



Technical Memorandum

To:

From:

Subject: Preliminary Emissions Estimate

Date: September 4, 2020

Project: Barrier Wall Project at GBF/Pittsburg Landfill, Contra Costa County, California

Purpose

The purpose of this internal memorandum is to document preliminary emission estimates from construction activities associated with the Barrier Wall Project at the GBF/Pittsburg Landfill. The information provided in this memorandum based on project information available as of September 3, 2020.

Methods

Emission estimates described in this memorandum were generated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod). Model inputs were derived from the following information which was provided by either TRC or the contractor:

- Construction Equipment. Construction equipment and use information is provided below. The hours of use per day for the four (4) 1100-HP main engines associated with the MT-4500 trencher are based on information provided by Ryan Dewind on July 29, 2020, and include 4 hours per day of trenching at 90% power, 1.5 hours per day moving the trencher at 50% power, and 1 hour per day idling at 10% power (total = 6.5 hours per day).

Table 1. GBF Project Preliminary Construction Equipment

Construction Phase	Equipment ID	Equipment Type	Qty	HP	Engine Tier	Average Hours Per Day	Total Days
Maintenance and Support	CAT 950M	Wheel Loader	1	249	4	6	114
	CAT 299	Skid Steer	1	110	4	6	114
	D6K	Dozer	1	125	4	6	114
	2,000 Gallon	Water Truck ¹	1	200	4	6	114
	56 kW	Diesel Generator	1	92	4	9	114
Materials and Roads	CAT 329	Excavator	1	243	4	6	104
	CAT 730	Off-Road Hauler	2	375	4	6	104
	CAT CS56B	Smooth Drum Roller	1	157	4	6	104
Trenching Support	CAT 374	Excavator	1	472	4	9	70
	JLG 943	Telehandler	2	110	4	9	70
	150 kW	Diesel Generator	1	268	4	9	70
	JLG 450A	40' Aerial Lift	1	49	4	9	70
Trenching	MT-4500	Trencher	1	4 @ 1100	4	6.5	50

			1	1 @ 450	3	8	50
Berm Reconstruction	D6K	Dozer	1	125	4	9	20

Notes:

1. Water truck modeled as a 30 mile per day vendor trip (on-road vehicle). The 30-mile trip is based on the water truck driving 5 miles per hour for 6 hours per day.
 - Vehicle Trips. Construction worker commuting for 11 workers per day, plus haul truck trips outlined below.

Table 2. GBF Project Preliminary Haul Truck Trips

Material Description	Approx. Volume (cy)	Number of Truck Loads	Phase
Bentonite/cement supersack delivery	1000+	80	Trenching Support
Offsite landfill disposal	480	40	Materials and Roads
Soil/rock import	3630	300	Materials and Roads

- Schedule. A generic schedule (shown below) was assumed based on the equipment use information provided by the contractor. The schedule assumes construction activities take place on five days per week.

Table 3. GBF Preliminary Generic Project Schedule

Construction Phase	Phase Start Date	Phase End Date	Number of Construction Days
Maintenance and Support	11/2/2020	4/8/2021	114
Materials and Roads	11/4/2020	3/29/2021	104
Trenching Support	12/4/2020	3/11/2021	70
Trenching	1/4/2021	3/12/2021	50
Berm Reconstruction	3/2/2021	3/25/2021	20

CalEEMod annual output was used to determine the total emissions associated with the project. Emissions from 2020 and 2021 were added together to get total project emissions, which were then divided by the total number of construction days (114) to determine average daily emission values for each criteria pollutant. The Bay Area Air Quality Management District (BAAQMD) CEQA Thresholds of Significance that are relevant to this project are in units of average pounds of pollutant per day.

Results

Table 4 below presents the average daily emission values from CalEEMod based on the inputs above. Emission values shown are the mitigated construction emissions from the CalEEMod annual run. The mitigation consists of applying the engine tier ratings presented in Table 1.

Table 4. GBF Preliminary Emissions Estimate

Criteria Pollutant	Project Total Construction Emissions (Tons)	Estimated Avg Daily Emissions (avg lbs/day)	BAAQMD ¹ Thresholds of Significance for Construction (avg. lbs/day)
Reactive Organic Gases (ROG)	0.145	2.54	54
Nitrogen Oxides (NO _x)	3.04	53.3	54
Particulates (PM ₁₀)	0.034	0.59	82
Particulates (PM _{2.5})	0.033	0.59	54

Notes:

1. California Environmental Quality Act Air Quality Guidelines, BAAQMD 2017