



EXECUTIVE COMMITTEE

Bill Camarillo, Agromin
Vince Colvis, Mt. Diablo Recycling
Greg Kelley, Northern Recycling
Eric Potashner, Recology
Greg Pryor, Recology
Will Bakx, Sonoma Compost
Christy Pestoni Abreu, UVR Compost
Michael Gross, Z-Best Compost

LEGISLATIVE & REGULATORY AFFAIRS

Neil Edgar, Executive Director
Edgar & Associates Inc.

Evan Edgar, Engineer
Edgar & Associates Inc.

Justin Malan, Legislative Lobbyist
EcoConsult

MEMBERS:

Agromin
Atlas Disposal
Burrtec Waste Industries
Caglia Environmental
California Waste Recovery Systems
California Wood Recycling
CleanFleets.net
Clean Fleets Advocates
Clover Flat Compost
Cold Canyon Compost
GreenWaste Recovery
Harvest Tulare
Harvest Lathrop
Marin Sanitary Service
Mt. Diablo Resource Recovery
Napa Recycling Compost
Northern Recycling Compost
Organic Waste Solutions
Phoenix Energy
Quackenbush Mt. Compost
Recology Blossom Valley Organics
Recology Feather River Organics
Recology Jepson Prairie Organics
ReFuel Energy Partners
Soiland Co, Inc.
Sonoma Compost
Tracy Materials Recovery Compost
Upper Valley Recycling
Vision Recycling
Zanker Road Resource Management
Z-Best Compost Facility
Zero Waste Energy Development
Zero Waste Energy, LLC

January 9, 2019

Marcus Santillano
Senior Environmental Scientist
CalRecycle
P.O. Box 4025
Sacramento, CA 95812-4015

Re: Comments on the Notice of Preparation for the EIR for the adoption of Regulations to Implement SB 1383 Organic Waste Methane Reduction Requirements

Dear Mr. Santillano;

The California Compost Coalition (CCC) is a statewide organization representing operators of permitted facilities involved in the processing and composting of green and food waste materials throughout California. CCC supported SB 1383 and looks forward to the implementation of SB 1383 by CalRecycle in the regulatory process to divert 50% of all organics from landfill by 2020, and 75% of all organics by 2025.

CCC supported the overall vision and strategy set forth in the 2017 Climate Change Scoping Plan Update and the Short-Lived Climate Pollutant Reduction Strategy that set the foundation for SB 1383. CCC provided comments to the California Air Resource Board (CARB) to analyze baseline conditions of landfilling organics compared to composting and anaerobic digestion as part of their environmental assessment documents, but our comments were discounted at the time. Since *'the specific location of the potential new composting facilities cannot be known at this stage, baseline emissions and the comparative benefits of criteria pollutants are too speculative to be analyzed in the draft Environmental Assessment.'*

As stated in the NOP, CCC supports that the results of the EIR will provide background information on potential impacts and mitigation measures, and is expected to assist state and local agencies with information for future site-specific CEQA review that may be required for new or expanding projects that any directly or insistent results from the AB 1383 regulations. The project has several objectives, which include assisting local governments by providing preprogram-level analysis and best management practices that can reduce or eliminate potential environmental effects of projects that may indirectly results from the SB 1383 regulations. This EIR will be a Program EIR for SB 1383 compost facility and anaerobic digestion (AD) facility development.

With the Standardized Regulatory Impact Assessment (SRIA) providing the estimated number of new and expanded facilities, this EIR can utilize much of the information provided in this analysis. To assist in the siting and permitting of AD facilities in California, CalRecycle sponsored the development of a Program EIR to assess the environmental effects of anaerobic digestion facilities in California, which was certified in 2011. That Program EIR provides background on technologies, potential impacts, and mitigation measures and can be referenced in relation to AD facilities.

