SWCAA
Southwest Clean Air Agency

TECHNICAL SUPPORT DOCUMENT

H & H WOOD RECYCLERS
SWCAA ID: 2351

Air Discharge Permit / Nonroad Engine Permit 17-3257

Air Discharge Permit / Nonroad Engine Permit Application CL-3010

Issued: December 12, 2017

Prepared By: Clint Lamoreaux
Air Quality Engineer
Southwest Clean Air Agency

TABLE OF CONTENTS

Abbreviations

ADP	Air Discharge Permit
BACT	Best Available Control Technology
CARB	California Air Resources Board
CFR	Code of Federal Regulations
cfm	Cubic feet per minute
CO	Carbon monoxide
EPA	U.S. Environmental Protection Agency
GWP	Global warming potential as identified in 40 CFR Part 98
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act
Kg	Kilogram
LAER	Lowest Achievable Emission Rate
lb	Pound
mg/L	Milligrams per liter
MMBtu	Millions of British thermal units
NO_X	Nitrogen oxides
PM	Total particulate matter (includes both filterable particulate matter measured by EPA Method 5 and condensable particulate matter measured by EPA Method 202)
PM_{10}	Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
$PM_{2.5}$	Particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
ppm	Parts per million
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
RCW	Revised Code of Washington
SQER	Small Quantity Emission Rate listed in WAC 173-460 (effective 8/21/98)
SO_2	Sulfur dioxide
SWCAA	Southwest Clean Air Agency
TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
T-BACT	Best Available Control Technology for toxic air pollutants
tpy	Tons per year
TMECC	Test Methods for the Examination of Composting and Compost – published by the US Composting Council
Unit – wood	200 cubic feet
VOC	Volatile organic compound
WAC	Washington Administrative Code

1. FACILITY IDENTIFICATION

Applicant Name:	H & H Wood Recyclers
Applicant Address:	8401 NE 117th Avenue, P.O. Box 820526, Vancouver, WA 98682
Facility Name:	H & H Wood Recyclers
Facility Address:	8401 NE 117th Avenue, Vancouver, WA 98682
Contact Person:	Bob Holsher – Vice President
SWCAA Identification:	2351
Primary Process:	Wood and green waste recycling and composting
SIC / NAICS:	2499 / 321999
Facility Classifications:	BACT / Minor Source

2. FACILITY DESCRIPTION

H & H Wood Recyclers receives wood waste, yard debris, stumps, land clearing debris, sod, concrete, brick, rock, and asphalt shingles. Clean organic materials are ground and then either sold as hogged fuel or trail mix, hauled off-site for composting, or composted on-site. Bark, soil, compost, gravel, and rock products are marketed at the facility.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit Application number CL-3010 (ADP Application CL-3010) received by SWCAA on March 16, 2017. ADP application CL-3010 requests approval to operate the following additional equipment:

a. 1996 Morbark DE Barker and associated diesel engine
b. 1995 Peterson DDC 5000G Chipper and associated diesel engine
c. 1995 Morbark 27 Chipper and associated diesel engine
d. 2008 Peterson 4710B Grinder and associated diesel engine
e. 2005 Peterson 4700B Grinder and associated diesel engine
f. 1997 Diamond Z 110 Grinder and associated diesel engine
g. 2014 Vermeer HG6000 Grinder and associated diesel engine
h. 1995 CEC 5x12 Screen and associated diesel engine
i. 2006 CEC 6x16 Screen and associated diesel engine

In addition to the equipment identified above, the applicant requested approval to operate a 2007 BM&M Screen powered by a Tier 1 engine. This unit was not approved because the engine does not appear to meet the EPA certification requirements for nonroad engines (see Section 5.bb). The Morbark 5600 is being removed from registration at the request of the applicant because it was damaged by fire and will not be returned to service.

4. PROCESS DESCRIPTION

Incoming waste is measured and then unloaded in specific areas based on material type. All clean loads of organic materials are unloaded in a single area and accumulated for processing in the tub grinder. Materials will be watered as necessary to prevent the generation of dust during grinding. Dirt will be screened with the trommel screen and marketed as topsoil or included in soil blends.

Up to 10,000 cubic yards of compost will be processed at any one time, and up to 30,000 cubic yards of material will be composted annually. Composting is conducted on an asphalt pad that is sloped to a leachate collection system. H & H does not have a system for collecting or storing a significant amount of leachate. Compost is conducted by creating the desired mix with a front end loader and piling the materials in windrows or static piles. A carbon to nitrogen ratio of 30:1 will be targeted. If active aeration is not utilized, compost mixes are controlled such that the composting proceeds slowly enough that passive aeration is sufficient to provide for aerobic conditions throughout the piles. For example, H & H

composts leaves collected in the fall without any other high nitrogen amendment during the winter months. The composting process for this material proceeds slowly because microbial activity is limited due to the high carbon to nitrogen ratio of the material.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a Composting. Up to 10,000 cubic yards of compost will be processed at any one time, and up to 30,000 cubic yards of material will be composted annually. Composting is conducted on an asphalt pad that is sloped to a leachate collection system. H & H does not have a system for collecting or storing a significant amount of leachate. Compost is conducted by creating the desired mix with a front end loader and piling the materials in windrows or static piles. A carbon to nitrogen ratio of 30:1 will be targeted. If active aeration is not utilized, compost mixes are controlled such that the composting proceeds slowly enough that passive aeration is sufficient to provide for aerobic conditions throughout the piles. For example, H & H composts leaves collected in the fall without any other high nitrogen amendment during the winter months. The composting process for this material proceeds slowly because microbial activity is limited due to the high carbon to nitrogen ratio of the material.

5.b Fugitive Dust Sources. Fugitive dust sources include but are not necessarily limited to:

1. Trommel screen. Note that the trammel screen is not considered a separate emissions unit because it is only used with organic materials that have high moisture content and therefore no emissions are expected under normal operating conditions.
2. Vehicle and equipment traffic
3. Wind erosion

Fugitive dust is controlled with wet suppression as necessary.

5.c Leachate Holding Tank. One two-compartment leachate holding tank with a capacity of approximately 2,000 gallons is used to capture and store leachate from the composting area. Compost leachate has a high biological oxygen demand and will be anaerobic without active aeration. An aeration system will be used to maintain aerobic conditions within the leachate bolding tank.

5.d Tub Grinder H-13. The tub grinder is driven by a diesel engine. The grinder is mounted on a trailer so it can be moved as necessary within the facility.

Grinder Make / Model:	Morbark 1300
Serial Number:	1844-53-69
Manufactured:	9/30/1996
Size / Capacity:	13' tub opening, 10' at hase, 31" x 64" hammermill opening discharging onto 40" x 30' belt conveyor. 24 units per hour.

5.e Track Screen H-24. Track Screen H-24 is used to screen rock, soils, and compost. The screen and tracks upon which it is mounted are powered by a diesel engine.

Make / Model:	CEC / 5x12-T
Plant Serial Number:	06468-76
Screen Serial Number:	06100-1068
Manufactured:	2007
Size / Capacity:	5' x 12' two deck

5.f Peterson 5710 Grinder. This unit is a track-mounted horizontal wood grinder driven by a diesel engine.

Grinder Make / Model:	Peterson / 5710C
Serial Number:	Unknown
Manufactured:	2007
Size / Capacity:	60" x 40" opening, capacity on greenwaste: 501 yd^3 / 138 tons per hour

Photo from Peterson brochure

5.g 1996 Morbark DE Barker. This unit is a track-mounted horizontal wood grinder driven by a diesel engine.

Grinder Make / Model:	Morbark / DE Barker
Serial Number:	Unknown
Manufactured:	1996
Size / Capacity:	20 units per hour

5.h 1995 Peterson DDC 5000G Chipper. This unit is a trailer-mounted horizontal wood chipper driven by a diesel engine.

