D. STATE ENVIRONMENTAL POLICY ACT (SEPA) REVIEW

State Environmental Policy Act (SEPA) review was conducted in accordance with Regulation I, Article 2. The SEPA review is undertaken to identify and help government decision-makers, applicants, and the public to understand how a project will affect the environment. A review under SEPA is required for projects that are not categorically exempt in WAC 197-11-800 through WAC 197-11-890. A new source review action which requires a NOC application submittal to the Agency is not categorically exempt.

The City of Bainbridge Island is the SEPA lead agency for this project and issued the associated MDNS on August 12, 2020. This NOC is being issued after the date that the MDNS became final.

MDNS Tilz 20200812 2.pdf

E. TRIBAL CONSULTATION

On November 21, 2019, the Agency's Interim Tribal Consultation Policy was adopted by the Board. Criteria requiring tribal consultation are listed in Section II.A of the policy and include establishment of a new air operating permit source, establishment of a new emission reporting source, modification of an existing emission reporting source to increase production capacity, or establishment or modification of certain equipment or activities. In addition, if the Agency receives an NOC application that does not meet the criteria in Section II.A but may represent similar types and quantities of emissions, the Agency has the discretion to provide additional consultation opportunities.

The Agency identified that this NOC application meets the criteria in the Agency's Interim Tribal Consultation Policy, adopted by the Board on November 21, 2019, since this application is for a new composting facility. In addition, the facility is expected to be a new emission reporting source.

In accordance with the policy, the Agency notified each Tribe within the Agency's jurisdiction on May 22, 2020 of the intent to hold a consultation.

The Agency did not receive any requests to schedule a consultation meeting. However, the Agency did receive the following comment from the Snoqualmie Tribe:

Snoqualmie Response to Tribal Co

The Agency sent this comment to the City of Bainbridge Island, since it is relevant to the SEPA review. The comment was received by the City of Bainbridge Island during the public comment period for the MDNS.

On October 5th 2020, the Agency notified each tribe that the Agency would be proceeding with the final steps to issue the conditional approval of this Notice of Construction application.

F. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REVIEW

Best Available Control Technology (BACT)

New stationary sources of air pollution are required to use BACT to control all pollutants not previously emitted, or those for which emissions would increase as a result of the new source or modification. BACT is defined in WAC 173-400-030 as, "an emission limitation based on the maximum degree of reduction for each air pollutant subject to regulation under Chapter 70.94 RCW emitted from or which results from any new or modified stationary source, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each pollutant."

An emissions standard or emissions limitation means "a requirement established under the Federal Clean Air Act or Chapter 70.94 RCW which limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction and any design, equipment, work practice, or operational standard adopted under the Federal Clean Air Act or Chapter 70.94 RCW."

Best Available Control Technology for Toxics (tBACT)

New or modified sources are required to use tBACT for emissions control for TAP. Best available control technology for toxics (tBACT) is defined in WAC 173-460-020 as, "the term defined in WAC 173-400-030, as applied to TAP."

Similar Permits

Origin	Description	Limitations
PSCAA Order No. 10494 (4/1/2014)	Temporary Expansion of an existing Aerated Static Pile (ASP) and Mass Bed Composting Facility from 30,000 to 75,000 tons per year; of Agricultural Organics (Cow Manure, bedding, and Paunch), pre and post-consumer food waste, and yard waste.	**PM/Visible Emissions** ▪ Water mist system for wood grinder ▪ Shall not exceed 10% opacity for any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour **VOC/Odor** ▪ Biofilter for ASPs and tipping building. ▪ Daily odor inspections of the property. ▪ Material must be premixed for composting prior to leaving the tipping building. ▪ No storage of compost material at the end of each workday unless it is covered with a 6" biofilter media cap. ▪ Use of leachate collection and treatment system.

Origin	Description	Limitations
PSCAA Order No. 10455 (8/21/2012)	Composting System rated at 228,521 tons per year of pre and post-consumer food waste, yard, clean wood and land clearing wastes; consisting of (4) four - 41,000 ton per year Gore Composting Systems with the first phase of composting reduced from 28 to 21 days; a Tipping Building (with additional 100 ft x 50 ft apron canopy) for receipt, grinding, and mixing of feedstocks with a 24,000 cfm rated biofilter; and a Grinding Building (625 square foot) for grinding and mixing feedstocks to be equipped with a 900 square foot biofilter rated at 2,100 cfm exhaust flow.	**PM/Visible Emissions** ▪ Shall not exceed 10% opacity for any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour ▪ Water mist system for wood grinder **VOC/Odor** ▪ Biofilter for tipping building. ▪ Composting material must be covered for the gore cover composting system. ▪ Daily odor inspections of the property. ▪ Material must be premixed for composting prior to leaving the tipping building. ▪ Use of leachate collection and treatment system.

Other Regulatory Agencies BACT

California Air Districts

South Coast Air Quality Management District (SCAQMD) and San Joaquin Air Pollution Control District (SCAQMD) require air quality permits for some composting operations and have adopted composting facility-specific rules to complement the requirements of their NSR rules. These rules are summarized in the table below.