Composting and anaerobic digestion form the cement that binds the Governor's Five Pillars together. Eliminating organics from the landfills will mitigate methane generation as a short-lived climate pollutant to implement SB 1383 (Pillar 4), and instead, create biomethane power at anaerobic digestion facilities to generate more renewable energy to achieve the goals of SB 350 (Pillar 2), create carbon negative fuel for the CNG fleet that collects the organics and implements the Low Carbon Fuel Standard and reduce petroleum by 50% (Pillar 1), and transition from heavy-duty diesel trucks. The diverted food waste and digestate can be composted to sequester carbon and be integral to healthy soils (Pillar 5). Organic power and compost use have been deemed among the most cost-effective greenhouse gas (GHG) reduction strategies and bond all Five Pillars together. The California Legislative Analyst's Office determined the cost of composting and anaerobic digestion to be at just \$9/ton of GHG reduction, while the overall average is \$57/ton. The EIR should also provide background information on the potential benefits of SB 1383 as expressed in the SRIA, and not only the impacts and mitigation measures.

Our comments below from April 10, 2017 are in addition to the comments CCC posted on February 6, 2017, and will focus on covered compost facilities emission and baseline conditions with detailed data to support our comments and to request that additional environmental analysis be conducted by CARB's part of this environmental review as part of the AB 32 Scoping Plan Update of 2017 that were not considered. As part of this NOP, CCC has the following comments on the Air Quality Section of the EIR:

Air Quality and Greenhouse Gas Emissions Section of the EIR

The Environmental Analysis needs to recognize baseline conditions for organic waste management practices, such as landfilling when assessing the emissions from composting and anaerobic digestion facilities. Page 62 of the AB 32 Scoping Plan DEIR (copied above) states that compost facilities could potentially increase VOC and PM emissions, but does not discuss the baseline conditions of these materials being landfilled with methane and other associated landfill operations emissions. Since the SLCP measures are diverting food waste and green waste from landfilling, these baseline conditions need to be recognized, where the net benefit of both greenhouse gas reductions and criteria pollutants can be demonstrated when diverting green waste and food waste from landfills to composting and/or anaerobic digestion facilities.

The SRIA does provide a **Summary of Criteria Pollutants inventory for New Facilities in Table 11**, and should also include an analysis for VOCs.

The Short-Lived Climate Pollutant Plan adopted by CARB on March 24, 2017, present a scenario on page 126 on the number and type of facilities to divert 50% of the organics from landfilling by 2020, and 75% by 2025. CARB assumes that there will need to be 53 compost facilities by 2020 and 74 composting facility by 2025, with a throughput of 100,000 tons per year each – which is a reasonable assumption to conduct an environmental analysis. Keep in mind that the compost industry has moved beyond the

existing windrow technology in place today, and that all new facilities will be covered aerated static pile facilities (CASP) using the best available control technology within the respective air district, and those emission factors should be used.

Baseline Landfill Emissions Conditions:

The Baseline Information to compare business as usual (BAU) needs to be prepared. The SRIA does present one scenario as BAU, which seems to be aggressive on the amount of organics that would be diverted at around 30%, thus the amount remaining in the landfill may be more than BAU. The latest Waste Characterization Study from 2018 should be referenced to determine how much organic waste has been actually diverted from the 2014 baseline.

To assess the air quality impacts, these new CASP emissions from 53 to 74 new facilities can be compared to the landfilling baseline. Using standard industry practices, we have calculated that avoided landfill emissions of VOCs are 1.9 times greater than the VOCs emitted from CASP compost facilities. The net benefit of diverting organics from the landfill to CASP compost facilities is almost 2 times greater than baseline conditions. The comments in the section copied above needed to reflect that only CASP composting will be utilized for new compost facilities and that VOCs will not increase above baseline, but instead will be cut in half. Plus, the compost industry is in the midst of electrifying their off-road heavy-duty grinders and trommels and that there will also be a new reduction in those emissions contrary to the statement copied above.

Landfill gas contains VOCs and NH₃, which are emitted with fugitive landfill gas. The USEPA LandGem model is used to estimate landfill gas emissions and provides output including amounts of methane, carbon dioxide and NMOCs. This was used to derive the ratio of NMOCs to methane generation, which is 0.026 mass NMOCs/mass of methane at a concentration of 2,420 ppmv (AP-42, Chapter 2.4). Additionally, the fraction of NMOCs that is considered VOCs is 85% of the total NMOCs for co-disposal sites that accept residential and commercial/industrial waste. Therefore, the VOC content of landfill gas is $(0.85)(0.026) = 0.0221$ times the mass of methane.

