PROPOSED AMENDED RULE 1133.2 EMISSION REDUCTIONS FROM CO-COMPOSTING OPERATIONS

[Rule index to be added after Amendment]

(a) Purpose

The purpose of this rule is to reduce volatile organic compounds (VOC) and ammonia (~~NH_3~~) emissions from ~~c~~Co-composting ~~o~~Operations.

(b) Applicability

This rule applies to owners and operators of ~~all new and existing c~~Co-composting ~~o~~Operations.

(c) Definitions

For the purposes of this rule, the following definitions shall apply:

(1) ACTIVE PHASE is the portion of the composting process characterized by rapid decomposition and biological instability, generating temperatures of at least 122 degrees Fahrenheit (50 degrees Celsius). The Active Phase includes the Pathogen Reduction Process.

(2)~~(1)~~ AERATION SYSTEM is a system where air is forced through ~~o~~Organic Waste ~~m~~Materials being composted, through the use of fans or blowers.

~~(2) AGRICULTURAL COMPOSTING is composting conducted in agricultural settings where the feedstock consists of wastes generated on-site by the production and processing of farm or agricultural products.~~

(3) AGRICULTURAL OPERATIONS are as defined in Rule 102 – Definition of Terms.

~~(3) ACTIVE CO-COMPOSTING is the phase of the composting process that begins when organic materials are mixed together for composting and lasts a minimum of 22 days.~~

(4) BASELINE EMISSIONS FACTORS are the uncontrolled~~non-controlled~~ emission factors for ~~c~~Co-composting ~~o~~Operations for VOC and ammonia, respectively.

(5) BIOFILTRATION is a pollution control technology that removes and oxidizes VOC and ammonia through the action of bacteria and other microorganisms.

(6) BIOSOLIDS are the solid wastes produced by wastewater treatment or reclamation plants by operations within the boundaries of the wastewater and sludge treatment plant.

(7)~~(6)~~ CO-COMPOSTING OPERATION is an operation that composts~~ing where~~ any amount of ~~b~~Biosolids ~~and/~~or greater than 20 percent ~~m~~Manure, by volume, ~~are~~ mixed with bulking agents, such as sawdust, and other Organic Waste Material, to

produce compost. ~~Co-composting includes both the active and curing phases of the composting process.~~

~~(7) COMPOST is a product resulting from the controlled biological decomposition of organic materials.~~

(8) COMPOST OVERS are woody materials that do not decompose in a typical composting cycle and are screened out of Finished Compost at the end of composting. Compost Overs have completed the Pathogen Reduction Process.

~~(8) COMPOSTING is a process in which solid organic waste materials are decomposed in the presence of oxygen under controlled conditions through the action of bacteria and other microorganisms.~~

(9) CONTROL EFFICIENCY is the effectiveness, expressed in percent, of an emission control system or mitigation measure to eliminate, reduce, or control the issuance of a specific air contaminant.

(10)~~(9)~~ CURING PHASE is the portion~~phase~~ of the ~~co~~-composting process that begins immediately after the end of the ~~a~~Active ~~p~~Phase of composting and characterized by slower decomposition until reaching biological stability.~~lasts 40 days or until the compost has a Solvita Maturity Index of 7 or the product respiration rate is below 10 milligrams of oxygen consumed per gram of volatile solids per day as measured by direct respirometry.~~

(11) DIGESTATE is the solid waste produced by anaerobic digesters from the decomposition of Organic Waste Material. The solid waste from anaerobic digesters at wastewater treatment or reclamation plants by operations within the boundaries of the wastewater and sludge treatment plant are Biosolids.

(12)~~(10)~~ ENCLOSURE is a completely walled, floored, and roofed structure or vessel.

(13)~~(11)~~ EXISTING SMALL-CAPACITY CO-COMPOSTING OPERATION~~S~~ is~~are~~ a~~ll~~ ~~e~~Co-composting ~~o~~Operation~~s~~ that began~~have begun~~ operations on or before January 10, 2003~~the date of adoption of this rule~~ with a design capacity of less than 35,000 tons of Organic Waste Material per calendar year containing no more than 20 percent Biosolids, by volume.

(14) FINISHED COMPOST is a humus-like material that results from the controlled biological decomposition of Organic Waste Material and is biologically stable. Both the Active Phase and Curing Phase of composting are required to achieve this product.

(15) FOODWASTE is any food scraps collected from the food service industry, grocery stores, or residential food scrap collection. Foodwaste also includes food scraps that

are chipped and ground. Food scraps co-collected with curbside Greenwaste collection are considered Greenwaste.

(16)~~(12)~~ GREENWASTE is any ~~organic~~ waste of organic origin ~~material~~ generated from gardening, agriculture, or landscaping activities including~~, but not limited to,~~ grass clippings, leaves, tree and shrub trimmings, and plant remains. Food scraps co-collected with curbside Greenwaste collection are considered Greenwaste. Large woody materials, such as tree trimmings, branches, tree trunks, stumps, and limbs exceeding two (2) inches in any dimension may be considered Woodwaste instead of Greenwaste, if free from leaves, berries, pine needles, and other non-woody materials.