California Permitting Rules for New and Existing Composting Operations

Air District	Relevant Rules	Emissions Limitations
SJVAPCD	Rule 4565 (animal manure, biosolids, poultry litter) & 4566 (organics); NSR Rule 2201	Mitigation measures based on wet-tons of material processed to achieve reductions of 19%, 60%, 80% VOCs.
SCAQMD	Rule 1133.2 (co-composting with biosolids and/or animal waste), Rule 1133.3 greenwaste only; NSR Regulation XIII, Rules 1304, 317	70% reduction by weight for existing operations, and 80% reduction by weight for new operations for VOCs and NH3 (Rule 1133.2); 80% reduction by weight for VOC and NH3 (Rule 1133.3)

SJVAPCD Composting Rules Summary

SJVAPCD Rule 4565 (Biosolids, Animal Manure, and Poultry Litter Operations) and SJVAPCD Rule 4566 (Organic Material Composting Operations) provide requirements for new and existing composting operations and related activities. Rule 4565 requires reductions of volatile organic compounds (VOC) emissions from biosolids (sewage sludge or wastewater), animal manure, and poultry litter composting and co-composting (biosolids/manure/litter mixed with other materials)

operations. Rule 4566 requires VOC emission reductions from organic material (food, green, or a mixture thereof) composting operations. In addition to reducing VOC emissions, the measures and practices required by SJVAPCD Rules 4565 and 4566 also reduce ammonia (NH_3) emissions. Per Rule 4565, mitigation measures, for both the active and curing composting phases, are aimed at reducing VOC emissions from biosolids, animal manure, or poultry litter composting operations. The number of mitigation measures required depends on the facility's annual feedstock throughput. A list of all mitigation measures can be found in Table 2 of District Rule 4565.

- Composting of up to 20,000 wet-tons per year are required to implement at least three Class One mitigation measures.
- Composting between 20,000 and 100,000 wet-tons per year are required to implement at least four total mitigation measures (either four Class One measures or three Class One measures and one Class Two measure).
- Composting of 100,000 wet-tons per year or greater are required to implement four or five mitigation measures (depending on the measures chosen).
- Composting of less than 200,000 wet-tons per year are required to implement two mitigation measures or an alternative measure that demonstrates at least 19% VOC reduction.
- Composting between 200,000 and 750,000 wet-tons per year are required to implement either three mitigation measures or an alternative measure that demonstrates at least 60% VOC reduction.
- Composting 750,000 wet-tons per year or greater are required to implement a mitigation measure that demonstrates at least 80% VOC reduction.

Per Rule 4566, mitigation measures are aimed at reducing VOC emissions from organic material composting during the active phase. The number of mitigation measures required depends on the facility's annual feedstock throughput. A list of all mitigation measures can be found in Table 1 of District Rule 4566.

- Composting of less than 200,000 wet-tons per year: for windrow composting only, implement at least 3 turns during the active-phase and one mitigation measure; or an Agency-approved alternative measure that demonstrates at least 19% VOC reduction.
- Composting between 200,000 and 750,000 wet-tons per year: for windrow composting only, implement at least 3 turns during the active-phase, one mitigation measure for watering systems, and the finished compost cover mitigation measure; or an Agency-approved alternative measure that demonstrates at least 60% VOC reduction.

Pursuant to SJVAPCD Rule 2201, add-on emission control devices may be required if a new or modified composting/co-composting operation triggers BACT. The SJVAPCD has established BACT guidelines relevant to the composting industry, which are summarized in the table below:

Basis	Description	BACT/tBACT
SJVAPCD BACT Guideline 6.4.1 (4/3/1998)	Composted Materials – Screening, Transportable, Wood Waste Processing	**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.
SJVAPCD BACT Guideline 6.4.3 (7/16/2018)	Green Waste, Wood Waste, and Composted Material – Transfer & Screening	**PM_{10}:** Process materials with moisture content ≥25% and ≤30%; visible emissions not to exceed 5% opacity
SJVAPCD BACT Guideline 6.4.8 (12/19/2016)	Manure Composting Operations	**VOC:** Class One Mitigation Measures from District Rule 4565 (10% control) **NH_3:** Class One Mitigation Measures from District Rule 4565 (10% control)

SCAQMD Composting Rules Summary

SCAQMD 1133 series rules provide requirements for composting and related activities. SCAQMD Rule 1133.3 requires reductions of VOC and NH_3 emissions from green waste composting. For green waste composting, it includes three types of feedstock materials: green waste-only, green waste mixed with food waste, or green waste with up to 20% manure, by volume.

Either best management practices (BMPs) or add-on emission control devices are required to reduce VOC and NH_3 emissions from green waste composting windrows (elongated piles) as per Rule 1133.3, depending on the facility's feedstock throughput.

- Composting of green waste only, up to 20 volume % manure, or up to 5,000 tons per year (tpy) of food waste throughput:
    - Cover each active phase pile with finished compost (at least 6" thick) within 24 hours of formation.
    - Apply water within 6 hours before turning, such that the top of the pile is wet at a depth of at least 3".
    - Alternatively, implement a mitigation measure that demonstrates emission reductions of at least 40 wt% for VOC and at least 20 wt% for NH_3.
- Composting of greater than 5,000 tpy of food waste throughput:
    - Requires an add-on emission control device that has an overall system control efficiency of 80% or higher for VOC and NH_3 during the active phase (at least 22 days) of composting containing more than 10% food waste, determined by a source test.

Any relocation or any new or modified source which results in an emission increase of any non-attainment air contaminant, ozone depleting compound, or ammonia shall employ BACT. SCAQMD has interpreted the BACT provision as a 1.0 lb/day increase in emissions from all sources subject to NSR. Minor Source BACT requires compliance with SCAQMD Rule 1133.2 for composting. Aerated static pile composting systems with an appropriate emission control device may be considered as BACT.