Fugitive methane emissions can be estimated using the avoided landfill emission factor of 0.39 MTCO₂e/ton organic feedstock for food waste and 0.21 for green waste (CARB, 2015) and multiplying the result by 16/44 and adjusting to short tons. Applying these factors results in avoided methane generation the resulting in avoided VOC emissions can be calculated. Using standard industry practices and an average of the composting emission that the local air district are using, we have calculated that avoided landfill emissions of VOCs are 1.9 times greater that the VOCs emitted from CASP compost facilities.

Compost Emissions Conditions Example in the SJVAPCD:

Each local air district has their specific compost emissions factors. Default VOC and ammonia emission factors are generally conservative and here we present a case study in the SJVAPCD, where ECS and others that do compost emission testing say that the real emission factors are much lower. It is possible to accept an Authority to Construct based on default emission factors with the understanding that emission testing after construction will be conducted, and based on those results the permit could be modified to allow more throughput.

Default VOC emission factors in the SJVAPCD are:

- 5.71 lb/ton of feedstock during composting and curing (uncontrolled emission factor)
- 0.2 lb/ton/day for feedstock storage
- It is assumed that 90% of VOCs are generated during active composting and that a finished compost layer will reduce emissions by 80%

A lower compost emission factor that is probably achievable is 2.5 lb/ton (this is uncontrolled).

VOCs from green waste composting has much lower ozone formation potential VOCs from green waste composting are a diverse mixture, but are comprised of 80 - 95 percent low reactivity alcohols. The ozone formation potential of the total composting VOC mix is considered low, and is similar to other agricultural sources. The following phrase is from a peer reviewed journal article (A. Kumar et al. / Atmospheric Environment 45 (2011) 1841 - 1848). Overall, only around 10 % of the average VOC emissions were found to have medium to high potential for ozone formation.

Full Citation: "Volatile organic compound emissions from green waste composting: Characterization and ozone formation Anuj Kumar a,1, Christopher P. Alaimo a, Robert Horowitz b, Frank M. Mitloehner c, Michael J. Kleeman a, Peter G. Green a,* Atmospheric Environment 45 (2011) 1841 – 1848."

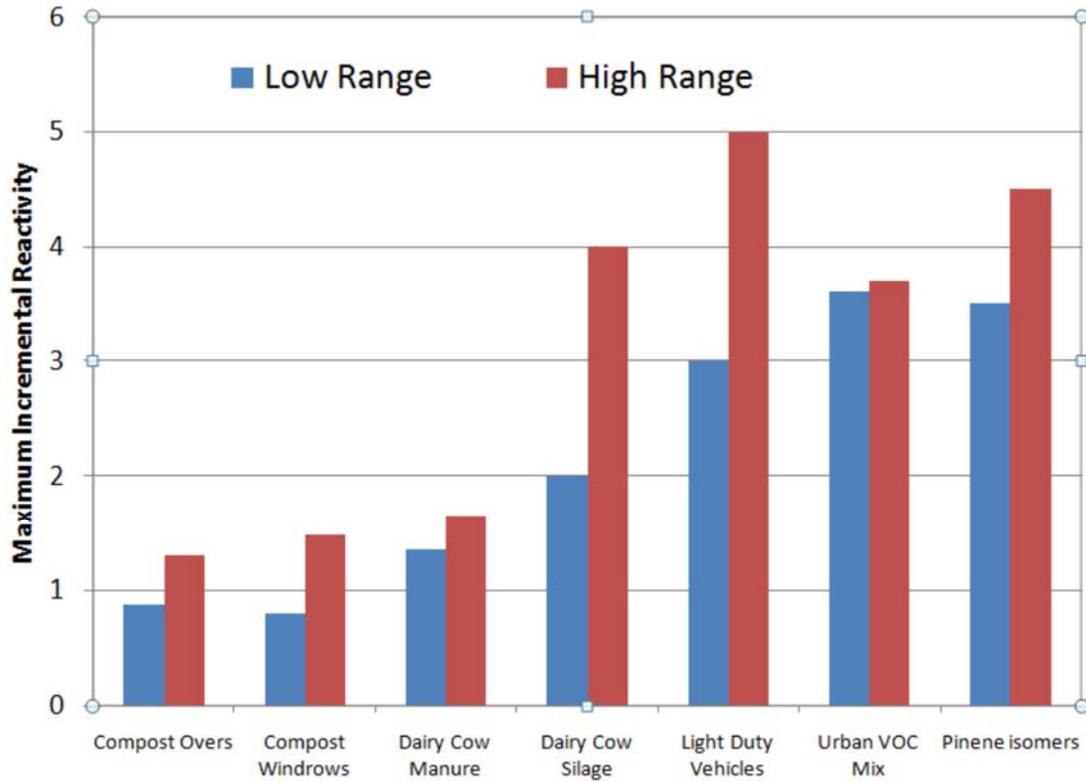
The following is from a report prepared by Professor Peter Green at UC Davis under contract with CalRecycle (December, 2010):

