

**Skikos Properties, LLC
1175 Sebastopol Road
Santa Rosa, CA 95407
Plant # 23830
Application Number 28530**

Background

On behalf of Skikos Properties, LLC Edd Clark and Associates has applied for an Authority to Construct for the following soil remediation at the site located at 1175 Sebastopol Road, Santa Rosa, CA 95407.

- S-1 Soil Vapor Extraction System Equipped with Travaini 400 S, 400 CFM Blower Abated by A-1 or A-2
- A-1 Electric Catalytic Oxidizer 400 CFM Makocat HV 400 CFM Made by Mako
- A-2 (2)-500 Pound Carbon Vessels in Series

This soil vapor extraction unit consists of a regenerative vacuum blower with a maximum capacity of 400 scfm. Soil vapor abatement is achieved by an electric catalytic oxidation unit or by two 500-pound carbon vessels in series. Abatement will be switched from Electric Catalytic Oxidation mode to two 500-pound carbon vessels in series mode when the vapor influent concentrations reach 500 ppm. Any liquid phase wastewater that is collected from the knockout drums will be collected in 55 gallon drums and disposed off-site for treatment. Emission monitoring for operation of the equipment will be conducted per established Source Test methodology. Procedures are outlined in the conditions

The applicant will be conditioned to provide written notification at the start of each phase of abatement. Emission monitoring for operation of the Cat-Ox will be conducted per established Source Test methodology. The Carbon unit influent and effluent volatile organic compound (VOC) concentrations will be monitored with a portable flame-ionization detector (OVA-FID) on a schedule reflecting current loading rates and predicted Carbon capacity. Monitoring 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 the outer boundary of Roseland Elementary School and as such this application requires Public Notification via Reg. 2-1-412. The school address is as follows:

Roseland Elementary School
950 Sebastopol Road
Santa Rosa, CA 95407

A Public Notice will be prepared and sent out to the home address of the students of the schools and to each address within a radius of 1,000 feet of the source and the evaluation report will be made available for public scrutiny and comment.

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. Table 1 presents the maximum emissions expected from the source S-1:

Table 1; Emission Calculations

BAAQMD Plant #	23830								
Application #	28530								
Facility Name	SKIKOS PROPERTIES, LLC								
Soil Vapor Extraction System		Abatement Device							
Data Form G		Data Form A							
Total Flow Rate	400 scfm	Select the abatement devices for the proposed project:						Enter the destruction efficiency:	
	400 ft ³ /min	Electric Thermal Oxidizer						Destruction Efficiency	98.5%
		2- 500 Pound Carbon Vessels in Series						Reduction	1.5%

Toxic Air Contaminants (TACs)	Chronic Trigger Level ¹ [lb/year]	Acute Trigger Level [lb/h]	Molecular Weight (MW) [g/mol]		
TPHg			100		365 days/year
Benzene	2.90E+00	6.00E-02	78.0		1440 mins/day
Toluene	1.20E+04	8.20E+01	92.1	1 lb/mole	386 ft ³
Ethylbenzene	3.30E+01	NA	106.2		
Total Xylenes	2.70E+04	4.90E+01	106.2		
Naphthalene	2.40E+00	NA	128.2		

1. Chronic Trigger level per District's Regulation 2-5, Table 2-5-1, amended 1/6/2010

Toxic Air Contaminants (TACs)	Influent vapor concentration [µg/m ³]	Influent vapor concentration [ppmv](Note 1)	Unabated Emission [lb/day]	Abated Emission [lb/h]	Abated Emission [lb/yr]	Abated Emission [t/y]	Emission Exceeds Chronic Trigger Level (Yes/No) (Note 2)	Emission Exceeds Acute Trigger Level (Yes/No) (Note 2)
TPHg	190000	45.68	6.785	0.004	37.149	0.019	NA	NA
Benzene	3100	0.96	0.111	0.000	0.606	0.000	No	No
Toluene	680	0.18	0.024	0.000	0.133	0.000	No	No
Ethylbenzene	320	0.07	0.011	0.000	0.063	0.000	No	NA
Total Xylenes	77	0.02	0.003	0.000	0.015	0.000	No	No
Naphthalene	420	0.08	0.015	0.000	0.082	0.000	No	NA

1. Unit conversions on the influent vapor concentrations:

[µg/m³] to [ppmv] : Influent vapor concentration [ppmv] = Influent vapor concentration [µg/m³] * 0.02404 / MW

2. If the emission exceeds Chronic Trigger Levels, please consult with the owner/operator if they would accept the trigger level limit in the permit conditions. Otherwise, Health Risk Screening Analysis will be conducted to determine the maximum emission limits for the proposed project.