~~(13) GREENWASTE COMPOSTING is composting of greenwaste by itself or greenwaste in combination with up to 20 percent manure, by volume.~~

(17)~~(15)~~ MANURE is the solid waste and soiled bedding produced by livestock operations from the keeping of domesticated animals including cattle, calves, horses, sheep, goats, swine, rabbits, chicken, turkeys, or ducks.

~~(14) NEW CO-COMPOSTING OPERATIONS are co-composting operations that have not started operations as of the date of adoption of this rule.~~

~~(15) OPERATOR is the operator of a co-composting operation.~~

(18) ORGANIC WASTE MATERIAL is any waste material of organic origin that may be used as feedstock to produce Finished Compost, Compost Overs, or intermediate material. Organic Waste Material includes Greenwaste, both curbside and non-curbside, Woodwaste, Foodwaste, Biosolids, Digestate, and Manure.

(19) PATHOGEN REDUCTION PROCESS is the process outlined in Title 14, Section 17868.3 of the California Code of Regulations.

(20) PILE is Organic Waste Material that is heaped together.

(21) PUBLICLY-OWNED SMALL-CAPACITY CO-COMPOSTING OPERATION is a Co-composting Operation owned or operated by a public entity which composts no more than 5,000 tons of Biosolids or Manure, combined, per calendar year.

~~(16) SOLVITA MATURITY INDEX is an index that defines the stage where compost exhibits resistance to further decomposition, as tested by the Solvita Maturity Test®.~~

~~(17) START-UP is the first day of active co-composting operations at the facility.~~

(22)~~(18)~~ THROUGHPUT is the mass of Organic Waste Material~~biosolids, manure, and greenwaste~~ in tons per calendar year as received by the Co-composting Operation~~facility~~ and processed through composting, excluding recycled materials.

(23)~~(19)~~ WOODWASTE is lumber, and the woody material portion of mixed demolition wastes and mixed construction wastes. Large woody materials, such as tree trimmings, branches, tree trunks, stumps, and limbs exceeding two (2) inches in any dimension may be considered Woodwaste instead of Greenwaste, if they are free from leaves, berries, pine needles, and other non-woody materials.

~~(20) WOODWASTE COMPOSTING is composting of woodwaste by itself.~~

(24) WINDROW COMPOSTING PROCESS is the process in which Organic Waste Material is placed in elongated Piles and are mechanically turned on a periodic basis.

(d) Requirements

~~(1)~~ The owner or ~~O~~operator~~s~~ of a ~~new e~~Co-composting ~~o~~Operation~~s~~ shall:

(1)~~(A)~~ Conduct the~~all a~~Active Phase~~co-composting~~ within the confines of an ~~e~~Enclosure which meets the following conditions:

(A)~~(i)~~ The inward face velocity of air through each opening in which air can enter the ~~e~~Enclosure shall be a minimum of 100 feet per minute, unless the opening is equipped with a closure device that seals the opening in the event that the airflow direction changes.

(B)~~(ii)~~ The area of all openings in the ~~e~~Enclosure through which air can enter the ~~e~~Enclosure shall not exceed two (2) percent~~2%~~ of the surface area of the ~~e~~Enclosure's four (4) walls, floor, and ceiling.

(C)~~(iii)~~ The ~~e~~Enclosure may be opened for brief time periods, not to exceed a total of 30 minutes per day for purposes of access or maintenance. These time periods do not need to be included in the face velocity determination or as an opening for the two (2) percent criteria.

(D)~~(iv)~~ No measurable increase over background levels of ammonia or hydrocarbons outside the ~~e~~Enclosure shall occur at any ~~e~~Enclosure opening including any opening that occurs briefly for access or maintenance. A portable ammonia or hydrocarbon analyzer shall be used for these measurements. The portable ammonia analyzer shall be operated per manufacturer's instructions and calibrated with certified zero and ten (10) parts per million ammonia standards. The portable hydrocarbon analyzer shall be a flame ionization detector operated per manufacturer's instructions and calibrated with certified zero and ten (10) parts per million methane standards. The owner or operator shall monitor each Enclosure opening at least daily and record monitoring result.

(2) Conduct the Active Phase until meeting at least one of the following criteria:

(A) For a minimum of 22 consecutive calendar days, beginning when Organic Waste Material is mixed together for composting.

(B) The Active Phase Pile has a Compost Maturity Index of 4.5 or greater as measured by the Solvita Maturity Test in accordance with subparagraph (g)(4)(A).

(3)~~(B)~~ Conduct the~~all~~ ~~c~~Curing Phase using an ~~a~~Aeration ~~s~~System vented to an emission control system ~~that operates under negative pressure for no less than 90 percent of its blower(s) operating cycle~~and until meeting at least one of the following criteria:~~;~~ ~~and,~~

(A) For a minimum of 40 consecutive calendar days after the end of the Active Phase.

(B) The Curing Phase Pile has a Compost Maturity Index of 6.0 or greater as measured by the Solvita Maturity Test in accordance with subparagraph (g)(4)(A).

(C) The Curing Phase Pile respiration rate is below ten (10) milligrams of oxygen consumed per gram of volatile solids per day as measured by direct respirometry in accordance with subparagraph (g)(4)(B).