Washington Department of Ecology

Origin	Description	Limitations
WDOE Order No. 14AQ-C191 (9/17/2019)	Expansion of composting operation to process up to 62,700 tons per year of feedstock, including green waste, wood waste, food waste, manure and bedding.	**PM/Visible Emissions** ▪ Grinding, mixing, and turning conducted with adequate moisture to prevent visible emissions ▪ Vehicle routes covered with crushed stone or paved and controlled w/ water or chemical dust suppressants **VOC/Odor** ▪ Negative aeration system collecting at least 98% of Stage 1 emissions ▪ Biofilter with at least 75.0% destruction for all collected VOC emissions and 21.8% destruction for all collected NH_3 emissions ▪ Unscreened compost cover (at least 12") applied to stock piles at the end of each day ▪ Unscreened compost cover (at least 12") applied to compost piles ▪ Carbon to nitrogen ratio of 25:1 to 30:1 for feedstock prior to placement in compost bed ▪ Compost bed moisture content 55-65%

<u>BACT for Other Source Categories with Potential Odor Emissions</u>

Origin	Description	Limitations
PSCAA Order No. 11946 (8/21/2020)	Septage and biosolids processing facility consisting of one Dusky Shark septage and biosolids receiving/ screening station, eight septage and biosolids storage tanks (37,500 gallons each), Varcor septage and biosolids waste stream separation system (90 gallons per minute; including a preheater, degas tower, sludge dryer, and condensing units), one pelletizer, one convective dryer drag chain conveyor, dry material storage bay (20 ton capacity), and ammonia truck loading.	**VOC/Odor** ▪ Odor removal of ≥ 90% & H_2S removal of ≥ 99% using enclosed biofilter vessel. ▪ Building HVAC system equipped with carbon filtration system ▪ No detectable odor allowed at or beyond the facility's boundary

Origin	Description	Limitations
PSCAA Order No. 11955 (8/4/2020)	Establishment of a Tier 2 marijuana production and processing facility with a 10,000 square foot canopy. The facility is composed of five 2,000 square foot greenhouses containing the production and processing of marijuana.	**VOC/Odor** ▪ Use of carbon adsorption for odor control ▪ No detectable cannabis odors allowed at or beyond the property line.
PSCAA Order No. 11985 (6/19/2020)	Establishment of a Tier 2 marijuana production and processing facility with a 2,100 square foot canopy.	**VOC/Odor** ▪ Use of carbon adsorption for odor control ▪ No detectable cannabis odors allowed at or beyond the property line.
PSCAA Order No. 11939 (4/22/2020)	Four 400 Watt CO2 laser cutters (one MultiCam Laser Cutter 2000 Series and three Kern Model HSE lasers) for cutting and engraving of primarily acrylic products with some incidental cutting of wood and stainless steel products.	**VOC/Odor** ▪ Use of carbon adsorption system ▪ No detectable odor allowed at or beyond the facility's boundary
PSCAA Order No. 11846 (7/15/2019)	Food production facility including the following equipment: two existing 600 horsepower, 24.5 MMBtu/hr heat input capacity, Cleaver Brooks Scotch Marine firetube steam boilers; and four existing soup kettles and one new stock cooking vessel (900 gal)	**VOC/Odor** ▪ Use of packed-bed scrubber ▪ No detectable odor allowed at or beyond the facility's boundary

Analysis

TILZ is proposing to construct a new commercial composting facility accepting a maximum of 14,000 wet tons of feedstock per year, consisting of roughly 85% wood, yard, and landscape residuals (green waste), 5% fish waste, 5% pre-consumer food waste, and 5% herbivore manure and bedding. TILZ is proposing to use Extended Aerated Static Pile (EASP) technology for the composting process. The system will use positive aeration to supply oxygen to the piles and maintain aerobic conditions, and a biofilter cover (consisting of unscreened compost) will be used to control VOC and odor emissions from the piles.

Some of the permits recently issued by the Agency and by the Washington Department of Ecology included separate biofilters for emission control, rather than solely using biofilter cover layers on top of the piles. However, these facilities are much larger in scale than the composting operation proposed by TILZ.

For composting facilities of the size TILZ is proposing, SCAQMD Rule 1133.3 requires that each active phase pile be covered with at least 6" of finished compost within 24 hours of formation, and water must be applied within 6 hours of turning. Alternatively, measures can be employed that reduce VOC by at least 40 wt % and NH_3 by at least 20 wt%. However, for the purpose of calculation potential emissions from this facility, a VOC control efficiency of 75% for positive aeration with a biofilter layer was assumed (see the Agency's VOC technical report on composting included in Section G of this worksheet). Therefore, a limit will be established by this Order of Approval requiring each biofilter cover layer to achieve at least 75.0% reduction of VOC emissions.

The maximum stockpiling times for each feedstock (time from delivery to placement in an EASP) were provided by the applicant and are listed below:[2]

- Wood Waste – 120 days
- Green Waste (grass clippings, high nitrogen materials) – 24 hours
- Green Waste (shrubs, tree prunings, leaves, low nitrogen materials) – 60 days
- Livestock Manure w/ Bedding – 14 days
- Fish Waste – 24 hours
- Pre-consumer food waste – 24 hours

However, the operations plan submitted by the applicant indicates that fish waste and pre-consumer food waste will be processed within 4 hours of receipt, which will be established as a condition of this Order of Approval. Other feedstocks with a high potential to generate odor (grass clippings and other high-nitrogen materials) will be required to be processed within 24 hours of receipt. In addition, this Order of Approval will require TILZ to cover stockpiles with at least 12 inches of biofilter media at the end of each day.

To satisfy BACT, no detectable odor shall be allowed at or beyond the facility's boundary. Grinding, mixing, and turning must be conducted with adequate moisture to prevent visible emissions. Consistent with SJVAPCD BACT Guidelines 6.4.1 and 6.4.3, visible emissions from grinding and

[2] "Tilz Response to PSCAA 7.23.20.docx" provided via email on July 23, 2020.

screening shall not exceed 5% opacity for any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour. Vehicle routes must be controlled with water or chemical dust suppressants adequate to prevent visible emissions. TILZ will be required to perform facility-wide inspections for odor and visible emissions and conduct corrective action if either is detected.

Recommendations

Pollutant	BACT
VOC and organic HAP/TAP	• VOC removal efficiency of at least 75.0% across biofilter cover layer. • No detectable odor allowed at or beyond the facility's boundary
Ammonia	• NH_3 removal efficiency of at least 53.0% across biofilter cover layer. • No detectable odor allowed at or beyond the facility's boundary
Particulate Matter	• Visible emissions from grinding and screening shall not exceed 5% opacity for any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour as measured by WDOE Method 9A.