Make / Model:	Peterson / 5000G
Serial Number:	2-G87-234
Manufactured:	1995
Size / Capacity:	23" maximum size, 100 tons per hour (40 units per hour)

5.i 1995 Morbark 27 Chipper. This unit is a trailer-mounted horizontal wood chipper driven by a diesel engine.

Make / Model:	Morbark / 27"
Serial Number:	1829
Manufactured:	1995
Size / Capacity:	27"

5.j 2008 Peterson 4710B Grinder. This unit is a track-mounted horizontal grinder driven by a diesel engine.

Make / Model:	Peterson / 4710B
Serial Number:	29B-92-1536
Manufactured:	2008
Size / Capacity:	95 tons per hour greenwaste (40 units per hour)

5.k 2005 Peterson 4700B Grinder. This unit is a trailer-mounted horizontal grinder driven by a diesel engine.

Make / Model:	Peterson / 4700B
Serial Number:	27B-90-1248
Manufactured:	2005
Size / Capacity:	95 tons per hour greenwaste (40 units per hour)

5.l 1997 Diamond Z 110 Grinder. This unit is a trailer-mounted horizontal grinder driven by a diesel engine.

Make / Model:	Diamond Z / 110
Serial Number:	1D9Fx453VN147204
Manufactured:	2005
Size / Capacity:	24 units per hour

5.m 2014 Vermeer HG6000 Grinder. This unit is a trailer-mounted horizontal grinder driven by a diesel engine.

Make / Model:	Vermeer / HG6000
Serial Number:	X-508574
Manufactured:	2014
Size / Capacity:	24 units per hour

5.n 1995 CEC 5x12 Screen. This unit is a portable single-deck screen driven by a diesel engine.

Make / Model:	Construction Equipment Company / 5 x 12, 2-deck
Serial Number:	06100-1068
Manufactured:	1995
Size / Capacity:	5' x 12' screen, 1 – 1.5 units per hour

5.o 2006 CEC 6x16 Screen. This unit is a portable single-deck screen driven by a diesel engine.

Make / Model:	Construction Equipment Company / 6 x 16, 2-deck
Serial Number:	06481-288
Manufactured:	2006
Size / Capacity:	6' x 16' screen, 1 – 1.5 units per hour

5.p Tub Grinder H-13 Engine. The tub grinder is driven by a diesel engine. The grinder is mounted on a trailer so it can be moved as necessary within the facility. The grinder moves within the facility and therefore the engine driving the unit is a nonroad engine.

Engine Make / Model:	Caterpillar / 3412
Engine Serial Number:	BDT01517
Fuel:	Diesel
Engine Capacity:	800 horsepower
Engine Date Manufactured:	1996
Certification:	None
Exhaust Description:	8" diameter exhausting horizontally 6.5 feet above grade

5.q Track Screen H-24 Engine. Track Screen H-24 is used to screen rock, soils, and compost. The screen and tracks upon which it is mounted are powered by a diesel engine. Because the engine drives the tracks, the engine is a nonroad engine.

Engine Make / Model:	Deutz / F4L913
Engine Serial Numher:	8749075
Fuel:	Diesel
Engine Capacity:	76 horsepower
Engine Date Manufactured:	2/21/2006
Certification:	Tier 1 (small volume allowance provision)
Exhaust Description:	~2" diameter (evaluated visually) exhausting horizontally ~7 feet above grade

5.r Peterson 5710 Engine. The Peterson 5710 is used to grind wood waste. The grinder and tracks upon which it is mounted are powered by a diesel engine. Because the engine drives the tracks, the engine is a nonroad engine.

Engine Make / Model:	Caterpillar / C27
Engine Serial Numher:	TWM00136
Fuel:	Diesel
Engine Capacity:	1,050 horsepower
Engine Date Manufactured:	3/1/2006
Certification:	Tier 2
Exhaust Description:	Unknown diameter or height, exhausting at a ~45° angle at 6,003.5 acfm @ 854.6°F

5.s 1996 Morbark DE Barker Engine. The 2007 Morbark DE Barker is a portable unit that has a reported capacity of 20 units per bour. Because the unit never resides in one location for more than 12 months, the engine is a nonroad engine.

Engine Make / Model:	Caterpillar / 3406C
Engine Serial Number:	2MZ00936
Fuel:	Diesel
Engine Capacity:	400 horsepower (spec value), tested at 409 hp
Engine Date Manufactured:	Unknown. Remanufactured by Caterpillar to original specifications and re-installed on original equipment. Remanufactured August 1, 2007.
Certification:	None
Exhaust Description:	8" diameter, 13' from ground level

5.t 1995 Peterson DDC 5000G Chipper Engine. The 1995 Peterson DDC 5000G is used to chip wood waste. The chipper and the engine that drive it are mounted on a towable trailer. Because the unit never resides in one location for more than 12 months, the engine is a nonroad engine.

Engine Make / Model:	Caterpillar / 3412
Engine Serial Number:	38S17618
Fuel:	Diesel

Engine Capacity:	800 horsepower
Engine Date Manufactured:	Unknown
Certification:	None
Exhaust Description:	Not provided

5.u 1995 Morbark 27 Chipper Engine. The 1995 Morbark 27 Chipper is used to chip wood waste. The chipper and the engine that drive it are mounted on a towable trailer. Because the unit never resides in one location for more than 12 months, the engine is a nonroad engine.

Engine Make / Model:	Caterpillar / 3412
Engine Serial Number:	38S14039
Fuel:	Diesel
Engine Capacity:	800 horsepower
Engine Date Manufactured:	Unknown
Certification:	None
Exhaust Description:	Not provided

5.v 2008 Peterson 4710B Grinder Engine. The 2008 Peterson 4710B Grinder is used to grind wood waste. The engine drives the grinder and the tracks on which it is mounted and therefore is a nonroad engine.

Engine Make / Model:	Caterpillar / C18
Engine Serial Number:	WJH04149
Fuel:	Diesel, 37.6 gallons per hour at full load
Engine Capacity:	765 horsepower
Engine Date Manufactured:	Unknown (2006 certification year)
Certification:	Tier 2
Exhaust Description:	Unknown diameter or height, exhausting at 5,456 acfm @ 1,151°F

5.w 2005 Peterson 4700B Grinder Engine. The 2005 Peterson 4700B Grinder is used to grind wood waste. The grinder and the engine that drive it are mounted on a towable trailer. Because the unit never resides in one location for more than 12 months, the engine is a nonroad engine.

Engine Make / Model:	Caterpillar / C18
Engine Serial Number:	WRH08169
Fuel:	Diesel
Engine Capacity:	765 horsepower
Engine Date Manufactured:	November 2, 2015 (based on Caterpillar report, lists October 2015 on tag)
Certification:	Tier 2 Replacement Engine
Exhaust Description:	Unknown

5.x 1997 Diamond Z 110 Grinder Engine. The 1997 Diamond Z 110 Grinder is used to grind wood waste. The grinder and the engine that drive it are mounted on a towable trailer. Because the unit never resides in one location for more than 12 months, the engine is a nonroad engine.

Engine Make / Model:	Caterpillar / 3412
Engine Serial Number:	4CR00924
Fuel:	Diesel
Engine Capacity:	990 borsepower
Engine Date Manufactured:	1998
Certification:	None
Exhaust Description:	8" diameter, 13'6' from ground level

5.y 2014 Vermeer HG6000 Grinder Engine. The 2014 Vermeer HG6000 Grinder is used to grind wood waste. The engine drives the grinder and the tracks on which it is mounted and therefore is a nonroad engine.