(4)~~(C)~~ Vent the exhaust from the ~~e~~Enclosure and the ~~a~~Aeration ~~s~~System to an emissions~~s~~ control system designed and operated that, either:

(A) Meets~~with~~ a ~~c~~Control ~~e~~Efficiency equal to or greater than 80 percent, by weight, for VOC emissions and equal to or greater than 80 percent, by weight, for ammonia emissions, as compared to one of:~~.~~

(i) Inlet emission rates for VOC and ammonia, respectively, to the emission control system;

(ii) Baseline Emission Factors of 1.78 pounds of VOC per ton of Throughput and 2.93 pounds of ammonia per ton of Throughput, respectively; or

(iii) Operation-specific Baseline Emission Factors for VOC and ammonia, respectively, if submitted by the owner or operator and approved by the Executive Officer to represent the uncontrolled emission factors of the Co-composting Operation; or

(B) Does not exceed 0.35 lbs VOC emissions per ton of Throughput and does not exceed 0.58 lbs ammonia emissions per ton of Throughput.

(5) Demonstrate compliance with paragraph (d)(4) by source testing in accordance with paragraph (g)(1):

(A) Within one (1) year of startup of the emission control system; and

(B) Every two (2) years thereafter.

(6) In lieu of complying with paragraphs (d)(1) through (d)(5), the owner or operator of an Existing Small-capacity Co-composting Operation may select the Existing Small-capacity Co-composting Operation Alternative in accordance with subdivision (e).

(7) In lieu of complying with paragraphs (d)(1) through (d)(5), the owner or operator of a Publicly-owned Small-capacity Co-composting Operation may select the Publicly-owned Small-capacity Co-composting Operation Alternative in accordance with subdivision (f).

~~(2) In lieu of complying with the requirements of paragraph (d)(1), operators of new co-composting operations may submit a compliance plan, for the approval of the Executive Officer, that demonstrates an overall emission reduction of 80 percent, by weight, for VOC emissions and 80 percent, by weight, for ammonia emissions from the baseline emission factors.~~

~~(3) Operators of existing co-composting operations shall submit a compliance plan, for the approval of the Executive Officer, that demonstrates an overall emission reduction of 70 percent, by weight, for VOC emissions and 70 percent, by weight, for ammonia emissions from the baseline emission factors.~~

~~(4) The baseline emission factors to be used under paragraphs (d)(2) and (d)(3) shall be 1.78 pounds of VOC per ton of throughput and 2.93 pounds of ammonia per ton of throughput. The Executive Officer may approve the use of operation-specific baseline emission factors in lieu of the baseline emission factors, if the operator requests the use of such baseline emission factors as part of the compliance plan submittal and demonstrates that the operation specific baseline emissions factors are representative of noncontrolled operations.~~

~~(5) The operator of a co-composting operation shall submit the compliance plan required pursuant to paragraphs (d)(2) or (d)(3) at least one year prior to the start of operations for new co-composting operations and at least one year prior to the effective date of compliance for existing co-composting operations.~~

~~(6) The control efficiency required under subparagraphs (d)(1)(C) and (j)(2)(A) for new co-composting operations shall be demonstrated by a source test conducted as part of the permit application process and every two years thereafter.~~

~~(7) The control efficiency required under subparagraph (j)(2)(A) for existing co-composting operations shall be demonstrated by a source test conducted on or before January 1, 2007, and every two years thereafter.~~

~~(8) Within 180 days after the effective date of compliance and every two years thereafter, the operator of a co-composting operation shall perform all necessary tests and provide a certification of compliance report that includes all source test data and all other applicable information to demonstrate compliance with the emission reduction requirement of paragraphs (d)(2) or (d)(3).~~

(e) Existing Small-capacity Co-composting Operation Alternative~~Compliance Plan~~

The owner or operator selecting the Existing Small-capacity Co-composting Operation Alternative shall:

(1) Cover each Active Phase Pile with Finished Compost or Compost Overs within 24 hours of initial Pile formation such that the top of the cover is at least six (6) inches thick.

(2) Within six (6) hours before turning for at least the first 15 days after initial Active Phase Pile formation, apply water or other liquid approved by the Executive Officer to the surface area of each Active Phase Pile until the top one-half of the Active Phase Pile is sufficiently wet to a depth of at least three (3) inches.

(A) The owner or operator shall determine if an Active Phase Pile is sufficiently wet by the squeeze ball test pursuant to subparagraph (e)(2)(B) or an alternative approved by the Executive Officer, California Air Resource Board (CARB), or United States Environmental Protection Agency (U.S. EPA).

(B) Squeeze Ball Test

The owner or operator shall take a sample of material while wearing a protective glove from the top one-half of the Active Phase Pile, at least three (3) inches below the outer surface. The owner or operator shall squeeze the sample into a ball using hand pressure. An Active Phase Pile is sufficiently wet if the sample forms a ball when compressed, but the ball may break when tapped.

(C) If the ball crumbles upon release of hand pressure, the owner or operator shall apply additional water to the Active Phase Pile prior to turning until the Active Phase Pile is sufficiently wet.

(D) If a rain event occurs within six (6) hours before turning an Active Phase Pile and the Active Phase Pile is sufficiently wet, the owner or operator may turn the Active Phase Pile without adding additional approved liquid. If the Active Phase Pile is not sufficiently wet, the owner or operator shall apply

additional approved liquid to the Active Phase Pile pursuant to subparagraph (e)(2)(C) before turning.