G. EMISSION ESTIMATES

Proposed Project Emissions

VOC emissions from the proposed composting operation were estimated using VOC emission factor information collected and reviewed by the Agency in 2014. That information relied on numerous references but used a significant portion of the information collected in California. That information and subsequent rulemaking by SCAQMD and SJVAPCD were included in the California SIP revision package approved by EPA (see FR November 29, 2012, pp. 71129-71131). The Agency VOC technical report on composting is embedded below

Final Report - Compost VOC EF.docx

For this case, TILZ is proposing to control VOC and odor emissions from the composting operation using an EASP system with positive aeration and a finished compost layer covering the compost piles. Food waste and fish waste will be limited to a maximum of 14 weight % within an individual compost pile. Therefore, a VOC emission factor of 1.4 lb/ton for covered green waste composting is used (see Table 1 of the Agency technical report above).

Ammonia emission factors used for the calculations are based on data presented in SJVAPCD's 2010 compost emission factor report. These uncontrolled emission factors are consistent with the factors used for Order No. 14AQ-C191 issued by WDOE. A 53% control efficiency is applied to the NH_3 emission calculations to account for the biofilter layer on top of the ASPs, based on the NH_3 control efficiency listed for "Positive ASP with Biofilter Cover" from CARB's Emission Inventory Methodology for Composting Facilities. This ammonia control efficiency will be established as a permit requirement by this Order of Approval.

Toxic air pollutant (TAP) emissions (except ammonia) were calculated based on sampling conducted by the Washington Department of Ecology between 2010 and 2013. This data was analyzed in a report prepared by Washington State University and published in November 2019 (updated in February 2020).[3] The TAP calculations conservatively assume that the piles emit at highest the rate measured for a "Fresh ASP" or a "7 Day ASP" continuously for 8,760 hours per year.

In addition, particulate matter emissions were calculated from vehicle traffic at the facility. Emissions were calculated using the methodology is AP-42 Chapters 13.2.1 and 13.2.2.

The actual emission calculations are calculated assuming 7,000 tons of feedstock per year. The permitted potential to emit calculations are based on a maximum of 14,000 tons of feedstock per year, as limited by this Order of Approval. The table below summarizes the actual and potential emissions from this project. Detailed calculations are provided in the workbook below.

[3] Jobson, T., Khosravi, N., "Emissions from Washington State Compost Facilities: A Review of Volatile Organic Compound Data, and an Estimation of Greenhouse Gas Emissions" (November 2019, updated February 2020)

Pollutant	Potential Emissions (tpy)	Actual Emissions (tpy)
VOC	42.52	37.62
PM	4.68	2.34
PM_{10}	1.13	0.57

11935 Emissions.xlsx

Facility-wide Emissions

In addition to the composting process, the facility will include emissions from non-road engines, which are exempt from permitting.

> **Reporting Source?** Yes, TILZ is expected to be a reporting source of VOC emissions (greater than 25 tons per year).

H. OPERATING PERMIT OR PSD

The Title V Air Operating Permit (AOP) program applicability for the entire source has been reviewed. The facility is not a Title V air operating permit source because post project PTE remains below Title V applicability thresholds and criteria. The source is considered a "**natural minor**".

Emission increases associated with this project were reviewed for Prevention of Significant Deterioration (PSD) Program applicability. The facility is not an existing PSD major source and the increase in emissions from this permitting action is below PSD thresholds.

I. AMBIENT TOXICS IMPACT ANALYSIS

The estimated potential toxic air pollutant (TAP) emissions are calculated based on the 14,000 ton per year limit on feedstock for ammonia and assuming 8,760 hours of operation per year for other TAPs. The table below includes estimated potential emissions of all TAP and compares those to the Small Quantity Emission Rates (SQER) in WAC 173-460-150. Emissions of each TAP are below the SQER, so no further analysis is required.

Pollutant	SQER (lbs/avg. period)	Averaging Period	Emissions (lbs/avg. period)	% of SQER
Ammonia	37	24-hour	33.98	92%
Methanol	1500	24-hour	29.80	2%
Acetaldehyde	60	year	46.55	78%
Carbon Disulfide	59	24-hour	0.17	0.3%
Carbonyl Sulfide	0.74	24-hour	0.61	82%
Toluene	370	24-hour	2.25	1%
Acetonitrile	4.4	24-hour	0.02	0.5%

J. APPLICABLE RULES & REGULATIONS

Puget Sound Clean Air Agency Regulations

SECTION 5.05 (c): The owner or operator of a registered source shall develop and implement an operation and maintenance plan to ensure continuous compliance with Regulations I, II, and III. A copy of the plan shall be filed with the Control Officer upon request. The plan shall reflect good industrial practice and shall include, but not be limited to, the following:
(1) Periodic inspection of all equipment and control equipment;
(2) Monitoring and recording of equipment and control equipment performance;
(3) Prompt repair of any defective equipment or control equipment;
(4) Procedures for startup, shut down, and normal operation;
(5) The control measures to be employed to ensure compliance with Section 9.15 of this regulation; and
(6) A record of all actions required by the plan.
The plan shall be reviewed by the source owner or operator at least annually and updated to reflect any changes in good industrial practice.

SECTION 6.09: Within 30 days of completion of the installation or modification of a stationary source subject to the provisions of Article 6 of this regulation, the owner or operator or applicant shall file a Notice of Completion with the Agency. Each Notice of Completion shall be submitted on a form provided by the Agency, and shall specify the date upon which operation of the stationary source has commenced or will commence.

SECTION 9.03: (a) It shall be unlawful for any person to cause or allow the emission of any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour, which is:
(1) Darker in shade than that designated as No. 1 (20% density) on the Ringelmann Chart, as published by the United States Bureau of Mines; or
(2) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Section 9.03(a)(1).
(b) The density or opacity of an air contaminant shall be measured at the point of its emission, except when the point of emission cannot be readily observed, it may be measured at an observable point of the plume nearest the point of emission.
(c) This section shall not apply when the presence of uncombined water is the only reason for the failure of the emission to meet the requirements of this section.