Engine Make / Model:	Caterpillar / C18
Engine Serial Number:	BDN01944
Fuel:	Diesel
Engine Capacity:	755 horsepower
Engine Date Manufactured:	May 19, 2014
Certification:	Tier 4i
Exhaust Description:	8" diameter, 18' from ground level, exhausting at 4,351 acfm @ 1,190°F

5.z 1995 CEC 5x12 Screen Engine. The 1995 CEC 5x12 Screen is used to screen wood waste. The screen and the engine that drive it are mounted on a towable trailer. Because the unit never resides in one location for more than 12 months, the engine is a nonroad engine.

Engine Make / Model:	Deutz / BF4L913
Engine Serial Number:	8458503
Fuel:	Diesel
Engine Capacity:	63 horsepower
Engine Date Manufactured:	Unknown
Certification:	None
Exhaust Description:	3" diameter, 6' from ground level

5.aa 2006 CEC 6x16 Screen Engine. The 2006 CEC 6x16 Screen is used to screen wood waste. The screen and the engine that drive it are mounted on a towable trailer. Because the unit never resides in one location for more than 12 months, the engine is a nonroad engine.

Engine Make / Model:	Deutz / BF4L914
Engine Serial Number:	8768075 (the numbers were difficult to make out)
Fuel:	Diesel
Engine Capacity:	97 horsepower
Engine Date Manufactured:	Unknown
Certification:	Tier 1
Exhaust Description:	3" diameter, 8' 5" from ground level

5.bb Equipment Not Approved. The following engine were proposed but not approved because SWCAA could not find evidence that it met the applicable non-road engine requirements.

2007 BM&M Screen Engine. The 2007 BM&M Screen is used to screen wood waste. The BM&M Screen has a serial number of 7303, was manufactured in 2007 and the applicant indicated it had a capacity of 40 units per hour. The screen and the engine that drive it are mounted on a movable skid. Because the unit never resides in one location for more than 12 months, the engine is a nonroad engine.

Engine Make / Model:	John Deere / 4045TF150
Engine Serial Number:	PE4045T703348
Fuel:	Diesel
Engine Capacity:	115 horsepower assumed (max power for this engine)
Engine Date Manufactured:	December 11, 2007
Certification:	Tier 1 (Tier 3 is required for this engine manufactured in 2007 unless an exception has been made. Engine was made in Mexico leading to the question regarding whether it could have been illegally imported.)

Exhaust Description: 4" diameter, 13' 6" from ground level

5.cc Equipment/Activity Summary.

ID No.	Generating Equipment/Activity	# of Units	Control Measures	# of Units
1	Composting	1	Aeration system, POMP	1
2	Fugitive Dust Sources	N/A	Wet suppression	N/A
3	Leachate Holding Tank	1	Aeration system	1
4	Tub Grinder H-13	1	Wet suppression as necessary	N/A
5	Track Screen H-24	1	Wet suppression as necessary	N/A
6	Peterson 5710 (track-mounted horizontal wood grinder)	1	Wet suppression as necessary	N/A
7	1996 Morbark DE Barker	1	Wet suppression as necessary	N/A
8	1995 Peterson DDC 5000G Chipper	1	Wet suppression as necessary	N/A
9	1995 Morbark 27 Chipper	1	Wet suppression as necessary	N/A
10	2008 Peterson 4710B Grinder	1	Wet suppression as necessary	N/A
11	2005 Peterson 4700B Grinder	1	Wet suppression as necessary	N/A
12	1997 Diamond Z 110 Grinder	1	Wet suppression as necessary	N/A
13	2014 Vermeer HG6000 Grinder	1	Wet suppression as necessary	N/A
14	1995 CEC 5x12 Screen	1	Wet suppression as necessary	N/A
15	2006 CEC 6x16 Screen	1	Wet suppression as necessary	N/A
16	Tub Grinder H-13 Engine (nonroad engine)	1	Ultra-low sulfur diesel	N/A
17	Track Screen H-24 Engine (nonroad engine)	1	EPA Tier 1 Ultra-low sulfur diesel	N/A
18	Peterson 5710 Engine (nonroad engine)	1	EPA Tier 2 Ultra-low sulfur diesel	N/A
19	1996 Morbark DE Barker Engine (nonroad engine)	1	Ultra-low sulfur diesel	N/A
20	1995 Peterson DDC 5000G Chipper Engine (nonroad engine)	1	Ultra-low sulfur diesel	N/A
21	1995 Morbark 27 Chipper Engine (nonroad engine)	1	Ultra-low sulfur diesel	N/A
22	2008 Peterson 4710B Grinder Engine (nonroad engine)	1	EPA Tier 2 Ultra-low sulfur diesel	N/A
23	2005 Peterson 4700B Grinder Engine (nonroad engine)	1	EPA Tier 2 Ultra-low sulfur diesel	N/A
24	1997 Diamond Z 110 Grinder Engine (nonroad engine)	1	Ultra-low sulfur diesel	N/A
25	2014 Vermeer HG6000 Grinder Engine (nonroad engine)	1	EPA Tier 4i Ultra-low sulfur diesel	N/A

ID No.	Generating Equipment/Activity	# of Units	Control Measures	# of Units
26	1995 CEC 5x12 Screen Engine (nonroad engine)	1	Ultra-low sulfur diesel	N/A
27	2006 CEC 6x16 Screen Engine (nonroad engine)	1	EPA Tier 1 Ultra-low sulfur diesel	N/A

6. EMISSIONS DETERMINATION

6.a Active Composting and Curing. Active composting is a source of ammonia, volatile organic compounds, toxic air pollutants, and a variety of odorous compounds. The maximum physical throughput of the facility is estimated to be 12,000 tons per year of input material based on the following assumptions:

1. The facility is not space limited, but is limited by the Solid Waste Permit to an annual capacity of 30,000 cubic yards.
2. The average bulk density is estimated at 800 pounds per cubic yard.

Composting Operations - Potential to Emit

Facility Throughput =	30,000	cubic yards per year	Initial Carbon (% of mass) =	25%
Bulk Density =	800	lbs/cubic yard		
Facility Throughput =	12,000	tons per year (input)		

Pollutant	lb/ton	lb/yr	tpy	
Ammonia	0.20	2,400	1.20	(propertly operated - meeting BACT)
VOCs	1.43	17,130	8.57	(propertly operated - meeting BACT)
CO_2	917	11,000,000	5,500	aerobic operation only - 50% of C lost as CO_2

Emission Factors Developed from Testing at Little Hanaford Farms - 2006

	Active Composting			Curing		Total Composting	
Pollutant	lb/yr/ton	lb/yr	HAP?	lb/yr/ton	lb/yr	lb/yr/ton	lb/yr
Dimethylamine	0.000228	3	No	5.71E-05	1	2.86E-04	3
Ethylamine	0.000267	3	No	6.66E-05	1	3.33E-04	4
Trimethylamine	0.001281	15	No	3.20E-04	4	1.60E-03	19
Isopropylamine	0.000128	2	No	3.19E-05	0	1.59E-04	2
Diethylamine	0	0	No	0.00E+00	0	0.00E+00	0
Butylamine	0.000324	4	No	8.09E-05	1	4.05E-04	5
Diisopropylamine	0	0	No	0.00E+00	0	0.00E+00	0
Triethylamine	0	0	Yes	0.00E+00	0	0.00E+00	0
Hydrogen Sulfide	0.000103	1	No	2.56E-05	0	1.28E-04	2
Carbon Disulfide	0.010059	121	Yes	2.51E-03	30	1.26E-02	151
Ammonia	0.2	2,400	No			2.00E-01	2,400
Ethanol	0.015084	181	No	3.77E-03	45	1.89E-02	226
Acetone	0.02912	349	No	7.28E-03	87	3.64E-02	437
Isopropyl Alcohol	0.011261	135	No	2.82E-03	34	1.41E-02	169
2-Butanone (MEK)	0.017613	211	No	4.40E-03	53	2.20E-02	264
3-Methyl-2-butanone	0.001523	18	No	3.81E-04	5	1.90E-03	23
3-Pentanone	0.001904	23	No	4.76E-04	6	2.38E-03	29
Isopentanol	0.003053	37	No	7.63E-04	9	3.82E-03	46
Camphor	0.001395	17	No	3.49E-04	4	1.74E-03	21
Total VOCs	0.2	2,400				2.00E-01	2,400
							lb/yr
Total TAPs =	0.293339	3,520		7.33E-02	880	3.67E-01	4,400
Total HAPs =	0.010059	121		2.51E-03	30	1.26E-02	151

