

**Draft
Engineering Evaluation
200 Park Road Company, LLC; Plant No. 21444
Application No. 24658**

Background

On behalf of 200 Park Road Company, LLC, Green Environmental Inc. is applying for an Authority to Construct/ Permit to Operate for a Soil Vapor Extraction (SVE) system at 200 Park Road in Burlingame. Green Environmental Inc. proposes to operate a SVE system at this property to mitigate any migration of volatile organic compounds (VOCs) through the floor slab. Extracted vapors will be discharged to the atmosphere through a vent on the roof. The proposed operation is an active SVE system with a regenerative vacuum fan (S-1) with a maximum operating capacity of 327scfm. Emissions of toxic compounds are expected to be below the respective triggers levels in Regulation 2-5, Table 2-5-1. The operation then qualifies for an exemption from Regulation 8-47-301 (at least 90% abatement) via Reg. 8-47-113 (combined emissions of benzene, vinyl chloride, PCE, methylene chloride, and trichloroethylene will be less than 1 pound per day). Operation of this source will be conditioned to collect bag samples for subsequent laboratory analysis on each of the first two days of operation. Thereafter, effluent concentrations will be determined by laboratory analysis on a quarterly schedule. The applicant may propose after 6 months of operation that the sampling frequency be reduced to an annual basis. Sampling frequency schedule changes will be allowed only after District review of concentration measurements and subsequent receipt of District approval.

This source is located within 1,000 feet of a school: St. Catherine of Siena School, 1300 Bayswater Avenue, Burlingame, CA 94010; therefore, this application requires Public Notification per District's Regulation 2-1-412.

Emission Calculations

For a conservative estimate of yearly emissions, we shall assume that the system is operated for an entire year within an inlet concentration corresponding to the initial soil concentration level. Generalized assumptions follow:

- * Operating conditions: Pressure = 1 Atm; Inlet Temperature = 21°C; 1 mole occupies 24.15L
- * Molecular weight of benzene = 78 g/mole.
- * Influent values based on operational parameters of equipment and applicant supplied soil vapor test results: influent rate 327 scfm throughout; maximum influent concentration = 0.02 ppmv of benzene

Emissions of Toxic Air Contaminants [benzene]:

$$0.02E-6 \frac{\text{min}}{\text{min}} * \frac{327 \text{ ft}^3}{1 \text{ day}} * \frac{1440 \text{ min}}{1 \text{ day}} * \frac{28.32L}{1 \text{ ft}^3} * \frac{1 \text{ mole}}{24.15L} * \frac{78g}{\text{mole}} * \frac{1 \text{ lb}}{454g} = \mathbf{0.002 \text{ lb/day}}$$

	mg/m ³	(ppmv)	Emission (lb/day) (unabated)	Emission (lb/year) (unabated)
Benzene	0.05	0.02	0.0015	0.54
Vinyl Chloride	0.04	0.02	0.0012	0.43
PCE	0.1	0.01	0.0029	1.07
Methylene Chloride	0.054	0.02	0.0016	0.58
TCE	0.083	0.02	0.0024	0.89
			0.0096	3.50

Highest Daily Emissions = **0.0096 lb/day**
Annual Average = **0.0096 lb/day**
RFP = **0.0018 tons/yr**

Toxics

This facility would have benzene, methylene chloride, tetrachloroethylene (PCE), trichloroethylene (TCE) and vinyl chloride emissions below the trigger levels listed in Regulation 2-5, Table 2-5-1. Therefore, the emissions of all toxic substances are not considered sufficient to warrant a Risk Screen Analysis.

New Source Review

This proposed project will not emit over 10 lbs per highest day nor in excess of 10 tons per year. Neither BACT nor Offsets need to be provided.

CEQA

The project is considered to be ministerial under the Districts proposed CEQA Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors and therefore is not discretionary as defined by CEQA. This project is in compliance with Chapters 9.2 of the permit handbook.

Compliance

Based on the information submitted, this operation is exempt from the control requirements of Regulation 8-47-301, Emission Control Requirements, Specific compounds via Reg. 8-47-113, Exemption, Air Stripping and Soil Vapor Extraction Operations less than 1 Pound per Day . The submittal of a risk analysis as per Reg. 8-47-402.1 is not necessary as emissions of all toxic compounds will be conditioned to the trigger levels identified in Table 2-5-1.

Recommendation

Recommend that an Authority to Construct be issued for sources:

S-1: Unabated Soil Vapor Extraction system consisting of a 327 max scfm vacuum fan, and ancillary equipment

1. In no event shall emissions to the atmosphere of the following compounds exceed the corresponding Toxic Air Contaminant Trigger Levels from Table 2-5-1 in pounds per day:

Toxic Compound	Emissions in #/day
Benzene	1.0E-2
Vinyl Chloride	3.8E-3
Perchloroethylene	4.9E-2
Methylene Chloride	3.0E-1
Trichloroethylene	1.5E-1
Ethylbenzene	1.1E-2

In addition, total emission of benzene, vinyl chloride, perchloroethylene, methylene chloride and/or trichloroethylene shall not exceed 1 pound per day. Emissions of total volatile organic compounds shall not exceed 10 pounds per day. The soil vapor flow rate shall not exceed 327 scfm. [Basis: Regulation 2-1-316, 2-2-301 and 8-47-113]

2. To determine compliance with Condition 1, the operator of this source shall:
 - a. Analyze exhaust gas to determine the concentration of the compounds listed in part 1 and the total volatile organic compounds present for each of the first two days of operation. Thereafter, the exhaust gas shall be analyzed to determine the concentration of the compounds listed in condition 1 and total volatile organic compounds present once every 90 days. After 6 months of operation, the operator may propose for District review that the sampling schedule be reduced from quarterly to annually. Written authorization must be received from the District before any change in sampling frequency.

- b. Emissions in pounds per day shall be calculated for those compounds listed in condition 1 as well as the total volatile organic compounds.
 - c. Submit to the District's Engineering Division the test results and emission calculations for the first two days of operation within one month of the testing date. Samples shall be analyzed according to modified EPA test methods TO-15 or equivalent to determine the concentrations those compounds listed in condition 1 as well as the total volatile organic compounds.
3. The owner/operator of this source shall maintain the following information in a District-approved log for each month of operation of the source:
- a. dates of operation;
 - b. exhaust flow rate;
 - c. exhaust sampling date;
 - d. analysis results;
 - e. calculated emissions of POC and listed compounds in pounds per day.

Such records shall be retained and made available for inspection by the District for two years following the date the data is recorded. [Basis: Regulation 1-523]

4. Any non-compliance with these conditions shall be reported to the Compliance and Enforcement Division at the time that it is first discovered. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well as the time of occurrence.
5. The owner/operator shall maintain a file containing all measurements, records and other data that are required to be collected pursuant to the various provisions of this conditional Authority to Construct/Permit to Operate. All measurements, records and data required to be maintained by the applicant shall be retained for at least two years following the date the data is recorded.
6. Upon final completion of the remediation project, the owner/operator of S-1 shall notify the district within two weeks of decommissioning the operation.

by _____ date _____
Flora Chan
Air Quality Engineer