"VOCs from green waste composting are a diverse mixture, but are comprised of 80 - 95 percent low reactivity alcohols. The ozone formation potential of the total composting VOC mix is considered low, and is similar to other agricultural sources. The Maximum Incremental Reactivity (MIR) scale is the most common scale used to compare the ozone formation potential of various compounds. Any compound or mixture with an MIR of less than 2 is considered to have low reactivity. The average MIR of all samples taken in Modesto was .95. The average MIR of all samples taken in Tulare was 1.13. The MIR of a typical urban VOC mixture is about 3.6."

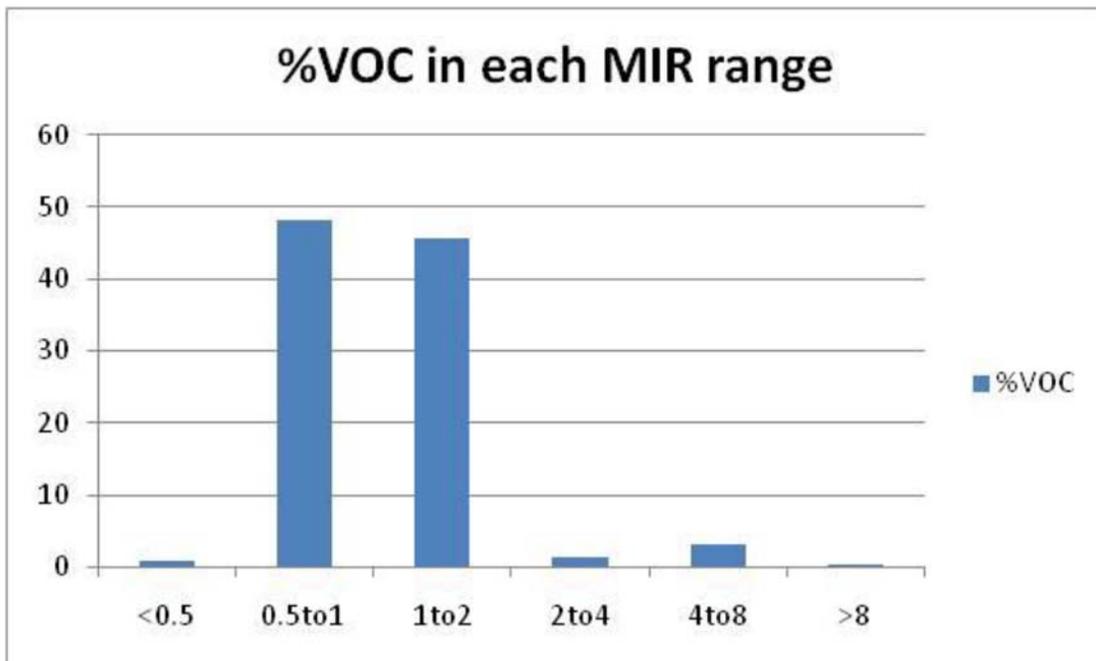
Because the composting business model is based on low profit margin, high volume, and efficient production, strict air quality requirements could force some operators out of business. Losing organics processing facilities would undermine 20 years of work by CalRecycle and its predecessor agency to increase diversion of organic materials away from landfills and into more productive uses. Such a development would deprive farmers of affordable sources of compost, an important product for building soil health and ensuring food security. Compost is fundamental to organic crop production, and organic production is growing in terms of both acreage and total dollar value.