(3) In lieu of complying with the requirement of paragraph (e)(2), the owner or operator may turn Active Phase Piles using a windrow turner equipped with liquid spraying technology that applies approved liquid during the entire turning process.

(4) Conduct the Active Phase until meeting at least one of the following criteria:

(A) For a minimum of 22 consecutive calendar days, beginning when Organic Waste Material is mixed together for composting.

(B) The Active Phase Pile has a Compost Maturity Index of 4.5 or greater as measured by the Solvita Maturity Test in accordance with subparagraph (g)(4)(A).

(5) Conduct the Curing Phase until meeting at least one of the following criteria:

(A) For a minimum of 40 consecutive calendar days after the end of the Active Phase.

(B) The Curing Phase Pile has a Compost Maturity Index of 6.0 or greater as measured by the Solvita Maturity Test in accordance with subparagraph (g)(4)(A).

(C) The Curing Phase Pile respiration rate is below ten (10) milligrams of oxygen consumed per gram of volatile solids per day as measured by direct respirometry in accordance with subparagraph (g)(4)(B).

~~(1) Compliance plans required under paragraphs (d)(2) and (d)(3) shall contain all the following elements:~~

~~(A) The name(s), address(es), and telephone number(s) of the person(s) responsible for the preparation, submittal, and implementation of the compliance plan;~~

~~(B) The name, address, and telephone number(s) of the facility for which the compliance plan is being prepared;~~

~~(C) A description and process diagram of the co-composting operation;~~

~~(D) A complete description of the control method(s) that will be used at the co-composting operation to meet the requirements under paragraphs (d)(2) or (d)(3). The description shall be in sufficient detail to demonstrate compliance with paragraphs (d)(2) or (d)(3). The acceptable control methods include, but are not limited to:~~

~~(i) enclosure design or technology;~~

~~(ii) aeration system design and operation;~~

~~(iii) biofiltration;~~

~~(iv) scrubber;~~

~~(v) feedstock component optimization;~~

~~(vi) biosolids thermal pre-treatment;~~

~~(vii) enclosed material mixing and thermal stripping;~~

~~(viii) staged active pile construction and aeration;~~

~~(ix) feedstock ratio optimization;~~

~~(x) process controls;~~

~~(xi) best management practices; or,~~

~~(xii) any combination of the methods listed above; or,~~

~~(xiii) any other method approved by the Executive Officer, California Air Resources Board, and the United States Environmental Protection Agency.~~

~~(E) All data, calculations methodology, calculations, records, manufacturer specifications and all other information necessary to determine that the composting methods and control methods proposed in subparagraph (e)(1)(D) will achieve the required emission reductions specified in paragraph (d)(2).~~

~~(F) A methodology and calculations establishing the daily and annual VOC and ammonia emissions or projected emissions;~~

~~(G) If applicable, a source test protocol developed in accordance with the requirements of subdivision (g), to establish operation-specific baseline emission factors.~~

~~(H) A source testing protocol developed in accordance with the requirements of subdivision (g) to demonstrate compliance with the overall emission reductions specified in paragraph (d)(2) or (d)(3).~~

~~(I) An identification of all equipment needing permits to construct and operate.~~

~~(2) In evaluating the plan, the Executive Officer may require tests and sampling as necessary to determine the adequacy of the plan and the likelihood of compliance with the emission reduction requirements of paragraphs (d)(2) or (d)(3).~~

~~(3) The Executive Officer may approve operation-specific baseline emissions factors provided the baseline emissions factors are substantiated with source test data obtained in accordance with subdivision (g) of this rule and the composting method(s) and mixture is representative of normal operations.~~

~~(4) The Executive Officer shall provide interim approval of the compliance plan provided the operator submits all of the information required under paragraph (e)(1)~~

~~and the Executive Officer verifies that, by design, the plan will meet the requirements of paragraph (d)(2) or (d)(3), as applicable.~~

~~(5) Following the interim approval of the plan, the Executive Officer shall approve the compliance plan provided the operator submits, no later than 180 days after the effective date of compliance, a certification of compliance report that includes all source test data, and the Executive Officer verifies that the emissions from the co-composting operations comply with the requirements of paragraphs (d)(2) or (d)(3), as applicable.~~

~~(6) The Executive Officer may impose conditions necessary to ensure that the co-composting operation complies with the compliance plan and all applicable AQMD rules.~~

~~(7) The Executive Officer may require the operator to maintain records consistent with the compliance plan necessary to demonstrate compliance with the plan.~~

(f) Publicly-owned Small-capacity Co-composting Operation Alternative~~Compliance Schedule~~

The owner or operator selecting the Publicly-owned Small-capacity Co-composting Operation Alternative shall:

(1) Conduct the Active Phase and Curing Phase using an Aeration System that is vented to an emission control system that either:

(A) Meets Control Efficiency equal to or greater than 80 percent, by weight, for VOC emissions and equal to or greater than 80 percent, by weight, for ammonia emissions, as compared to one of:

(i) Inlet emission rates for VOC and ammonia, respectively, to the emission control system;

(ii) Baseline Emission Factors of 1.78 pounds of VOC per ton of Throughput and 2.93 pounds of ammonia per ton of Throughput, respectively; or

(iii) Operation-specific Baseline Emission Factors for VOC and ammonia, respectively, if submitted by the owner or operator and approved by the Executive Officer to represent the uncontrolled emission factors of the Co-composting Operation; or

(B) Does not exceed 0.35 lbs VOC emissions per ton of Throughput and does not exceed 0.58 lbs ammonia emissions per ton of Throughput.