SECTION 9.09: General Particulate Matter (PM) Standard. It shall be unlawful for any person to cause or allow the emission of particulate matter in excess of the following concentrations:
Equipment Used in a Manufacturing Process: 0.05 gr/dscf

SECTION 9.11: It shall be unlawful for any person to cause or allow the emission of any air contaminant in sufficient quantities and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interferes with enjoyment of life and property.

SECTION 9.13: It shall be unlawful for any person to cause or allow the installation or use of any device or use of any means designed to mask the emission of an air contaminant which causes detriment to health, safety or welfare of any person.

SECTION 9.15: It shall be unlawful for any person to cause or allow visible emissions of fugitive dust unless reasonable precautions are employed to minimize the emissions. Reasonable precautions include, but are not limited to, the following:
(1) The use of control equipment, enclosures, and wet (or chemical) suppression techniques, as practical, and curtailment during high winds;
(2) Surfacing roadways and parking areas with asphalt, concrete, or gravel;
(3) Treating temporary, low-traffic areas (e.g., construction sites) with water or chemical stabilizers, reducing vehicle speeds, constructing pavement or rip rap exit aprons, and cleaning vehicle undercarriages before they exit to prevent the track-out of mud or dirt onto paved public roadways; or
(4) Covering or wetting truck loads or allowing adequate freeboard to prevent the escape of dust-bearing materials.

REGULATION I, SECTION 9.20(a): It shall be unlawful for any person to cause or allow the operation of any features, machines or devices constituting parts of or called for by plans, specifications, or other information submitted pursuant to Article 6 of Regulation I unless such features, machines or devices are maintained in good working order.

Washington State Administrative Code

WAC 173-400-040(3): Fallout. No person shall cause or allow the emission of particulate matter from any source to be deposited beyond the property under direct control of the owner or operator of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.

WAC 173-400-040(4): Fugitive emissions. The owner or operator of any emissions unit engaging in materials handling, construction, demolition or other operation which is a source of fugitive emission:

(a) If located in an attainment area and not impacting any nonattainment area, shall take reasonable precautions to prevent the release of air contaminants from the operation.

WAC173-400-111(7): Construction limitations.

(a) Approval to construct or modify a stationary source becomes invalid if construction is not commenced within eighteen months after receipt of the approval, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable time. The permitting authority may extend the eighteen-month period upon a satisfactory showing by the permittee that an extension is justified.

Federal

None

K. PUBLIC NOTICE

A notice of application was posted on the Agency's website for 15 days. No requests or responses were received. A copy of the website posting is below:

New Construction Projects

Company	Address	Project Description	Date Posted	Contact Engineer
Crane & Crane Holdings LLC (dba TILZ)	12112 Miller Road NW, Bainbridge Island, WA 98110	Application for a commercial composting facility for recycling yard waste, fish waste, and agricultural manure and bedding.	1/8/20	Courtney Shernan

This project meets the criteria for mandatory public notice under WAC 173-400-171(3)(b) for a project with an increase in emissions of any air pollutant at a rate above the emission threshold rate as defined in WAC 173-400-030. The potential emission increase of VOC is greater than the 40 ton per year emission threshold established in WAC 173-400-030.

A 30-day public comment period was held from October 23, 2020 through November 22, 2020. Notices that the draft materials were open to comment were published in the Bainbridge Island Review and the Daily Journal of Commerce on October 23, 2020. The Agency posted the application, the draft worksheet, and the draft Order of Approval on the Agency's website during the comment period.

[Insert discussion of comments]

L. RECOMMENDED APPROVAL CONDITIONS

Standard Conditions:

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Clean Air Agency to the applicant to install or establish the equipment, device or process described hereon at the installation address in accordance with the plans and specifications on file in the Engineering Division of the Puget Sound Clean Air Agency.

2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.

Specific Conditions:

EMISSION LIMITS

3. At all times, each aerated static pile shall be covered with at least 12 inches of biofilter media. The biofilter cover layer for the aerated static piles shall provide a minimum removal efficiency of 75.0% for volatile organic compounds. The biofilter cover layer for the aerated static piles shall provide a minimum removal efficiency of 53.0% for ammonia.

4. No detectable odor associated with the composting facility is allowed at or beyond the facility's boundary.

5. Visible emissions from grinding and screening shall not exceed 5% opacity for any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour as measured by WDOE Method 9A.

FEEDSTOCK REQUIREMENTS

6. Acceptable feedstock shall be limited to "organic material", meaning any solid waste that is a biological substance of plant or animal origin capable of microbial degradation. Acceptable organic materials include but are not limited to the following:

   a) Animal manure and bedding;
   b) ASTM compostable films and containers;
   c) Yard debris;
   d) Whole fish mortalities and fish parts;
   e) Pre-consumer food waste; and
   f) Wood waste as defined by WAC 173-350-100, which does not contain paint or stain, laminates, bonding agents, or chemically treated wood.

7. Incoming feedstock shall be visually inspected for contaminants prior to being accepted into the facility. The following types of feedstock are unacceptable and shall be turned away as soon as possible:

   a) Feedstock types that are not an approved feedstock as defined in Condition 6;
   b) Approved feedstock contaminated with material that is not approved for composting. Visible non-approved material observed during the inspection may render a load as contaminated unless it can be removed from the feedstock during pre-processing or is inert and can be screened from the finished compost at the end of the process;
   c) Approved feedstock decomposed or putrefied to a degree that could cause an immediate odor problem in the receiving area that cannot be mitigated by mixing and/or bulking with other materials; and
   d) Any load that is determined to have the potential to cause an immediate, unreasonable nuisance that cannot be mitigated by mixing and/or bulking with other materials.

8. For each load of feedstock received, the owner or operator shall record the following information:

   a) Feedstock type;
   b) Mass of load;
   c) Results from inspection of the load;
   d) Date and time of receipt of the load; and
   e) Name(s) of employee(s) who performed the inspection.