Full citation:

"An Investigation of the Potential for Ground-Level Ozone Formation Resulting from Compost Facility Emissions - December 2010, CalRecycle Produced Under Contract By: Peter G. Green University of California, Davis School of Civil & Environmental Engineering."



Average Maximum Incremental Reactivity (MIR) of various VOC sources.



Average contribution of VOC into the ozone formation according to their reactivity. (Urban VOC average is 3.6 to 3.7, depending on latest model revisions.)

Comments on Section 3 Air Quality – ii. SLCP Measures

Because the implementation details of many of the methane measures identified in the SLCP Strategy depend substantially on the design of future incentive and regulatory programs, and upon local permitting decisions, long-term air quality impacts at this point are difficult to categorize with certainty. As described above, there are methods available to implement the identified measures that may have beneficial impacts on long-term air quality through the replacement of more-polluting emissions sources and fuels. Indeed, as a statutory matter, per SB 605, SB 1383, and AB 32, along with existing Health and Safety Code mandates for criteria pollutant planning, ARB will ultimately need to develop approaches to addressing these issues that ensure that air quality goals are achieved. However, for the conservative purposes of this programmatic analysis, ARB has also disclosed implementation choices that could substantially affect air quality.

CARB should have prepared a Program EIR just for CASP Compost to unravel the mysteries and complexities expressed in the statement above, but did not. CARB will ultimately need to develop approaches, as each air district now has their own specific methodology, not coordinated, and stifling to the development of the CASP compost industry where 53 new facilities need to be developed by 2020 and 74 new facilities need to be developed by 2025. Instead, facilities may choose to quit composting due to complex and expensive air permitting costs that do not recognize baseline conditions, and may revert to the baseline conditions of landfilling, which emit up to 1.9 times more VOCs than CASP composting. This EIR is the Program EIR for SB 1383 CASP Composting that should have been prepared for the AB 32 Scoping Plan Update.

Local Air Permitting:

Some local air districts are treating new covered aerated static pile (CASP) compost facilities, using the best available control technologies as a new source, as inferred in the statement above, where the cost of permitting and offsets can stop the development of the facility. This Environmental Analysis needs to recognize the net benefit of both greenhouse gas reductions and criteria pollutants (NOx and VOCs) can be demonstrated when diverting green waste and food waste from landfills to composting and/or anaerobic digestion facilities. The off-set costs for the typical 100,000 CASP compost TPY facility in each of the major air district are noted below based upon their emission factors and average cost per off-set.

BAAQMD			SCAQMD			SJVAPCD		
\$7,060 average off-set			\$22,246 average off-set			\$4,750 average off-set		
100,000 TPY			100,000 TPY			100,000 TPY		
\$473,161 costs			\$1,396,826			\$318,345		
Feedstock	VOCs	\$	Feedstock	VOCs	\$	Feedstock	VOCs	\$
TPY	TPY	Offsets	TPY	TPY	Offsets	TPY	TPY	Offsets
12,950	10.00	0	6,000	4.00	0	12,950	10.00	0
15,000	11.57	11,084	10,000	6.67	59,397	15,000	11.57	7,458
20,000	15.42	38,265	15,000	10.01	133,698	20,000	15.42	25,745
25,000	19.27	65,446	20,000	13.35	208,000	25,000	19.27	44,033