(2) Demonstrate compliance with paragraph (f)(1), as applicable, by source testing in accordance with paragraph (g)(1):

(A) Within one (1) year of startup of the emission control system; and

(B) Every two (2) years thereafter.

(3) Install, operate, and maintain the emission control system in accordance with the manufacturer's operation and maintenance manual or other similar written materials supplied by the manufacturer or distributor to ensure that the emission control system remains in proper operating condition.

(4) Conduct the Active Phase until meeting at least one of the following criteria:

(A) For a minimum of 22 consecutive calendar days, beginning when Organic Waste Material is mixed together for composting.

(B) The Active Phase Pile has a Compost Maturity Index of 4.5 or greater as measured by the Solvita Maturity Test in accordance with subparagraph (g)(4)(A).

(5) Conduct the Curing Phase until meeting at least one of the following criteria:

(A) For a minimum of 40 consecutive calendar days after the end of the Active Phase.

(B) The Curing Phase Pile has a Compost Maturity Index of 6.0 or greater as measured by the Solvita Maturity Test in accordance with subparagraph (g)(4)(A).

(C) The Curing Phase Pile respiration rate is below ten (10) milligrams of oxygen consumed per gram of volatile solids per day as measured by direct respirometry in accordance with subparagraph (g)(4)(B).

~~(1) The effective dates of compliance for paragraphs (d)(1), (d)(2), and (d)(3) of this rule shall be as follows:~~

~~(A) Upon start-up for new co-composting operations.~~

~~(B) January 1, 2007 for existing co-composting operations with a facility design capacity of 100,000 tons of throughput per year or more.~~

~~(C) January 1, 2008 for existing co-composting operations with a facility design capacity greater than or equal to 10,000 but less than 100,000 tons of throughput per year.~~

~~(D) January 1, 2009 for existing co-composting operations with a facility design capacity less than 10,000 tons of throughput per year.~~

~~(2) The Executive Officer shall extend for up to three years the compliance date for an existing co-composting operation which, at the time of rule adoption and at least one year prior to the effective compliance date, has less than 3 years remaining under a non-renewable conditional use permit beyond its effective compliance date. By June 1, 2003, the operator of such an operation must submit to the Executive~~

~~Officer a copy of the conditional use permit and a letter from the responsible agency verifying that the permit is non-renewable and the date when the permit is expired.~~

(g) Test~~ing~~ Methods and Protocol

(1) Source Testing~~The operator of a co-composting operation shall conduct all required source and laboratory tests in accordance with an Executive Officer approved test protocol developed in accordance to the guidelines provided in Attachment A of this rule.~~

The owner or operator of a Co-composting Operation required to perform source testing shall:

(A) Prior to conducting source testing to demonstrate compliance, submit a source test protocol for approval to the Executive Officer in accordance with the guidelines provided in Attachment A;

(B) Submit an updated or new source test protocol if there are any changes to the Co-composting Operation or if the Executive Officer requests an updated or new source test protocol;

(C) Conduct source testing pursuant to the valid source test protocol approved by the Executive Officer; and

(D) Submit the source test report to the Executive Officer within 60 days of completing all sampling for source testing.

(2) The owner or operator of the ~~c~~Co-composting ~~o~~Operation shall use a ~~District approved~~ laboratory approved by the Executive Officer for all required testing.~~in accordance with the Attachment A of this rule~~.

(3) The following methods shall be used to determine compliance with this rule:

(A) South Coast ~~SC~~AQMD Method 207.1 – Determination of Ammonia Emissions from Stationary Sources.

(B) South Coast ~~SC~~AQMD Method 25.3 – Determination of Low Concentration Non-Methane Non-Ethane Organic Compound Emissions from Clean Fueled Combustion Sources.

(C) South Coast ~~SC~~AQMD Method 1.1 – Sample and Velocity Traverses for Stationary Sources.

(D) South Coast ~~SC~~AQMD Method 1.2 – Sample and Velocity Traverse~~Traverses~~ for Stationary Sources with Small Stacks or Ducts.

(E) South Coast ~~SC~~AQMD Method 2.1 – Determination of Stack Gas Velocity and Volumetric Flow Rate (S-Type Pitot Tube).

(F) South Coast ~~SC~~AQMD Method 2.2 – Direct Measurement of Gas Volume through Pipes and Small Ducts.

(G) South Coast ~~SC~~AQMD Method 2.3 – Determination of Gas Velocity and Volumetric Flow Rate From Small Stacks or Ducts.

(H) South Coast ~~SC~~AQMD Method 4.1 – Determination of Moisture Content in Stack Gases.

(4) Triplicate samples shall be taken for the following test methods:

(A) Test Methods for the Examination of Composting and Compost (TMECC) 05.08-E – Solvita Maturity Index (April 7, 2002) or its successor.

(B) TMECC 05.08-A – Specific Oxygen Uptake Rate (April 7, 2002) or its successor.