9. The owner or operator shall calculate and record the total mass of feedstock and the amount of fish-based feedstock received on a monthly and 12-month rolling basis. The total amount of feedstock for the composting process shall not exceed 14,000 wet tons during any consecutive 12-month period. The amount of fish-based feedstock for the compost process shall not exceed 700 wet tons during any consecutive 12-month period (5% of the permitted capacity). For the purposes of this

feedstock limit, feedstock does not include any finished compost that is added to the surface of the aerated static piles to act as a biofilter for emission control.

10. The owner or operator shall not accept more than 16 wet tons of fish-based feedstock during a single calendar day.

11. Stockpiled material shall be limited to a maximum of 163 tons of feedstock at all times. Feedstock containing fish waste or pre-consumer food waste shall be processed and placed in an aerated static pile within 4 hours of receipt. Feedstock containing grass clippings or other high-nitrogen green waste shall be processed and placed in an aerated static pile within 24 hours of receipt. At the end of each day, each stockpile shall be covered with at least 12 inches of biofilter media.

OPERATIONAL LIMITS

12. The owner or operator shall install and properly operate a fine water mist system on all wood grinders to control fugitive dust.

13. The owner or operator shall route standing water and water runoff from the compost pad to the leachate collection system. Leachate from the compost facility shall not be used for dust suppression but may be used for moisture addition during feedstock preparation or moisture addition during the composting process.

14. The aerated static piles shall be constructed within the following parameter ranges:
    a) Each pile shall contain no more than 14.0% combined pre-consumer food waste and fish waste by weight.
    b) Carbon to nitrogen ratio shall be between 20:1 and 40:1.
    c) Bulk density shall be less than or equal to 950 lbs/yd^3.

15. Each aerated static pile shall be operated within the following operational limits at all times during the active composting phase:
    a) The moisture content throughout the entire pile shall be maintained between 40% and 65%.
    b) The pH throughout the entire pile shall be maintained between 6 and 8.5.
    c) The oxygen content throughout the entire pile shall be maintained between 10% and 18%.

AERATED STATIC PILE MONITORING

16. Within the same calendar day that each aerated static pile is constructed, the owner or operator shall record the date the pile was constructed, amount of material in the pile, percent food waste, carbon to nitrogen ratio, and bulk density of the pile.

17. At least once every 7 calendar days after construction of each aerated static pile until the end of the active composting phase, the moisture content, oxygen content, and pH of each ASP shall be measured and recorded. The date and time that each parameter was measured shall also be recorded.

18. The temperature of each aerated static pile shall be monitored daily and recorded during the active composting phase. At least three temperature measurements shall be taken per day per ASP. The

first measurement shall be taken roughly 10-feet from one end of the ASP; the second measurement shall be taken at the midpoint of the ASP; and the third measurement shall be taken roughly 10-feet from the opposite end of the ASP.

FACILITY-WIDE REQUIREMENTS

19. The owner or operator shall inspect the entire facility for visible emissions of fugitive dust at least once per calendar day, including an evaluation of whether dust control equipment (e.g. water spray bars, water truck) is being operated in good working order. If visible emissions are observed, the owner or operator shall investigate the cause and take immediate corrective action to minimize emissions. The owner or operator shall record the date, time, and results of each inspection. If visible fugitive dust emissions were observed during any inspection, the owner or operator shall record the cause and what precautions were taken to minimize emissions.

20. The owner or operator shall conduct an inspection of the entire facility at least once per calendar day to monitor along and outside the property line for detectable odors from the facility. If odors from the facility are detected at or outside the property line during the monitoring or at any other time, the owner or operator shall take immediate corrective action to eliminate the odors. The owner or operator shall record the date, time, and results of each inspection, including any corrective actions taken to eliminate odors.

COMPLAINTS

21. The owner or operator shall establish a complaint response program as part of the O&M Plan. The program shall include a complaint phone line, criteria and methods for establishing whether the TILZ facility may be the source of emissions related to the complaint, and a format for communicating results of investigation and advising complainants of TILZ's corrective actions.

    a) The owner or operator shall record and investigate complaints received regarding air quality as soon as possible, but no later than one working day after receipt.

    b) The owner or operator shall correct any problems identified by these complaint investigations within 24 hours of identification or cease operation of the equipment until the problem is resolved;

    c) Records of all complaints received regarding air quality issues shall include information regarding date and time of complaint; name and address of complainant (if known); nature of the complaint; investigation efforts completed and basis for conclusion reached; and date, time, and nature of any corrective action taken.

OPERATION & MAINTENANCE

22. The owner or operator shall develop an Operation and Maintenance (O&M) Plan consistent with the requirements of Regulation I, Section 5.05(c). The plan must address procedures for determining when the composting systems are operating properly and the corrective actions that will be taken when they are not.

RECORDS

23. All records of observations and supporting documentation required by this Order of Approval shall be completed contemporaneously and no later than the end of each day. Each inspection and observation required on a daily basis by this Order shall be completed for each operational day for the site. An operational day is defined as any day that feedstock, actively composting material, or finished compost is located onsite.

24. The owner or operator shall maintain records required by this Order of Approval for two years and make them available to Puget Sound Clean Air Agency personnel upon request.

M. CORRESPONDENCE AND SUPPORTING DOCUMENTS

NOC #11935 Incomplete - Crane & Crane Holdings LLC (dba TILZ) (Reg. 30291)

Reply | Reply All | Forward | ...

Thu 1/16/2020 8:42 AM

CS Courtney Shernan
To tom@tilz.com
Cc Peter Moon

Follow up. Completed on Monday, May 18, 2020.

