
Facility Permitting Technical Memo

Prepared for: City of Davis
Organics Processing Facility Feasibility Analysis (Report)

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The purpose of this technical memo is to highlight region-specific issues related to obtaining an Authority to Construct/Permit to Operate from the Yolo-Solano Air Quality Management District (YSAQMD) and a Waste Discharge Requirements Permit for Composting Operations (WDR) from the State Water Resources Control Board (SWRCB).

I. Air Permits from YSAQMD

Due to YSAQMD's "non-attainment" status for ozone, composting operations are required to utilize Best Available Control Technology (BACT) technologies. The two requirements are:

- 1) Achieved in practice
- 2) Technologically feasible (Cost-benefits ratio for cost per emission reduction)

YSAQMD has accepted aerated static piles as a BACT technology, but will assess projects with lesser air emission controls on a case-by-case basis. Even with a BACT composting technology, emission offsets may be required due to the generation of volatile organic compounds (VOCs). YSAQMD's offset threshold is 9,000 lbs. of VOCs per quarter.

Should the City be required to purchase emission offsets, it would need to purchase these credits from the YSAQMD VOC Registry. At the time of this report, YSAQMD has roughly 51 tons of VOC emission offsets available for the first quarter of the year, 43 tons for the second quarter, 23 tons for the third, and 62 tons for the fourth quarter. The most recent VOC offset transactions occurred in November 2017 in which VOCs were sold for \$16,129 and \$25,000 per ton. The price of VOC offsets within YSAQMD has varied from as low as \$944 to as high as \$35,000 per ton.

There are four project scenarios that affect the amount of emissions generated for a City owned and operated composting facility. The following table summarizes these scenarios, the estimated emissions, and the likelihood of requiring emission offsets and what amount. These scenarios include potential VOC emissions from material receiving, storage for up to seven days, and each composting type. On-site mobile equipment such as the grinder and trommel screen are assumed to be electric and generate no emissions. These are for estimation purposes only and have not been verified by YSAQMD.

FEEDSTOCK SOURCE	TECH. TYPE	TPY	EST. QUARTERLY EMISSIONS (lbs. of VOC) ¹	ONE-TIME OFFSETS LIKELY REQUIRED	
				Tons per quarter	Tons per year
City + UC Davis Organics	Static Pile Composting (60% VOC Control)	25,476	23,463	7.23	28.93
	CASP (80% VOC Control)	25,476	16,184	3.59	14.37
City-only Organics	Static Pile Composting	12,672	11,674	1.34	5.35
	CASP	12,672	8,052	None	None

³VOC Emissions Factor (EF) for composting was determined by applying the VOC control to the SJVAPCD's standard organics composting EF of 5.71 lbs. of VOC per ton of feedstock. VOC EF for material receiving and storage used was 0.2 lbs. of VOC per incoming ton per day. Quarterly emissions were determined by dividing the annual emissions by four.

At best case, if the City owned and operated a composting operation utilizing a more advanced technology and processed only City-generated organics, then the City would not be required to purchase offsets.

At worst case, if the City owned and operated a composting operation utilizing a simpler composting technology and both City and UC Davis organic feedstock, then the City would need to purchase 7.23 tons of VOC offsets per quarter. Offsets are a one-time purchase and do not need to be purchased year after year. For the worst-case scenario, this may be anywhere between \$27,000 or upwards of \$1,000,000 to obtain the necessary offsets for the composting operation.

II. Water Permit (WDR) from SWRCB

The State Water Resources Control Board (SWRCB) requires all composting facilities to comply with the General Order, Waste Discharge Requirements (WDR).

Per the December 2018 discussion with Yolo County Central Landfill (YCCL), it was made known that the Central Valley Regional Water Quality Control Board (RWQCB) required their proposed composting operation to construct a levee for protection from the 100-year flood event. This level of protection has been required for other projects if deemed necessary by the RWQCB or any other governing agency (i.e., Lead Agency during CEQA review). Based on this information, a City project at the WWTP will most likely also require protection from the 100-year flood event. Luckily, the WWTP has retention ponds that may be available to provide this capacity.