(h) Recordkeeping

The owner or operator of a Co-composting Operation shall:

(1) Maintain the following records, as applicable:

(A) A copy of the annual Co-composting Operation report submitted in accordance with subdivision (i);

(B) Records of dates and amounts of composting conducted;

(C) Application of Finished Compost, Compost Overs, and approved liquids, in accordance with subdivision (e);

(D) Source test reports, in accordance with subparagraph (g)(1)(D);

(E) Operation and maintenance of any emission control system, in accordance with subdivisions (d) or (f); and

(F) Manufacturer's operation and maintenance manual or similar, in accordance with subdivisions (d) or (f).

(2) Maintain records for the prior five (5) years of operation, with the most recent two (2) years retained on-site, which shall be immediately available upon request by the Executive Officer. The remaining three (3) years of records shall be made available to the Executive Officer within one (1) week of request.

~~The operator shall, at a minimum, maintain operation's records for a period of at least two years, or five years for facilities subject to Title V Permit Requirements, and make them available to the Executive Officer upon request.~~

(i) Reporting~~Plan Fees~~

The owner or operator of a Co-composting Operation shall submit to the Executive Officer annually, no later than July 1st of each calendar year, a report summarizing the Co-

composting Operation of the previous calendar year in a format approved by the Executive Officer, including annual Throughputs of each Organic Waste Material received and annual Throughputs of Finished Compost and Compost Overs.

~~Operators subject to a compliance plan submittal pursuant to paragraphs (d)(2) and (d)(3) shall be assessed, as applicable, filing and evaluation fees pursuant to Rule 306.~~

(j) Exemptions

(1) The owner or operator of an Agricultural Operation shall be exempt from ~~T~~the provisions of subdivisions (d) through (i). ~~of this rule shall not apply to agricultural composting operations, greenwaste composting operations, woodwaste composting operations, co-composting operations with a design capacity of less than 1,000 tons of throughput per year, and existing co-composting operations with a design capacity of less than 35,000 tons of throughput per year containing no more than 20 percent biosolids, by volume.~~

(2) The owner or operator of a Co-composting Operation with a Throughput of less than 100 tons per calendar year shall be exempt from the provisions of subdivisions (d) through (g) and subdivision (i), provided the owner or operator records and maintains records in accordance with subdivision (h).

~~(2) Except for paragraphs (d)(6) and (d)(7), the provisions of subdivisions (d) through (i) shall not apply to new and existing co-composting operations that:~~

~~(A) Conduct co-composting operations using an aeration system that is vented to an emission control device with a control efficiency of 80 percent, by weight, for VOC emissions and 80 percent, by weight, for ammonia emissions; and,~~

~~(B) Are owned and operated by a municipality which composts waste generated within the jurisdiction of the municipality; and,~~

~~(C) Process less than 5,000 tons of biosolids or manure per year, combined.~~

ATTACHMENT A

GUIDELINES FOR THE DEVELOPMENT OF SOURCE TEST PROTOCOLS FOR VOC AND AMMONIA EMISSIONS FROM CO-COMPOSTING OPERATIONS

Source test protocols are to consist of testing plans to measure VOC and ammonia emissions due to the composting process. When used for determining the emission control system~~device~~ Control ~~e~~Efficiency ~~requirement specified for new facilities~~, the measurements shall consist of lb/hr measurements at the inlet and exhaust of the emission control system~~device~~ as well as a verification of the ~~e~~Enclosure and are subject to the applicable requirements that follow. When used for determining the Control Efficiency~~overall emission reduction requirements~~ as compared to the ~~b~~Baseline ~~e~~Emissions ~~f~~Factors, emissions are to be reported as % reductions for the ~~a~~Active Phase~~co-composting~~ and ~~c~~Curing ~~p~~Phase~~s~~ in terms of pounds of emissions per ton of ~~t~~Throughput (total raw material as received) and are subject to the applicable requirements that follow. The following are general requirements for all testing as well as specific requirements for the rule sections for each facility-specific protocol which must be prepared by the source test contractor and approved by the South Coast ~~SC~~AQMD prior to testing. Source test protocols are facility-specific, reflecting the unique conditions and configuration of each Co-composting Operation and may vary from these guidelines. Any such deviations from test method(s) must be approved by South Coast AQMD in the source test protocols.

1. Alternative Test Methods

The reference test methods for ammonia, VOC, and flow rate cited in this guideline shall be used to determine compliance with this rule. Alternative test methods may be used if they are determined to be equivalent and approved in writing by the Executive Officer, CARB~~the California Air Resources Board~~, or~~and~~ U.S. EPA~~the U.S. Environmental Protection Agency~~. For the source test protocols, as defined as the manner in which the reference test methods are employed to obtain a measurement of the emissions, alternatives to the procedures cited in these~~this~~ guidelines may be used if they are determined to be equivalent and approved in writing by the Executive Officer.

2. LAP Requirements

The sampling, analysis, and reporting shall be conducted by a laboratory/source test firm that has been approved under the South Coast ~~SC~~AQMD Laboratory Approval Program (LAP) for the cited South Coast ~~SC~~AQMD reference test methods, where LAP approval is available. For South Coast ~~SC~~AQMD reference test methods for which no LAP program is available, the LAP approval requirement shall become effective one (1) year after the date that the LAP program becomes available for that South Coast ~~SC~~AQMD reference test method.