Cumulative Increase- tons/yr

This is a new facility. Thus, there is no historical emissions

Table 2: Cumulative Increase

Compound	Current (tons)	This Application (tons)	Total (tons)
Precursor Organic Compound (POC)	0	0.019	0.019
Non-Precursor Organic Compound (NPOC)	0	0	0

Toxics

With abatement efficiency of 98.5%, the Toxic Air Contaminant (TAC) emissions do not exceed the toxic trigger level per Table 2-5-1. Therefore, risk screen analysis is not required.

New Source Review

This proposed project will not emit 10 pounds per highest day or more and is therefore not required to implement Best Available Control Technology (BACT). However, the source emissions are always abated by an electric catalytic thermal oxidizer or a carbon adsorption unit during its operation. Operation of the Carbon vessels will be conditioned to ensure attainment of the following required adsorption/destruction efficiencies: $\geq 98.5\%$ if inlet POC ≥ 2000 ; $\geq 97\%$ if inlet POC ≤ 2000 to >200 ppmv; $\geq 90\%$ if inlet POC <200 ppmv.

Based on the information submitted, this operation is in compliance with Regulation 8-47-301, Emission Control Requirements, Specific compounds, and 8-47-302, Organic compounds. The POC emissions will be vented through an electric catalytic thermal oxidizer or two carbon beds arranged in series at all times of operation.

Offsets

Offsets must be provided for any new or modified source at a facility that emits more than 10 tons per year of POC or nitrogen oxide (NO_x) per Regulation 2-2-302. Table 2 above summarizes increases in criteria pollutant emissions at the plant. Offsets are not applicable to this application, since the emissions do not exceed 10 tons/yr. Thus, this facility is not subject to Regulation 2-2-302.

California Environmental Quality Act (CEQA)

The project is 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 Chapter 9.2 of the permit handbook for soil treatment systems.

Compliance

Based on the information submitted, this operation is expected to be in compliance with Regulation 8-47-301, Emission Control Requirements, Specific compounds, and 8-47-302, Organic compounds. The POC emissions will be vented through an electric Catalytic Oxidizer, or Carbon adsorption system at all times of operation. The POC emissions will be vented through an Electric Thermal/Cat Ox or Carbon adsorption system at all times of operation.

This project is within 1,000 feet from the following nearest public school and is therefore subject to the public notification requirements of Regulation 2-1-412.

Roseland Elementary School
950 Sebastopol Road
Santa Rosa, CA 95407

Prevention of Significant Deterioration (PSD), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPS) are not triggered.

Recommendation

The District has reviewed the material contained in the permit application for the proposed project and has made a preliminary determination that the project is expected to comply with all applicable requirements of District, state, and federal air quality-related regulations. The preliminary recommendation is to issue an Authority to Construct for the equipment listed below. However, the proposed source is located within 1000 feet of a school, which triggers the public notification requirements of District Regulation 2-1-412.6. After the comments are received from the public and reviewed, the District will make a final determination on the permit. I recommend that the District initiate a public notice and consider any comments received prior to taking any final action on issuance of an Authority to Construct the following source:

- S-1 Soil Vapor Extraction System Equipped with Travaini 400 S, 400 CFM Blower Abated by A-1 or A-2
- A-1 Electric Catalytic Oxidizer 400 CFM Makocat HV 400 CFM Made by Mako
- A-2 (2)-500 Pound Carbon Vessels in Series

Public Notice Comments

Public comments will be included after the Public Notice period is completed.