WAC 173-460 OLD.PDF 5 MB

Final Report - Compost VOC EF.DOCX 153 KB

Hi Tom,

I have recently been assigned as the engineer to review and process your Notice of Construction (NOC) application #11935. I have reviewed the contents of the application and have determined that your application is incomplete at this time. Please provide the following information:

1. A facility plot plan showing the locations of the tipping area, composting area concrete pad, curing piles, final product storage piles, and leachate pond.
2. What is the maximum amount of time that each type of feedstock will be stockpiled prior to being placed in an EASP?
3. Will the piles be turned during the curing phase of the process? Will the curing piles have a biofilter layer?
4. Are all of the engines listed in the application nonroad engines? "Nonroad engine" is defined in 40 CFR §89.2.
5. Please provide a list of the current equipment at the facility. Does the facility currently conduct any composting operations?
6. My review is required to include a case-by-case analysis of Best Available Control Technology (BACT) for the project. Washington State regulation, WAC 173-400-030, defines BACT as "an emission limitation based on the maximum degree of reduction for each air pollutant subject to regulation under chapter 70.94 RCW emitted from or which result from any new or modified stationary source, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant." Also in WAC 173-400-030, "emission limitation" is defined to include any requirement relating to the operation or maintenance of a source to assure continuous emission reduction and any design, equipment, work practice, or operational standard. Please provide a BACT analysis for VOC and odor emissions for each of the emission sources at the facility (tipping area, EASPs, curing/product storage piles, leachate pond, etc.).
7. Please use PSCAA's emission factors to estimate VOC emissions from green waste composting and stockpiling (see attached report).
8. PSCAA's September 2014 compost emission factor report did not include an ammonia emission factor. However, the Washington Department of Ecology has determined that an uncontrolled emission factor of 1.01 lb/ton for green waste composting is appropriate. This factor was derived from a subset of the data in San Joaquin Valley Air Pollution Control District's *Compost Emission Factors* (September 15, 2010). Please use this factor as the basis for the ammonia emission calculations.
9. Since the emission factors described above are for green waste, please describe how you will quantify emissions from fish waste and manure composting.
10. Please provide fugitive dust emission calculations for the truck traffic at the facility.
11. Please provide potential toxic air pollutant (TAP) emissions from the composting process. Please note that the Washington Department of Ecology recently updated their list of TAPs, which can be found here: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-460-150. PSCAA has not yet adopted the new TAP list, so the previous list is currently in effect in our jurisdiction. I've attached a copy of this for your reference. The Agency intends to adopt the new list sometime this spring, but we do not have a specific date yet.

    If the emission increase of any TAP is greater than the Small Quantity Emission Rate (SQER) in WAC 173-460-150, then dispersion modeling showing whether estimated ambient concentrations of TAPs will be less than the Acceptable Source Impact Levels (ASILs) is required. The project will need to be in compliance with the SQERs or ASILs that are in effect on the day the permit is issued. Since it is unclear which SQERs/ASIL will be in effect when this permit is issued, I would recommend comparing against the lower of the two values for conservatism.

Once I receive this information, I may have additional questions or comments for you.

Please also note that you will be receiving an additional email sometime in the future, which will contain an invoice for additional fees associated with this NOC review. For more detailed information on how these fees are determined, please see Regulation I, Article 6, Section 6.04. (http://www.pscleanair.org/DocumentCenter/View/339/1-6-PDF?bidId)

Thank you!

Courtney Shernan (formerly O'Gorman)
Engineer II
CourtneyS@pscleanair.org
206.689.4022
Puget Sound Clean Air Agency
1904 3rd Ave – Suite 105
Seattle, WA 98101

Response to January 16 PSCAA comments

Reply | Reply All | Forward

HR Harold Ruppert <harold@o2compost.com>
To Courtney Shernan
Cc tom; Peter Moon (Peter)
Tue 3/10/2020 1:00 PM

Follow up. Start by Tuesday, March 10, 2020. Due by Tuesday, March 10, 2020.
You replied to this message on 3/10/2020 1:01 PM.

TILZ Composting BACTMarch10_20.docx 37 KB
TILZ Dust Emission Estimates March 10_20.xlsx 440 KB
Tilz Site Plan_11x17.pdf 472 KB
TILZPSCAAResponseMarch10_20.docx 1 MB
TAPEmissionsTILZCompostMarch10_20.xlsx

To; Courtney Shernan,

Please see the attached response to PSCAA comments.
Attached are two documents with supporting information.

- Usable data on VOC and specific Toxic Air Pollutants are sparse. Only a few papers available with information relating to TILZ proposed operation are available.
- Emission factors provided by PSCAA are used to estimate VOC.
- TILZ is using the "Full enclosure with capture to biofilter" as the technology to quantify emission and compare with the "Covered" in the BACT study.
- Because the content of manure and fish will always be below 15% by weight, we are proposing the green waste emission factors should be used. The document "Compost Emission Factors - Volatile Organic Compounds" states under reference 9. " Food waste emission factors should be used when food waste constitutes 15 percent or greater of the composted material."
- To reduce odor and to avoid constructing a receiving building we have proposed covering manure and green waste with biofilter material while being held for up to 14 days.

Thank you,

Harold Ruppert

RE: Response to January 16 PSCAA comments

Reply | Reply All | Forward

CS Courtney Shernan
To Harold Ruppert
Cc tom; Peter Moon (Peter)
Fri 4/3/2020 7:29 AM

Hi Harold,

Thank you very much for submitting this additional information, and I hope all is well in this uncertain time. After reviewing the information you have provided, I have some follow-up questions and comments for you:

1. What is the status of the SEPA review with the City of Bainbridge Island?
2. In your response document, you indicated that none of the engines listed meet the definition of "non-road engine" in 40 CFR 89.2. Part (1)(i) of the non-road engine definition says "internal combustion engine in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers)". The front loaders and excavator appear to meet this definition, but please let me know if I am misunderstanding something.
    a. For the other engines, will they be located in a single spot at the facility or will they be moved around the facility?
    b. Please note that per PSCAA Regulation I, Section 6.03(c)(5), all nonroad compression ignition engines subject 40 CFR Part 89 are exempt from permitting.
3. We are concerned with potential odor impacts that could result from stockpiling material for an extended period of time (up to 14 days). As you described in your BACT write-up, yard waste has the potential to generate odors, especially for high nitrogen feedstocks. While we understand the challenges and expense that would be presented by constructing a receiving building and controlling emissions with a biofilter, we need to ensure that BACT for odors will be met. We have not received sufficient documentation to support that a biofilter layer on the stockpiles will be able to adequately prevent odors, and it may not meet our BACT requirement. Specifically, there seems to still be a high potential for odor when the piles are broken into to build the ASPs. Please assess and submit a description of other measures that could be taken to reduce odor and VOC emissions from stockpiling. Examples of other measures could include, but aren't limited to, reducing the maximum amount of the time that material is stockpiled or mixing bulking materials with the feedstock prior to stockpiling to increase the carbon content.
4. I have the following comments on the emission calculations you provided. Please provide updated emission calculations to address the following:
    a. The emission calculations you provided do not appear to account for a 14-day stockpile duration (they appear to assume a single day stockpiling period).
    b. The CARB document titled "ARB Emissions Inventory Methodology for Composting Facilities" (dated 3/2/2015) also references the document you listed in Reference 1 for ammonia control efficiency. However, in Table III-3 of their report, they list a 53% control efficiency, rather than the 76% average that you calculated. Please update the calculations to use a 53% ammonia control efficiency for the biofilter layer.
    c. The report you referenced to calculate emissions of TAP (other than ammonia) includes additional data in Table A.10 for Facility 5 that are not listed in Table 1. For example, Table A.10 includes emissions of carbon disulfide and carbonyl sulfide, which aren't included in Table 1. Please update the calculations to use the data presented for Facility 5 in Table A.10.
    d. The calculations indicate that the surface area per pile is 8,000 ft^2. Then, the emissions are calculated for "lbs of Emission per minute/4 piles". However, it doesn't appear that the calculations included a x4 multiplier to go from one pile to four piles. Please clarify how many piles there will be (maximum) and update the calculations as needed.
5. When the updates described above are taken into consideration, it appears that NH_3 and acetaldehyde emissions are above both the Ecology SQER and the current SQER in the effect for PSCAA. Carbonyl sulfide emissions are also above the Ecology SQER. Please provide an air dispersion modeling analysis to show that impacts from the project will be below the acceptable source impact level (ASIL) for ammonia, acetaldehyde, and carbonyl sulfide. If you would like to setup a call to discuss this modeling to make sure we're on the same page with what is expected, please feel free to let me know.

Re: FW: Response to January 16 PSCAA comments

Reply | Reply All | Forward | ...

PM Peter Moon <peter@o2compost.com>
To Courtney Shernan
Cc tom; harold

Thu 7/23/2020 1:27 PM

Follow up. Start by Thursday, July 23, 2020. Due by Thursday, July 23, 2020.

Tilz Response to PSCAA 7.23.20.docx
112 KB

Courtney -

I have attached our response to your questions concerning the Tilz Topsoil and Compost NOC Application, and supporting calculations.

I hope that this resolves all of the outstanding issues but if not, please provide a response and we'll address each of the remaining issues.

Best,

Peter

PETER MOON, P.E. • **President / Principal Engineer**
PO Box 1026 • Snohomish WA 98291
Ph: 360-568-8085 • Fax: 360-563-5790

O2Compost
Compost Systems & Training
Protecting Our Land, Air and Water Resources

RE: O2Compost - Follow-up

Reply | Reply All | Forward | ...

CS Courtney Shernan
To Peter Moon

Tue 8/4/2020 8:21 AM

Hi Peter,

Thank you for sending this. I think I have almost everything I need to finish drafting the NOC worksheet, but I do have a couple quick questions for you:

1. In the original application, pre-consumer food waste was not listed as one of the feedstocks that would be accepted. The application listed 80% wood, yard, and landscape residuals; 10% fish waste; and 10% herbivore manure and bedding. Can you please provide updated percentages of each feedstock, accounting for pre-consumer food waste?

2. Can you please also provide the bulk density of each of these feedstocks?

3. Please note that the SEPA determination will need to be issued by the City of Bainbridge Island before I can finalize the NOC worksheet.

Thank you!
Courtney

RE: O2Compost - Follow-up

Reply | Reply All | Forward | ...

PM Peter Moon <peter@o2compost.com>
To Courtney Shernan
Cc tom; Devin Johnson
Wed 8/5/2020 7:24 AM

Follow up. Start by Wednesday, August 5, 2020. Due by Wednesday, August 5, 2020.

Courtney -

Thank you for your quick reply. As requested:

1. Our revised estimate of in-bound feedstocks is: 85% wood, yard and landscape residuals; 5% fish waste; 5% herbivore manure; and 5% pre-consumer food waste.
2. Our goal for all feedstock mixes ranges between 650 and 950 pounds per cubic yard (i.e., when blended with bulking agent and at a moisture content of 60% to 65%). Fish alone will have a bulk density of ~1,600 pcy. Herbivore manure alone will have a bulk density of 400 to 500 pcy. Pre-consumer food waste alone will have a bulk density of 900 - 1,200 pcy).
3. Yes, we are also waiting for written notification from the City of Bainbridge Island regarding the SEPA Determination. We will forward it to you as soon as it's received at our end.

Best regards,

Peter Moon

PETER MOON, P.E. • **President / Principal Engineer**
PO Box 1026 • Snohomish WA 98291
Ph: 360-568-8085 • Fax: 360-563-5790

O_2Compost
Compost Systems & Training
Protecting Our Land, Air and Water Resources

N. REVIEWS

Reviews	Name	Date
Engineer:	Courtney Shernan	9/21/2020
Inspector:	Robert Booher	9/2/2020
Second Review:	John Dawson	8/31/2020
Applicant Name:		