Compost curing results in the same type of emissions as active composting, except at a reduced rate. Decreased biological activity due to increased material stability and potentially decreased moisture content reduces emission rates during the curing period, however this period can last for several months. Based on relative respiration rate models and engineering judgment, SWCAA estimates that 80% of the above emissions would be attributable to the materials in active composting, and 20% of the emissions would be generated from the curing pile(s). Note that curing under anaerobic conditions can lead to much greater emissions.

Green waste that is collected and stored on-site can begin biological degradation (uncontrolled composting if aerobic, rotting if anaerobic) without any intervention. If this occurs, this process will emit pollutants in the same fashion as composting. The San Joaquin Valley Air Pollution Control District's September 15, 2010 document titled "Compost Emission Factors" provides an average VOC emission factor of 1.063 lb VOC per wet ton of green waste per day. This emission factor is based on a review of source emission test data. Because emissions from stockpiling are very high, SWCAA believes that BACT requires that all green waste be removed from the site or incorporated into active compost piles before the material self-heats significantly. If green waste is removed from the site before it self-heats significantly and before the limitations provided in the Air Discharge Permit, SWCAA believes it is appropriate to assume that stockpiling emissions are negligible. If green waste is stockpiled in violation of the Permit, SWCAA will apply the emission factor above to calculate VOC emissions.

Ammonia emissions from green waste stockpiling is assumed to be equivalent to the baseline ammonia emission factor provided by the South Coast Air Quality Management District for co-composting operations (2.93 lh/ton) over the course of the entire composting cycle. Using the compost respiration rate model indicated below, 19% of the emissions from the entire composting cycle could be attributed to 3 days of degradation on-site.

Relative Activity Rates of Compost Phases

Compost Respiration Rate Model

Equation from "Composting of Source Separated MSW: An Approach to Respirometric Techniques and Bidegredation Kinetics" by K. E. Lasaridi, E. I. Steniford
Equation: SOUR (respiration rate) = 79e^(-.07t) where t in days, verified day 5 through 35
SOUR = Specific Oxygen Uptake Rate" in mg O_2/g volatile solids/hr

Day	SOUR	% of Total
1	73.7	6.8%
2	68.7	13.1%
3	64.0	19.0%
4	59.7	24.5%
5	55.7	29.6%
6	51.9	34.4%
7	48.4	38.8%
8	45.1	42.9%
9	42.1	46.8%
10	39.2	50.4%
11	36.6	53.8%
12	34.1	56.9%
13	31.8	59.8%
14	29.6	62.6%

6.b Fugitive Dust Sources. Emissions from fugitive dust sources, including wood grinding, can be significant if such sources are not managed properly. Wet suppression is required as necessary to prevent the generation of fugitive dust. With proper management, emissions from these sources will be negligible.

6.c Leachate Holding Tank. Emissions from the leachate holding tank can be significant if the leachate is not properly managed. If properly managed in accordance with the permit requirements, emissions from the leachate holding tank will be negligible.

6.d Tub Grinder H-13 Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Tub Grinder H-13 Engine		Caterpillar 3412 (1996)
Hours of Operation =	1,000	hours
Power Output =	800	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	40.58	gallons per hour (estimated)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	0.024	19.20	9.60	AP-42 Table 3.4-1 (10/96)
CO	0.0055	4.40	2.20	AP-42 Table 3.4-1 (10/96)
VOC	0.000705	0.56	0.28	AP-42 Table 3.4-1 (10/96)
SO_X as SO_2	0.000011	0.0088	0.0044	Mass Balance
PM	0.007	5.60	2.80	AP-42 Table 3.4-1 (10/96)
PM_{10}	0.007	5.60	2.80	AP-42 Table 3.4-1 (10/96)
$PM_{2.5}$	0.007	5.60	2.80	AP-42 Table 3.4-1 (10/96)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	457	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.46	40 CFR 98
N_2O	0.0006	298	0.394	0.054	1.10	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	458	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.e Track Screen H-24 Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Track Screen H-24	Deutz F4L913			
Hours of Operation =	1,000	hours		
Power Output =	76	horsepower		
Diesel Density =	7.206	pounds per gallon		
Fuel Sulfur Content =	0.0015	% by weight		
Fuel Consumption Rate =	4.50	gallons per hour (Duetz)		
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)		

Pollutant	Emission Factor g/(hp-hr)	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	6.32	1.06	0.53	Duetz
CO	2.38	0.40	0.20	Duetz
VOC	0.36	0.060	0.03	Duetz
SO_X as SO_2		0.00097	0.00049	Mass Balance
PM	0.36	0.060	0.03	Duetz
PM_{10}	0.36	0.060	0.03	Duetz
$PM_{2.5}$	0.36	0.060	0.03	Duetz

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	51	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.05	40 CFR 98
N_2O	0.0006	298	0.394	0.054	0.12	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	51	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.f Peterson 5710 Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Peterson 5710 Engine	Caterpillar / C-27
Hours of Operation =	1,000 hours
Power Output =	1,050 horsepower
Diesel Density =	7.206 pounds per gallon
Fuel Sulfur Content =	0.0015 % by weight
Fuel Consumption Rate =	52.00 gallons per hour (from Caterpillar)
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	10.38	5.19	Caterpillar
CO	0.590	0.30	Caterpillar
VOC	0.120	0.060	Caterpillar
SO_X as SO_2	0.0112	0.00562	Mass Balance
PM	0.060	0.030	Caterpillar
PM_{10}	0.060	0.030	Caterpillar
$PM_{2.5}$	0.060	0.030	Caterpillar

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	585	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.59	40 CFR 98
N_2O	0.0006	298	0.394	0.054	1.41	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	587	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.g 1996 Morbark De Barker Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

1996 Morbark De Barker Engine Cat. / 3406C

Hours of Operation =	1,000	hours
Power Output =	400	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	19.40	gallons per hour (Caterpillar Spec.)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	0.031	12.40	6.20	AP-42 Table 3.3-1 (10/96)
CO	0.00668	2.67	1.34	AP-42 Table 3.3-1 (10/96)
VOC	0.00247	0.99	0.49	AP-42 Table 3.3-1 (10/96)
SO_X as SO_2	0.000010	0.0042	0.0021	Mass Balance
PM	0.0022	0.88	0.44	AP-42 Table 3.3-1 (10/96)
PM_{10}	0.0022	0.88	0.44	AP-42 Table 3.3-1 (10/96)
$PM_{2.5}$	0.0022	0.88	0.44	AP-42 Table 3.3-1 (10/96)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	218	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.22	40 CFR 98
N_2O	0.0006	298	0.394	0.054	0.53	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	219	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.h 1995 Peterson DDC 5000G Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