30,000	23.12	92,627	25,000	16.69	282,302	30,000	23.12	62,320
35,000	26.97	119,808	30,000	20.03	356,603	35,000	26.97	80,608
40,000	30.82	146,989	35,000	23.37	430,905	40,000	30.82	98,895
45,000	34.67	174,170	40,000	26.71	505,207	45,000	34.67	117,183
50,000	38.52	201,351	45,000	30.05	579,508	50,000	38.52	135,470
55,000	42.37	228,532	50,000	33.39	653,810	55,000	42.37	153,758
60,000	46.22	255,713	55,000	36.73	728,112	60,000	46.22	172,045
65,000	50.07	282,894	60,000	40.07	802,413	65,000	50.07	190,333
70,000	53.92	310,075	65,000	43.41	876,715	70,000	53.92	208,620
75,000	57.77	337,256	70,000	46.75	951,017	75,000	57.77	226,908
80,000	61.62	364,437	75,000	50.09	1,025,318	80,000	61.62	245,195
85,000	65.47	391,618	80,000	53.43	1,099,620	85,000	65.47	263,483
90,000	69.32	418,799	85,000	56.77	1,173,921	90,000	69.32	281,770
95,000	73.17	445,980	90,000	60.11	1,248,223	95,000	73.17	300,058
100,000	77.02	473,161	95,000	63.45	1,322,525	100,000	77.02	318,345
			100,000	66.79	1,396,826			

BAAQMD \$475,000 in off-set costs per 100,000 TPY CASP compost facility
SCAQMD \$1,400,000 in off-set costs per 100,000 TPY CASP compost facility
SJVAPCD \$320,000 in off-set costs per 100,000 TPY CASP compost facility

A geographic siting of 53 new CASP composting facilities by 2020 in these 3 districts could costs about \$40 million in off-sets.

A geographic siting of 74 new CASP composting facilities by 2025 in these 3 districts could costs about \$54 million in off-sets.

To assess the air quality impacts, these new CASP emissions from 53 to 74 new facilities can be compared to the landfilling baseline and not be considered a new source, that could costs up to \$54 million in off-set costs while reducing VOCs by almost half from baseline conditions.

Transportation Section of the EIR:

The SRIA provides general information on RNG Procurement. The EIR should determine the net benefits of decreasing NOx and CO2 using the near-zero NOx engines from displacing diesel from baseline conditions.

Public Services Section of the EIR:

The discussion paper by the California Air Resources Board (CARB), the California Air Pollution Control Officers Association (CAPCOA), the 35 air districts in CAPCOA, and the Department of Resources Recycling and Recovery (CalRecycle) defined the current state of composting in California, discuss the associated air quality and regulatory issues for siting new and expanded large-scale composting facilities in California, and find ways to overcome the challenges of building the necessary composting infrastructure. It is the first step in a process of helping both air districts and potential owners or operators of large-scale compost facilities to site and permit these facilities.

One option that has been suggested to help facilitate the permitting of compost facilities is to redesignate these facilities as Essential Public Service Designation (EPS). The EIR should discuss the impacts of designated composting facilities as ESPs. EPS are facilities considered essential to public health and safety, and in some cases this designation could result in the facility's owner/operator not being required to offset the facility's emissions. A limitation that should be understood with this approach, however, is that those facility emissions still need to be accounted for, even if the owner/operator is not required to purchase ERCs to offset them. However, these facilities could continue to operate and emit pollutants (e.g., ozone precursors like VOCs, NOx) during smog episodes. Of the 35 air districts, 21 have an EPS definition in their district rules. Twelve districts include landfills (in two air districts facilities only qualify as EPS if they are publicly owned and operated). Seventeen air districts include wastewater treatment facilities as EPS, 12 of which are included as EPS only if they are publicly-owned and operated. Air districts have the authority to determine the definition of EPS for their district through a public rulemaking process.

Summary:

This EIR needs to recognize the net reduction, with a macro analysis, that both greenhouse gas and criteria pollutants reductions (VOC and NOx) can be demonstrated when diverting green waste and food waste from landfills to composting and/or anaerobic digestion facilities. With respect to criteria pollutants, the covered aerated static pile compost systems have been shown to reduce VOC emissions by over 80% with the use of biofilters, which should be compared to the baseline landfill system.

CCC supports the overall vision and strategy set forth in the SB 1383 regulations and appreciates that these plans have been linked to the benefits in the transportation sector and healthy soils in the agricultural sector. CCC respectfully request that CalRecycle further evaluate our recommendations in the EIR to fully close the loop on recycling and composting with waste diversion to compost use in the one of the most recognized cost-effective GHG reduction measures available:

Should you have any questions, please contact me at (916) 739-1200.

Sincerely,



Evan W.R. Edgar
Regulatory Affairs Engineer