3. Operating Conditions

The testing must be conducted under representative operating conditions with respect to seasonal conditions, compost composition, process ~~t~~Throughput, processing of the materials, and ~~p~~Pile

geometries. The following operating parameters shall be recorded during testing and reported with the test results:

a) A thorough description of the composting process and process diagram of each processing area and including residence times in each of the composting process areas.

b) Process ~~t~~Throughput as determined by facility's billing scales or other calibrated measuring device that represents the tons of the material as received that is present at the facility during the time of the testing. When using the South Coast AQMD~~District~~ Baseline Emission Factors, the process ~~t~~Throughput is to include all of the raw ~~o~~Organic Waste ~~m~~Materials that are composted excluding material that is recycled from previous similar processing. Several ~~t~~Throughputs may be necessary if applicable to the different processing areas or ~~p~~Pile ages.

c) Compost composition (percent and type of Organic Waste ~~m~~Materials~~s~~ i.e. ~~b~~Biosolids, ~~m~~Manure, ~~g~~Greenwaste, etc.~~..~~).

d) Age of all ~~p~~Piles that were tested and all ~~p~~Piles present at the facility during testing, with age expressed in either calendar days or Compost Maturity Index as measured by the Solvita Maturity Test in accordance with subparagraph (e)(4)(A).

e) Detailed ~~D~~ddimensions of all ~~p~~Piles so that a surface area for each ~~p~~Pile type can be calculated.

f) A description of the biofilter system, including a process diagram and type of biofilter media.

g) Age of the biofilter media.

h) A thorough description of the humidification and moisture maintenance system for the biofilter.

i) Identification of peripheral monitoring equipment, such as moisture or temperature sensors, and data from them during testing.

4. Ammonia Sampling

South Coast ~~SC~~AQMD Method 207.1 shall be used to obtain the ammonia samples from each source of emissions to be tested. When sampling from a flux chamber, a sample line of minimal length should be connected to a midget sampling train consisting of; two (2) midget impingers each filled with 15 mL~~l~~ of 0.1N ~~S~~sulfuric ~~A~~acid, an empty impinger~~bubbler~~, and an impinger~~bubbler~~ filled with tared silica gel. The samples shall be analyzed for ammonium content as ammonia by ion chromatography or ion selective electrode.

5. VOC Sampling

Duplicate integrated gas samples shall be taken from each source of emissions to be tested using South Coast ~~SC~~AQMD Method 25.3. ~~The~~ South Coast AQMD Method 25.3 apparatus should be connected to sample directly inside the flux chamber or duct as applicable. Compost emissions are considered as water soluble sources where the 50 ppm applicability limit of South Coast AQMD Method 25.3 does not apply.

6. Specific Requirements for Testing Co-Composting Operations Control Equipment Performance

For surface types of emissions, such as with open faced biofilter exhausts, the exhaust emission rate shall be determined as in accordance with ~~in the following~~ Section (8) below.

For an emission control system~~device~~ inlet or exhaust that is vented through a testable duct, the gas velocity within the duct shall be measured according to South Coast ~~SC~~AQMD Methods 1.1, 2.1, and 3.1. The flow rate shall also be corrected to dry standard conditions using the moisture content as determined by South Coast ~~SC~~AQMD Method 4.1. This flow rate may then be used to determine mass emission rates.

~~The overall destruction~~Control ~~e~~Efficiency shall be~~is~~ calculated as follows:

$$CE\text{~~ODE~~} = 100 \times (1 - (E / I)) \quad \text{(Equation 1)}$$

Where:

CE~~ODE~~ = Control~~Overall Destruction~~ Efficiency (%)
E = Total Exhaust Emission Rate (lb/hr)
I = Total Inlet Emission Rate to Emission Control System~~Device~~ (lb/hr)

7. Specific Requirements for ~~Existing~~ Co-Composting Operations (Baseline Emission Factors)~~and New Co-Composting Operations (Overall Emissions Reduction)~~

A proposed measurement from the ~~a~~Active Phase and ~~c~~Curing Phase~~co-composting process~~, including ~~but not limited to~~ surface emissions of all ~~p~~Piles where the materials are composted, and outlets (vents or surfaces) of emission control systems~~devices~~ must be included in the protocol. If the emissions are vented to atmosphere from a vent stack such as from an otherwise uncontrolled aerated static ~~p~~Pile or other vent to atmosphere, then the stack concentration, determined using methods specified in Sections (4) and (5) and flow rate measurements, as specified in the previous Section (6), are required. For ~~From~~ all surface types of emissions, such as from compost ~~p~~Piles and biofilter surfaces, the procedure for measuring surface emissions specified ~~as~~ in Section (8) is required. A measurement for fugitive emissions from aerated static ~~p~~Pile surfaces must also be included.