1995 Peterson DDC 5000G Engine

Hours of Operation =	1,000	hours
Power Output =	800	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	40.58	gallons per hour (estimated)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	0.024	19.20	9.60	AP-42 Table 3.4-1 (10/96)
CO	0.0055	4.40	2.20	AP-42 Table 3.4-1 (10/96)
VOC	0.000705	0.56	0.28	AP-42 Table 3.4-1 (10/96)
SO_X as SO_2	0.000011	0.0088	0.0044	Mass Balance
PM	0.007	5.60	2.80	AP-42 Table 3.4-1 (10/96)
PM_{10}	0.007	5.60	2.80	AP-42 Table 3.4-1 (10/96)
$PM_{2.5}$	0.007	5.60	2.80	AP-42 Table 3.4-1 (10/96)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	457	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.46	40 CFR 98
N_2O	0.0006	298	0.394	0.054	1.10	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	458	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.i 1995 Morbark 27 Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

1995 Morbark 27 Engine

Hours of Operation =	1,000	hours
Power Output =	800	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	40.58	gallons per hour (estimated)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	0.024	19.20	9.60	AP-42 Table 3.4-1 (10/96)
CO	0.0055	4.40	2.20	AP-42 Table 3.4-1 (10/96)
VOC	0.000705	0.56	0.28	AP-42 Table 3.4-1 (10/96)
SO_X as SO_2	0.000011	0.0088	0.0044	Mass Balance
PM	0.007	5.60	2.80	AP-42 Table 3.4-1 (10/96)
PM_{10}	0.007	5.60	2.80	AP-42 Table 3.4-1 (10/96)
$PM_{2.5}$	0.007	5.60	2.80	AP-42 Table 3.4-1 (10/96)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	457	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.46	40 CFR 98
N_2O	0.0006	298	0.394	0.054	1.10	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	458	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.j 2008 Peterson 4710B Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

2008 Peterson 4710B Engine

Hours of Operation =	1,000	hours
Power Output =	765	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	37.60	gallons per hour (Caterpillar)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X		10.07	5.04	Caterpillar
CO		0.74	0.37	Caterpillar
VOC		0.09	0.05	Caterpillar
SO_X as SO_2	0.000011	0.0081	0.0041	Mass Balance
PM		0.14	0.07	Caterpillar
PM_{10}		0.14	0.07	Caterpillar
$PM_{2.5}$		0.14	0.07	Caterpillar

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	423	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.43	40 CFR 98
N_2O	0.0006	298	0.394	0.054	1.02	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	424	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.k 2005 Peterson 4700B Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

2005 Peterson 4700B Engine

Hours of Operation =	1,000	hours
Power Output =	765	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	37.60	gallons per hour (Caterpillar)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X		10.07	5.04	Caterpillar
CO		0.74	0.37	Caterpillar
VOC		0.09	0.05	Caterpillar
SO_X as SO_2	0.000011	0.0081	0.0041	Mass Balance
PM		0.14	0.07	Caterpillar
PM_{10}		0.14	0.07	Caterpillar
$PM_{2.5}$		0.14	0.07	Caterpillar

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	423	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.43	40 CFR 98
N_2O	0.0006	298	0.394	0.054	1.02	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	424	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.1 1997 Diamond Z 110 Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

1997 Diamond Z 110 Engine

Hours of Operation =	1,000	hours
Power Output =	990	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	50.22	gallons per hour (estimated)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	0.024	23.76	11.88	AP-42 Table 3.4-1 (10/96)
CO	0.0055	5.45	2.72	AP-42 Table 3.4-1 (10/96)
VOC	0.000705	0.70	0.35	AP-42 Table 3.4-1 (10/96)
SO_X as SO_2	0.000011	0.0109	0.0054	Mass Balance
PM	0.007	6.93	3.47	AP-42 Table 3.4-1 (10/96)
PM_{10}	0.007	6.93	3.47	AP-42 Table 3.4-1 (10/96)
$PM_{2.5}$	0.007	6.93	3.47	AP-42 Table 3.4-1 (10/96)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	565	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.57	40 CFR 98
N_2O	0.0006	298	0.394	0.054	1.37	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	567	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.m 2014 Vermeer HG6000 Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

2014 Vermeer HG6000 Engine

Hours of Operation =	1,000	hours
Power Output =	755	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	39.50	gallons per hour (Caterpillar)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	0.0057541	4.34	2.17	Tier 4i Standard
CO	0.0057541	4.34	2.17	Tier 4i Standard
VOC	0.0006576	0.50	0.25	Tier 4i Standard
SO_X as SO_2	0.000011	0.0085	0.0043	Mass Balance
PM	0.0001644	0.12	0.06	Tier 4i Standard
PM_{10}	0.0001644	0.12	0.06	Tier 4i Standard
$PM_{2.5}$	0.0001644	0.12	0.06	Tier 4i Standard

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	444	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.45	40 CFR 98
N_2O	0.0006	298	0.394	0.054	1.07	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	446	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.n 1995 CEC 5x12 Screen Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

1995 CEC 5x12 Screen Engine

Hours of Operation =	1,000	hours
Power Output =	63	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	3.20	gallons per hour (estimated)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	0.031	1.95	0.98	AP-42 Table 3.3-1 (10/96)
CO	0.00668	0.42	0.21	AP-42 Table 3.3-1 (10/96)
VOC	0.00247	0.16	0.08	AP-42 Table 3.3-1 (10/96)
SO_X as SO_2	0.000011	0.0007	0.0003	Mass Balance
PM	0.0022	0.14	0.07	AP-42 Table 3.3-1 (10/96)
PM_{10}	0.0022	0.14	0.07	AP-42 Table 3.3-1 (10/96)
$PM_{2.5}$	0.0022	0.14	0.07	AP-42 Table 3.3-1 (10/96)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	36	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.04	40 CFR 98
N_2O	0.0006	298	0.394	0.054	0.09	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	36	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.o 2006 CEC 6x16 Screen Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

2006 CEC 6x16 Screen Engine

Hours of Operation =	1,000	hours
Power Output =	97	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	4.92	gallons per hour (estimated)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source
NO_X	0.015125	1.47	0.73	Tier 1 Standards
CO	0.00668	0.65	0.32	AP-42 Table 3.3-1 (10/96)
VOC	0.00247	0.24	0.12	AP-42 Table 3.3-1 (10/96)
SO_X as SO_2	0.000011	0.0011	0.0005	Mass Balance
PM	0.0022	0.21	0.11	AP-42 Table 3.3-1 (10/96)
PM_{10}	0.0022	0.21	0.11	AP-42 Table 3.3-1 (10/96)
$PM_{2.5}$	0.0022	0.21	0.11	AP-42 Table 3.3-1 (10/96)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	55	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.06	40 CFR 98
N_2O	0.0006	298	0.394	0.054	0.13	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	56	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing

6.p Facilitywide Potential Emissions (PTE) Summary. This summary includes the sum of estimated potential emissions from all emission units. There are multiple units that serve the same purpose addressed in this permit and in practice it is expected that only one unit serving each purpose will be in use at the facility at any one time.

Pollutant	Nonroad Engine Annual Emissions (tons)	Facilitywide Annual Emissions (tons)
Nitrogen oxides	66.55	66.55
Carbon monoxide	14.60	14.60
Volatile organic compounds	2.31	10.88
Sulfur oxides as sulfur dioxide	0.04	0.04
Particulate matter	12.74	12.74
PM_{10}	12.74	12.74
$PM_{2.5}$	12.74	12.74
NH_3	0	1.20
CO_2e	4,185	9,685
Toxic Air Pollutants	0	2.20
Hazardous Air Pollutants	0	0.08

7. REGULATIONS AND EMISSION STANDARDS

Regulations have been established for the control of emissions of air pollutants to the ambient air. Regulations applicable to the proposed facility that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the following regulations, codes, or requirements. These items establish maximum emissions limits that could be allowed and are not to be exceeded for new or existing facilities. More stringent limits are established in this Permit consistent with implementation of Best Available Control Technology (BACT):

7.a 40 CFR Part 60.4200 et seq. "Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" requires that new diesel engines meet specific emission standards at the point of manufacture and during operation. In addition, maximum fuel sulfur contents are specified and minimum maintenance standards are established. There are no stationary engines at this facility; therefore, this regulation does not apply to this facility.