Condition for S-1

Condition 26552

1. The owner/operator shall abate the Precursor Organic Compound (POC) emissions from Sources S-1 by SVE Abatement System, consisting of A-1 Electric Catalytic Thermal Oxidizer or by A-2 two 500 pound Activated Carbon Vessels in series during all periods of operation. The owner/operator shall abate the POC emissions by A-1 Thermal Oxidizer only until the POC concentration is reduced to 500 ppm or less. The Abatement may be switched to A-2, Two 500-Pound Carbon Vessels in series after the POC emissions are 500 ppm or less. Start-up and subsequent operation of each abatement device shall take place only after written notification of same has been received by the District's Engineering Division. The owner/operator shall operate the sources such that the soil vapor flow rate from S-1 shall not exceed 400 scfm. [basis: Cumulative Increase, Regulation. 8-47-301 and 302, Toxic Best Available Control Technology (TBACT)].
2. The owner/operator shall operate A-1, Thermal Oxidizer such that the POC abatement efficiency shall be maintained at a minimum of 98.5% by weight for inlet POC concentrations greater than or equal to 2000 ppmv (measured as hexane). For inlet concentrations below 2000 ppmv and greater than or equal to 200 ppmv, a minimum abatement efficiency of 97% shall be maintained by the owner/operator. For inlet concentrations below 200 ppmv, a minimum abatement efficiency of 90% shall be maintained by the owner/operator. The minimum abatement efficiency shall be waived if outlet POC concentrations are shown to be less than 10 ppmv (measured as hexane). In no event, shall the owner/operator emit benzene emissions to the atmosphere exceeding 0.007 pounds per day. [basis: Cumulative Increase, Regulation 2-5, TBACT]
3. While operating the Catalytic Thermal Oxidizer, the owner/operator shall not operate A-1 below 600 degrees Fahrenheit. [basis: Cumulative Increase, Regulation 2-5, TBACT]
4. To determine compliance with part 3, the owner/operator shall equip the A-1 Thermal/Catalytic Oxidizer with continuous measuring and temperature recording instrumentation. The owner/operator shall collect and maintain the temperature data from the temperature recorder in a file which shall be available for District inspection for a period of at least 2 years following the date on which such data are recorded. [basis: Regulation 1-523]
5. To determine compliance with part 2, the owner/operator within ten days after start-up of the Catalytic Thermal Oxidizer shall:
 - a. Analyze inlet gas stream to determine the flow rate and concentration of POC present
 - b. Analyze exhaust gas to determine the flow rate and the concentration of benzene and POC present
 - c. Calculate the benzene emission rate in pounds per day based on the exhaust gas analysis and the operating exhaust flow rate. The owner/operator shall decrease the soil vapor flow rate, if necessary, to demonstrate compliance with part 2,
 - d. Calculate the POC abatement efficiency based on the inlet and exhaust gas analysis. For determining compliance with part 2, the owner/operator shall report the POC concentration as hexane.
 - e. Submit to the District's Engineering Division the test results and emission calculations within one month from the testing date. The owner/operator shall analyze samples according to modified EPA test methods 8015 and 8020 or their equivalent to determine the concentrations of POC and benzene.[basis: Cumulative Increase, Regulation 2-5, TBACT]

6. The owner/operator of this source shall maintain the following records for each month of operation of the Thermal Oxidizer or Catalytic Oxidizer:
 - a. Days and hours of operation.
 - b. Each emission test, analysis or monitoring results logged in for the day of operation they were taken
 - c. Total throughput of soil vapor from source S-1 in Standard Cubic Feet

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]

7. During operation of the Activated Carbon Vessels, the owner/operator of this source shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the District's Source Test Manager at the following locations:
 - a. At the inlet to the second to last Carbon vessel in series
 - b. At the inlet to the last Carbon vessel in series
 - c. At the outlet of the Carbon vessel that is last in series prior to venting to the atmosphere.

When using an FID to monitor breakthrough, readings may be taken with and without a Carbon filter tip fitted on the FID probe. Concentrations measured with the Carbon filter tip in place shall be considered methane for the purpose of these permit conditions. [basis: Cumulative Increase, Regulation 2-5, TBACT]

8. The owner/operator shall record these monitor readings in a monitoring log at the time they are taken. The owner/operator shall use the monitoring results to estimate the frequency of Carbon change-out necessary to maintain compliance with parts 9 and 10, and shall be conducted on a daily basis. The owner/operator of this source may propose for District review, based on actual measurements taken at the site during operation of the source, that the monitoring schedule be changed based on the decline in organic emissions and/or the demonstrated breakthrough rates of the carbon vessels. Written approval by the District's Engineering Division shall be received by the owner/operator prior to a change to the monitoring schedule. [basis: Cumulative Increase, Regulation 2-5, TBACT]
9. The owner/operator shall immediately change out the second to last Carbon vessel with unspent carbon upon breakthrough, defined as the detection at its outlet of the higher of the following:
 - a. 10 % of the inlet stream concentration to the carbon bed.
 - b. 10 ppmv (measured as hexane).[basis: Cumulative Increase, Regulation 2-5, TBACT]

10. The owner/operator shall immediately change out the last Carbon vessel with unspent Carbon upon detection at its outlet of 10 ppmv (measured as hexane). [basis: Cumulative Increase, Regulation 2-5, TBACT]

11. The owner/operator of this source shall maintain the following information for each month of operation of the Activated Carbon Vessels:
 - a. Hours and time of operation.
 - b. Each emission test, analysis or monitoring results logged in for the day of operation they were taken.
 - c. The number of Carbon vessels removed from service.
 - d. Total throughput of soil vapor from source S-1 in Standard Cubic Feet.

The owner/operator shall retain and make available for inspection by the District such records for two years following the date the data is recorded. [basis: Regulation 1-523]

12. The owner/operator shall report any non-compliance with these conditions to the Compliance and Enforcement Division at the time that it is first discovered. The owner/operator shall detail the corrective action taken and include the data showing the exceedance as well as the time of occurrence in the submittal. [basis: Cumulative Increase, Regulation 2-5, TBACT]

13. 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 owner/operator shall be retained for at least two years following the date the data is recorded. [basis: Regulation 1-523]

14. Upon completion of the remediation project, the owner/operator of Source S-1 shall notify the Engineering Division within two weeks of decommissioning the operation. [basis: Cumulative Increase, Regulation 2-5, TBACT]

Hari Doss

August 30, 2017