Each type of ~~p~~Pile must be tested. If the facility includes several identical ~~p~~Piles, then only the largest ~~p~~Pile need be tested. If the facility has more than three (3) different age ~~p~~Piles that are otherwise identical in processing and composition, then at a minimum three (3) ages can be tested including newer, middle-aged, and older~~, and middle-aged~~ ~~p~~Piles from the Active Phase. A newer Pile in the Active Phase has not yet achieved peak temperature and is typically less than seven (7) days old or has a Compost Maturity Index (CMI) of 1.5 or less as measured by the Solvita Maturity Test in accordance with subparagraph (e)(4)(A). A middle-aged Pile in the Active Phase has achieved peak temperature and is typically between seven (7) and 14 days old or has a CMI between 1.5 and 3.0. An older Pile in the Active Phase has decreasing temperature and is typically between 14 and 22 days old or has a CMI between 3.0 and 4.5. In any case, the surface area of all

~~p~~Piles at the facility must be included in the determination of ~~p~~Pile dimensions as specified~~recorded~~ in Section (3).

If the facility elects to use an alternative to the South Coast AQMD~~District~~'s ~~b~~Baseline ~~e~~Emissions ~~f~~Factors, then a separate test must be conducted to establish this baseline on the uncontrolled Co-composting ~~o~~Operation (e.g., windrow method) with the same compost mix. Following the source test to determine ~~an~~ alternative ~~b~~Baseline Emission Factors, facilities would have the option to use the South Coast AQMD~~District~~'s ~~b~~Baseline ~~e~~Emissions ~~f~~Factors or the alternative ~~b~~Baseline ~~e~~Emissions ~~f~~Factors.

Control Efficiency~~Reduction of emissions~~ shall be calculated as follows:

$$CE\%\ Reduction = 100 \times (1 - (TE / B)) \quad \text{(Equation 2)}$$

Where:

CE = Control Efficiency (%)

TE = Total Emissions of Active Phase and Curing Phase ~~Emissions~~ (lb/ton ~~t~~Throughput)

B = South Coast AQMD~~District~~ Baseline Emission~~s~~ Factor or Alternative Baseline Emission~~s~~ Factor if Tested (lb/ton ~~t~~Throughput)

8. Procedure for Measuring Surface Emissions

The procedure for measuring surface emissions such as the compost ~~p~~Pile and biofilter surfaces that cannot be tested by conventional methods through a stack or duct, is a modified form of the procedures found in the ~~US Environmental Protection Agency's (~~U.S. EPA~~)~~ *Measurement of Gaseous Emission Rates from Land Surfaces Using an Emission Isolation Flux Chamber User's Guide* (U.S. EPA Guide). The modifications to the procedures in the U.S. EPA Guide are specified in the following requirements.

The flux chamber encompasses a fixed surface area of 1.4 ft^2 and contains a sweep air system to obtain a homogeneous air sample by employing a mixing fan and sweep gas (10% helium~~He~~ in air at 5 liters/min recommended). The sweep gas must contain a non-reactive and non-present tracer such as the aforementioned 10% helium so that a correction for the contribution of the surface flow rate can be calculated.

A minimum of six (6)~~ten (10)~~ sample locations per Pile or a sufficient number at each ~~p~~Pile~~/surface~~ tested must be obtained in order to achieve a representative sample of the Pile surface emissions. A minimum of four (4) Piles at each Co-composting Operation (a newer Pile, a middle-aged Pile, an older Pile, and a pile in Curing Phase), or a sufficient number of Piles at the Co-composting Operation must be tested to represent the Co-composting Operation surface emissions. These locations can be composited for each ~~p~~Pile~~/surface~~ to reduce testing costs. For example, for one (1) hour sampling, six (6)~~ten (10)~~ random positions on the ~~p~~Pile should be tested for ten (10)~~6~~ minutes each. Alternatively, a lesser number of sample locations may be sampled provided that an evaluation of spatial variation demonstrates that the number of sample locations are sufficient.

The emissions shall~~must~~ be reported in units of lb/hr-ft^2, lb/hr, and lb/ton of ~~t~~Throughput. The following calculations shall apply to the test results:

$$\textit{Surface Flow Correction Factor} = C_t / C_s \quad \text{(Equation 3)}$$

Where:

C_t = Concentration of Tracer in Sweep Gas
C_s = Concentration of Sweep Gas in Flux Chamber Sample

$$\textit{Corrected Flux Chamber Results (lb/hr-ft}^2\textit{)} = \textit{UFC x SFCF} \quad \text{(Equation 4)}$$

Where:

UFC = Uncorrected Flux Chamber Results (lb/hr-ft^2)
SFCF = Surface Flow Correction Factor

$$\textit{lb/hr} = \textit{lb/hr-ft}^2 \textit{ x Total Compost Surface Area in Category} \quad \text{(Equation 5)}$$

$$\textit{lb/ton ~~t~~Throughput} = \textit{lb/hr x (24 hr/day) / PT} \quad \text{(Equation 6)}$$

Where:

PT = Process Throughput (total ton/day as received)

$$\textit{Total Emissions (lb/ton ~~t~~Throughput)} = \sum P \quad \text{(Equation 7)}$$

Where:

P = Active Phase and ~~c~~Curing Phase sources of the Facility Compost Emissions (lb/ton ~~t~~Throughput)

For a facility where not every age of ~~p~~Pile was tested, the surface areas from each ~~p~~Pile in the facility must be included and sorted into appropriate age (newer, middle-aged, older in the Active Phase) and emissions categories (Active Phase and Curing Phase) from those that were measured.