7.b 40 CFR 63 Subpart ZZZZ (§63.6580 et seq.) "National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines" establishes national emission limitations and operating limitations for HAP emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. There are no stationary engines at this facility; therefore, this regulation does not apply to this facility.

7.c 40 CFR 89 includes requirements for all nonroad engines other than specific categories of nonroad engines such as engines subject to 40 CFR 1039 (Tier 4 engines). The definition of nonroad engines in 40 CFR 89.2 includes any internal combustion engine described in (1)(i) "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 Track Screen H-24 Engine, and the Peterson 5710 Engine both drive the tracks on which the units are mounted and therefore are always nonroad engines. The Track Screen H-24 Engine was manufactured in 2006 and is Tier 1 certified in accordance with the small volume allowance provisions (other engines of this size and year of manufacture must meet Tier 2 standards).

The definition of nonroad engines in 40 CFR 89.2 includes any internal combustion engine in (1)(iii) "That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another..." "An internal combustion engine is not a nonroad engine if:... (iii) the engine otherwise included in Paragraph 1(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source...A

location is any single site at a building, structure, facility or installation." All of the diesel engines driving the equipment at this facility are nonroad engines because they are portable and never remain at a location for more than 12 consecutive months. In accordance with Part 89, these engines must meet the appropriate EPA Tier certification standards based on engine size and year of manufacture. This regulation is applicable to all of the engines except the single Tier 4i engine subject to 40 CFR 1039 (the 2014 Vermeer HG6000 Engine).

In accordance with Appendix A of Subpart 89, states are precluded from requiring retrofitting of nonroad engines except that states are permitted to adopt and enforce any such retrofitting requirements identical to California requirements which have been authorized by EPA under section 209 of the Clean Air Act. States may enforce regulations such as hours of usage, daily mass emission limits, and sulfur limits on fuel.

7.d 40 CFR 1039 contains standards for new non-road engines beginning with the 2008 model year for certain categories. The applicable year varies by engine category. The definition of "nonroad engine" for this subpart is found in 40 CFR 1068.30 and includes any internal combustion engine that (1)(iii) "That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another..." "An internal combustion engine is not a nonroad engine if:... (iii) the engine otherwise included in Paragraph 1(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source...A location is any single site at a building, structure, facility or installation." In accordance with the relevant subpart, nonroad engines must meet the appropriate EPA Tier certification standards based on engine size and year of manufacture. In accordance with Appendix A of Subpart 89, states are precluded from requiring retrofitting of nonroad engines except that states are permitted to adopt and enforce any such retrofitting requirements identical to California requirements which have been authorized by EPA under section 209 of the Clean Air Act. States may enforce limitations on hours of usage, daily mass emission limits, and sulfur limits on fuel as necessary. Based on the year of manufacture and engine category, the Vermeer HG6000 engine is the only engine addressed by this permit that is subject to this regulation.

7.e Revised Code of Washington (RCW) 70.94.141 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act [RCW 70.94] and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.

7.f RCW 70.94.152 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.

7.g Washington Administrative Code (WAC) 173-460 "Controls for New Sources of Toxic Air Pollutants" (as in effect February 14, 1994) requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety. The only TAP that is expected to be emitted from this facility in significant quantities is ammonia. Emissions of ammonia will be below the Small Quantity Emission Rate of 17,500 pounds per year.

7.h WAC 173-476 "Ambient Air Quality Standards" establisbes ambient air quality standards for PM_{10}, $PM_{2.5}$, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.

7.i SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.

7.j SWCAA 400-040(1) "Visible Emissions" requires that no emission of an air contaminant from any emissions unit shall exceed twenty percent opacity for more than three minutes in any one hour at the emission point, or within a reasonable distance of the emission point.

7.k SWCAA 400-040(2) "Fallout" requires that no emission of particulate matter from any source shall be deposited beyond the property under direct control of the owner(s) or operator(s) of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.

7.l SWCAA 400-040(3) "Fugitive Emissions" requires that reasonable precautions be taken to prevent the fugitive release of air contaminants to the atmosphere.

7.m SWCAA 400-040(4) "Odors" requires that good practice and procedures be used to reduce odors to a reasonable minimum, and does not allow any person to cause or allow the generation of any odor from any source or activity which may unreasonably interfere with any other property owner's use and enjoyment of their property.

7.n SWCAA 400-040(8) "Fugitive Dust Sources" requires that reasonable precautions be taken to prevent fugitive dust from becoming airborne, and minimize emissions.

7.o SWCAA 400-045 "Permit Applications for Nonroad Engines" requires, with a few exceptions, submittal of a permit application for installation of nonroad engines as defined in 40 CFR 89.

7.p SWCAA 400-046 "Application Review Process for Nonroad Engines" requires that a nonroad engine permit be issued by the agency prior to the installation, replacement or alteration of any nonroad engine subject to the requirements of SWCAA 400-045. Each application must demonstrate that the installation will not cause an exceedance of any national or state ambient air quality standard.

7.q SWCAA 400-110 "New Source Review" requires that an Air Discharge Permit Application be filed with SWCAA, and an Air Discharge Permit be issued by SWCAA, prior to establishment of the new source, emission unit, or modification.

7.r SWCAA 400-111 "Requirements for Sources in a Maintenance Plan Area" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:

(1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
(2) Emissions will be minimized to the extent that the new source will not exceed emission levels or other requirements provided in the maintenance plan;
(3) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
(4) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
(5) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460 (effective 2/14/1994), the proposed equipment and control measures will meet all the requirements of that Chapter.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

8.a BACT Determination – Composting Process (SWCAA 11-2966). Because composting operations differ widely based on the type of material processed, the ambient weather, the site geography, the site throughput, and other factors; it is very difficult to compare BACT determinations between composting facilities. All composting processes and technologies strive to maintain optimum oxygen transfer to the material, proper moisture content,

proper carbon to nitrogen (C:N) ratio, adequate mixing, proper temperature and proper pH (general process controls). Factors affecting oxygen transfer include porosity, moisture content, and bulk density/free air space. Although comparisons between composting facilities is difficult and often not appropriate, it should be noted that to SWCAA's knowledge, most large composting facilities in Washington utilize enclosures or biofiltration systems to address odor nuisance issues. This facility proposed only tbe use of general process controls.

Control Technology Identification

The following emission control technology or methods were identified for the composting process. Options 1-3 are equally effective, and the remaining options are listed in descending order of effectiveness.

1. Full enclosure vented to a biofilter
2. Full enclosure vented to a scrubber
3. Gore™ Cover System or similar
4. Negative aeration vented to a biofilter (~ 80% capture)
5. Negative aeration of primary pile vented to secondary pile (~80% capture)
6. Positive (or adequate passive) aeration using a 6" "compost blanket" biofilter (75% control of VOC emissions[1])
7. General Process Controls

[1] "Emissions Testing of Volatile Organic Compounds from Greenwaste Composting at the Modesto Compost Facility in the San Joaquin Valley" May 2008

Options 1-3 (capture and treatment of gaseous pollutants with a biofilter or chemical scrubber, or use of the Gore™ Cover System) are probably equally effective means of emission control. Capture and treatment of gaseous pollutants with a biofilter is tbe least expensive emission control option, although tbere are off-setting process advantages of the Gore™ Cover System making it the preferred option of some compost manufacturers. Negative aeration of a compost pile and treatment of the exhaust with a biofilter is less effective at controlling emissions from the composting process because of incomplete capture of gaseous pollutants.

Options 1 and 2 require substantial capital cost for the construction of a fully enclosed building. The City of Centralia estimated at cost of $8 million to construct such a building to process less than 20% of the volume proposed by the applicant. For the types and amount of pollutants that would be emitted by this facility, these options are too expensive to be considered BACT. This type of expense would only be justified if nuisance odors cannot be otherwise reduced to a reasonable minimum.

Options 4–6 probably result in roughly similar levels of control. There can be a wide variation in the capture efficiency of negative aeration systems depending on bow the pile is built. 80% capture is an engineering estimate only – higber levels of control can be achieved. In a May 2008 report to the California Integrated Waste Management Board[1], the contractor reported that the use of a compost blanket biofilter cost approximately $0.60 per ton of material. SWCAA believes that one of these options must be implemented, along with proper control of composting parameters (option 7) to meet the requirements of BACT for this facility.

SWCAA believes that proper control of composting parameters involves:

1. Maintaining moisture content below 60% by weight (preferably between 50% and 60%).
2. Maintaining at least 5% O_2 content in the free air space, preferably maintaining 10% O_2 by volume.
3. Managing incoming feedstocks for a C:N ratio of at least 25:1, preferably 30:1
4. Adequately mixing the incoming feedstocks so that the moisture and nutrients, including C:N, are maintained in proper proportions in all parts of the composting mass.
5. Maintaining pH below 7.0 to avoid loss of ammonia as ammonium hydroxide (NH_4-OH). pH is best maintained by preparing the proper mix of feedstocks and avoiding large amounts of alkaline feedstocks such as ash.

Items 1-5 above were included in the air discharge permit to meet the requirements of BACT.

In SWCAA's experience, BACT emission limits of 1.43 lbs VOC/ton and 0.20 lbs NH_3/ton can be consistently achieved with application of the above control measures.

8.b Prevention of Significant Deterioration (PSD) Applicability Determination. This permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.

8.c Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

Incremental increases in toxic air pollutant emissions as a result of installation of new chipping, grinding, and screening equipment will not exceed the applicable Small Quantity Emission Rates (SQER) listed in WAC 173-460 (as in effect February 14, 1994), therefore toxic impacts are presumed to be below regulatory significance. Emissions of criteria air pollutants from the facility will be at or below 12 tons per year from any single emission unit. At these emission rates, no significant adverse ambient air quality impact is anticipated.

Conclusions

9.a Operation of the green waste handling and composting facility, as proposed in ADP Application CL-3010, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.b The proposed equipment, if properly installed and maintained, can be operated without causing a violation of the applicable emission standards, which include the limits established under SWCAA 400-040 "General Standards for Maximum Emissions."

9.c Operation of the green waste handling and composting facility as proposed in ADP Application CL-3010 will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants," (in effect February 14, 1994) or WAC 173-476 "Ambient Air Quality Standards" to be violated.

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue Air Discharge Permit 17-3257 in response to ADP Application CL-3010. Air Discharge Permit 17-3257 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a General Basis. Approval conditions for equipment affected by this permitting action incorporate the operating schemes proposed by the permittee in the Air Discharge Permit application.

10.b Emission Limits. Emissions of VOCs and ammonia were limited to 1.43 and 0.20 pounds of pollutants emitted per ton of incoming material composted respectively. As indicated in section 8, these limits are representative of BACT.

Annual emission limitations for the diesel engines addressed in this permitting action were established equal to the potential to emit identified in Section 6. As discussed in Section 8, these emission limits meet the requirements of BACT. Based on information provided with the Air Discharge Permit application, it is SWCAA's understanding that the emission limits established in the permit will not constrain future operation.

Visible emissions from the nonroad engines were limited to 5% opacity. Visible emissions should not exceed this level if the engines are operating properly. For the nonroad engines, SWCAA uses this as a surrogate indicator that the engines are in good repair (rather than a tailpipe emission standard otherwise precluded by 40 CFR 89). For the nonroad engines, this restriction is appropriate because if the engine is not maintained in good repair, emissions are likely to greatly exceed the expected emission level and could cause an exceedance of a state or federal ambient air quality standard.

10.c Operating Limits and Requirements. Specific requirements are discussed below:

Diesel Engines

Only road-grade diesel fuel was evaluated for use in the engines, therefore operation on other, potentially dirtier, fuels was prohibited. The use of ultra low-sulfur ($\leq$ 0.0015% by weight) diesel by the diesel engines is a reasonable control measure that reduces SO_X and PM emissions relative to diesel with a higher sulfur content. The permit allows the use of "#2 diesel or better." In this case, "or better" includes road-grade diesel fuel with a lower sulfur content, biodiesel, and mixtures of biodiesel and road-grade diesel that meet the definition of "diesel" and contain no more than 0.0015% sulfur by weight.

To minimize the local impact on ambient air quality and comply with SWCAA 400-200, each exhaust must be oriented vertically and may not utilize a rain-cap or other device that interferes with vertical dispersion. Alternate exhaust stack configurations may be approved by SWCAA on a case-by-case basis. SWCAA is allowing the use of horizontal or angled stacks on the nonroad engines because on most of the units the engines are installed where vertical stacks could interfere with loading and/or operation of the grinders and screens.

Composting Process

Minimum Oxygen Content. A minimum oxygen concentration of at least 5% by volume is required in the free air space of composting materials. SWCAA has determined that when the oxygen concentration is measured below 5% there is an increased likelihood of anaerobic conditions being present in portions of the compost pile.

Compost Maturity Requirement for Curing or Finishing Piles. Only compost that is properly matured can be piled without creating anaerobic conditions, malodors, and excessive emissions. SWCAA believes that a proper level of compost maturity is indicated by a CO_2 evolution rate of 6 mg CO_2-C/ g C/day or less. No ammonia stability testing or standard was required because SWCAA presumes that the carbon to nitrogen ratio requirement in the permit is adequate to prevent excessive ammonia emissions from the material.

Compost pH. Air Discharge Permit 11-2966 required that the compost pH be managed below 7.0 to prevent excessive formation of ammonia gas. This limitation was removed because:

1. pH tests at this facility have demonstrated that with an adequate carbon to nitrogen ratio, higher pH levels do not result in ammonia odor.
2. Driving pH too low could result in the generation and release of volatile organic acids from anaerobic pockets.
3. The Washington Department of Ecology's "Good Management Practices" (July 2011) recommends a pH of between 5.5 and 8.5.
4. The carbon to nitrogen ratio requirement will continue to serve to minimize the potential for ammonia emissions.
5. Removing the maximum pH limit is consistent with the permit issued by SWCAA for Cowlitz Valley Compost.

Moisture Content. When the compost moisture exceeds 60% - 70% the amount of free air space may be reduced to the point where anaerobic conditions are likely to develop. In addition, excessive amounts of water

surrounding composting materials can slow oxygen transfer to the point that anaerobic conditions develop on the surface of the material even when adequate oxygen exists within the free air space. For these reasons, the permit requires that the moisture content of the mixed active compost not exceed 60% by weight.

Scraping/Cleaning of Process Areas. Scraping or sweeping clean all process areas of actively compostable materials each day is required to prevent material from being compacted. These compacted materials often give emit offensive odors, presumably because they are decaying anaerobically. Actively compostable materials include incoming waste and materials in the active compost pile and curing pile.

Carbon to Nitrogen Ratio. The initial carbon to nitrogen ratio of the compost must be no less than 25:1 to prevent excess emissions of ammonia. As the compost matures, much of the carbon is lost to CO_2 and the carbon to nitrogen ratio decreases. By starting with a minimum carbon to nitrogen ratio of at least 25:1, the potential for excessive ammonia emissions in the aging compost is decreased.

Feedstock Limitations. SWCAA believes that the current facility design does not enable the facility to handle fish, seafood, meat products, meat byproducts, feathers, or food waste without the generation of excessive malodors. SWCAA believes that BACT for the composting of such wastes is the use of full enclosure and biofiltration or other odor control technology to reduce the captured odorous emissions. For this reason, only green waste is approved as the primary feedstock.

Prevention of Leachate Ponding. Ponding leachate can be a significant source of malodors. All leachate must be actively managed to control the generation of significant malodors. Ponding can be caused by swales in the concrete, berms of compost, or other factors.

Leachate Holding Tank. SWCAA has determined that BACT for the control of odorous emissions from the Leachate Holding Tank is the maintenance of aerobic conditions if leachate is not immediately pumped out. Based upon experience with municipal and industrial wastewater, maintenance of aerobic conditions in the leachate will virtually eliminate the generation of odorous emissions.

Reasonable Precautions to Prevent Dust. This requirement is drawn from SWCAA 400-040(8)(a). Examples of reasonable precautions include the use of wet suppression to minimize wind erosion of storage piles, wetting down dry material prior to handling, and the use of enclosures for dusty materials.

Progressive Odor Management Plan (POMP). The POMP details the proper responses to nuisance odors. This approach was first implemented by SWCAA for Little Hanaford Farms.

Purtrescible Materials Handling. To prevent excessive emissions and the generation of malodors, purtrescible materials must be incorporated into active compost piles or removed from the site in a timely manner. The waste delivered by dedicated green waste hauling trucks (e.g. the trucks used by county waste haulers for yard waste recycling) is very likely to be odorous due to the fact that the material has remained in a waste bin for a period of time prior to being picked up, and because the trucking tends to compress the material, causing anaerobic conditions. SWCAA believes that this material should be incorporated into compost piles or removed from the site by the end of the work day to minimize odor impacts. When this schedule cannot be met due to delays beyond the control of the Permittee, the material may be mixed with wood chips to control odor until its final disposition the next day.

Self-hauled green waste and green waste hauled by the applicant has been observed self-heating in piles at the facility when left alone for multiple days. These piles are not actively managed to promote proper composting conditions and are not controlled (e.g. with a compost blanket biofilter). Based on a VOC emission factor of 1.063 lb/ton/day from the San Joaquin Valley Air Pollution Control District, and the South Coast Air Quality Management District baseline ammonia emission factors for co-composting operations (which utilizes a slightly different material but in a more controlled windrow environment), this could equate to 159 tons per year of VOC

emissions and 28 tons per year of ammonia emissions for 3 days of uncontrolled degradation and a green waste throughput of 100,000 tons per year. It is appropriate to remove these purtrescible green wastes from the site by the end of the next calendar day to prevent these emissions from occurring at this location and reduce total cycle emissions.

10.d Monitoring and Recordkeeping. Sufficient monitoring and recordkeeping was established to monitor compliance with terms and conditions of the permit and provide sufficient documentation of composting conditions related to emissions.

Oxygen and Temperature Monitoring. The actively composting material must be closely watched and actively managed to prevent conditions that can lead to excess emissions or excessive odor generation. Weekly oxygen sampling of the actively composting material was required to provide a reasonable assurance that the material is being maintained in an aerobic condition. Because anaerobic conditions can develop rapidly, it may be in the best interests of the permittee to sample highly active material more frequently. Temperature monitoring was required concurrently to assist SWCAA in interpreting the results of the oxygen samples (temperature is one indicator of actively level).

Stability and Maturity of Material Added to Curing Pile. The permit requires that compost from the secondary pile be tested to assure it has achieved a minimum stability prior to transferring the material to the curing pile where it will not be actively aerated. The minimum stability is required to assure that highly active material is not placed in the curing pile where it could become anaerobic and generate excessive malodors. As a minimum the CO_2 evolution rate shall not exceed 6 mg/ CO_2-C evolved per gram volatile solids per day. This is equivalent to a Solvita index of 5 or higher.

pH Monitoring. Pile pH can strongly affect the potential to generate ammonia emissions and release odorous volatile organic acids. Because pH changes relatively slowly, weekly pH monitoring should be adequate to characterize the pH throughout the process and provide data if necessary to diagnose odor problems.

Carbon to Nitrogen Ratio of Incoming Feedstocks. The initial carbon to nitrogen ratio will change depending upon the compost mix. The type of incoming yard waste will change with the season and the weather, but is unlikely to change significantly in less than a weeks' time, therefore a weekly determination of carbon to nitrogen ratio was required. Weekly monitoring should be adequate to prevent violations of the minimum carbon to nitrogen ratio requirement and will provide an adequate demonstration of compliance.

Moisture Content Monitoring. Weekly moisture content monitoring was required to provide a reasonable assurance of compliance with the maximum moisture content requirement.

10.e Emission Monitoring and Testing Requirements. See Section 12.

10.f Reporting. Specific reporting deadlines were established for each reporting requirement. The submittal date refers to the earlier of the date the report is delivered to SWCAA or the postmarked date if sent through the US Post Office.

Upset conditions with the potential to cause excess emissions must be reported immediately in order to qualify for relief from penalty in accordance with SWCAA 400-107 for unavoidable exceedances. In addition, prompt reporting allows for prompt and accurate investigation into the cause of the event and the prevention of similar future incidents.

The permit requires reporting of the annual air emissions inventory, and reporting of the data necessary to develop the emission inventory (composting material throughput).

11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

11.a Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

The diesel engines may exhibit excess opacity upon startup. Accordingly, the opacity limit in the permit is not applicable during the startup period defined in the permit.

11.b Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. It is conceivable that the applicant could request to compost a different mixture of materials. The permit allows the use of alternative materials if reviewed and approved by SWCAA.

11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

12. EMISSION MONITORING AND TESTING

Source emission testing of the composting process is required if requested by SWCAA. Potential emissions from the facility are not significant enough to warrant mandatory source emission testing.

13. FACILITY HISTORY

13.a General History. H & H Wood Recyclers received initial approval from Clark County for a wood waste grinding, storage and composting facility in 1991. In 2009 it came to SWCAA's attention that equipment and activities at the facility were subject to New Source Review and permitting. At this time SWCAA notified the facility that they needed to apply for an Air Discharge Permit. Air Discharge Permit Application #CL-1916 was submitted May 7, 2010, but it was substantially incomplete. An incompleteness notice was mailed to the applicant on May 14, 2010. The facility was issued Field Notice of Correction / Violation #4614 on September 17, 2010 for construction and operation of a stationary source without an Air Discharge Permit. Additional information was received in September 2010, October 2010, November 2010, and February 2011.

13.b Previous Permitting Actions. SWCAA has previously issued the following Permits for this facility:

Permit Number	Application #	Date Issued	Description
11-2966	CL-1916	3/22/2011	Initial Air Discharge Permit for green waste recycling and composting facility.

Bold font indicates that the Air Discharge Permit was superceded or will no longer be in effect upon issuance of Air Discharge Permit 17-3257.

14. PUBLIC INVOLMENT

14.a Public Notice for Air Discharge Permit Application CL-3010. Public notice for Air Discharge Permit Application CL-3010 was published on the SWCAA internet website for a minimum of 15 days beginning on March 30, 2017.

14.b Public/Applicant Comment for Air Discharge Permit Application CL-3010. SWCAA did not receive formal comments, a comment period request, or any other inquiry from the public or the applicant regarding this Air Discharge Permit application. Therefore, no public comment period was provided for this permitting action.

14.c State Environmental Policy Act. SWCAA issued Determination of Non-Significance 17-043 on December 12, 2017 for this permitting action.