Draft-Engineering Evaluation
Former My Cleaners Site
1078 Leigh Avenue, San Jose, CA 95126
Facility No. 203459
Application No. 698605

Background

On behalf of Former My Cleaners Site, RRM Inc., has applied for Authority to Construct the following equipment:

S-1 Soil Vapor Extraction (SVE) System
Make: Rotron, Model: DR555K58
Maximum Outflow: 190 SCFM, Abated by: A-1

A-1 Granular Activated Carbon (GAC) Vessels
Two 200-pound vapor-phase GAC units in series
Activated Alumina impregnated with 8% Potassium Permanganate
One 200-pound unit in series

The SVE system will consist of SVE wells, an air-water separator, vacuum blower, vapor abatement units, and discharge stack. The specified blower's maximum flow rate and vacuum are 190 standard cubic feet per minute (scfm) at 92 inches of water (inH_2O) vacuum; however, it is anticipated the blower will operate in the field with a maximum flow rate of 100 scfm at 40 inH_2O vacuum.

After extraction from the wells, the vapor will pass through a vapor/liquid separator, where any moisture will be separated out and soil vapor will be routed to A-1 for abatement.

A-1 consists of at least two United Rentals, Inc. Kleen Air 55 granular activated carbon (GAC), or units of equivalent performance, connected in-series. The GAC vessels will contain at least 200 pounds of GAC. The GAC vessels will be followed by a polish vessel containing at least 200 pounds of activated alumina impregnated with 8 percent potassium permanganate, or similar formulation. The abatement device has an efficiency of >90% by weight, per the manufacturer's specifications.

The Property is a shopping center in San Jose that occupies approximately 1.3 acres on the northeast corner of Leigh Avenue and De Rose Way. A My Cleaners clothes laundering business formerly operated at the 1078 Leigh Avenue business suite. Currently, the suite formerly housing the cleaner is vacant. Land use in the vicinity of the site is predominantly residential and commercial. S-1 will not operate within an Overburdened Community as defined in Air District Regulation 2-1.

Site assessment activities, including soil and soil vapor sampling in the area, have revealed that significant Volatile Organic Compounds (VOC) contamination exists in the area. The soil data used to calculate the VOC emissions is from the analytical report prepared by Enviro Assets, Inc. dated September 12, 2023.

Procedures are outlined in the conditions found below. The applicant will be required to provide written notification at the start of the operation.

Emission Calculations

Initial soil vapor data will be used to estimate precursor organic compound (POC), non-precursor organic compound (NPOC), and toxic air contaminant (TAC) emissions. It is assumed that the equipment can operate 24 hours a day, 365 days a year. The following are assumptions used to estimate emissions.

DRAFT

- Operating conditions: Pressure = 1 Atm; Inlet Temperature = 21^{O}C; 1 mole occupies 24.15 Liters (or 386.8 ft3/lb-mol)
- Toxic Air Contaminants (TAC) emissions will be based on soil vapor data submitted.
- The organic influent flow rate of 100 SCFM.
- The system will be abated by two 200-pounds GAC vessels in series and one Activated Alumina Impregnated with 8% potassium permanganate vessel with an overall efficiency of 90% by weight per manufacturer specifications. This has been agreed upon by the applicant.

Table 1. SVE System Unabated Emissions for S-1

Pollutant	CAS #	Unabated Emissions				
		Inlet Conc. (µg/m^3)	Hourly Emission Rate (lb/hr)	Daily Emission Rate (lb/day)	Annual Emission Rate (lb/yr)	Annual Emission Rate (ton/yr)
Acetone	67-64-1	3,691.3	0.00	0.03	12	0.006
Benzene	71-43-2	8.2	0.00	0.00	0	0.000
Chloroform	67-66-3	45.7	0.00	0.00	0	0.000
Carbon disulfide	75-15-0	29.5	0.00	0.00	0	0.000
1,2-Dichloroethene (cis)	156-59-2	7.0	0.00	0.00	0	0.000
1,2-Dichloroethene (trans)	156-60-5	4.7	0.00	0.00	0	0.000
Ethyl acetate	141-78-6	73.0	0.00	0.00	0	0.000
Ethanol	64-17-5	5,265.1	0.00	0.05	17	0.009
Ethylbenzene	100-41-4	1,135.2	0.00	0.01	4	0.002
4-Ethyltoluene	622-96-8	43.2	0.00	0.00	0	0.000
n-Heptane	142-82-5	36.8	0.00	0.00	0	0.000
Isopropyl alcohol (2-propanol)	67-63-0	2,071.2	0.00	0.02	7	0.003
2-Hexanone (MBK)	591-78-6	24.0	0.00	0.00	0	0.000
2-Butanone (MEK)	78-93-3	4,637.0	0.00	0.04	15	0.008
4-Methyl-2-pentanone (MIBK)	108-10-1	57.1	0.00	0.00	0	0.000
Naphthalene	91-20-3	2.8	0.00	0.00	0	0.000
Styrene	100-42-5	7.5	0.00	0.00	0	0.000
Tetrachloroethene	127-18-4	63,245.4	0.02	0.57	207	0.104
Tetrahydrofuran	109-99-9	802.2	0.00	0.01	3	0.001
Toluene	108-88-3	39.1	0.00	0.00	0	0.000
Trichloroethene	79-01-6	28.4	0.00	0.00	0	0.000
Freon 11 (Trichlorofluoromethane)	75-69-4	165.1	0.00	0.00	1	0.000
1,2,4-Trimethylbenzene	95-63-6	62.8	0.00	0.00	0	0.000
1,3,5-Trimethylbenzene	108-67-8	8.1	0.00	0.00	0	0.000
Vinyl Chloride	75-01-4	4.2	0.00	0.00	0	0.000
Xylene (total)	1330-20-7	5,216.8	0.00	0.05	17	0.009
Methylene Chloride	75-09-2	2.5	0.00	0.00	0	0.000
Dichloroethane (1,1-DCE)	75-34-3	1.5	0.00	0.00	0	0.000

Table 2. SVE System Abated Emissions for S-1						
Pollutant	CAS #	Abated Emissions				
		Abatement Efficiency (%)	Hourly Emission Rate (lb/hr)	Daily Emission Rate (lb/day)	Annual Emission Rate (lb/yr)	Annual Emission Rate (ton/yr)
Acetone	67-64-1	90%	0.00	0.00	1	0.001
Benzene	71-43-2	90%	0.00	0.00	0	0.000
Chloroform	67-66-3	90%	0.00	0.00	0	0.000
Carbon disulfide	75-15-0	90%	0.00	0.00	0	0.000
1,2-Dichloroethene (cis)	156-59-2	90%	0.00	0.00	0	0.000
1,2-Dichloroethene (trans)	156-60-5	90%	0.00	0.00	0	0.000
Ethyl acetate	141-78-6	90%	0.00	0.00	0	0.000
Ethanol	64-17-5	90%	0.00	0.00	2	0.001
Ethylbenzene	100-41-4	90%	0.00	0.00	0	0.000
4-Ethyltoluene	622-96-8	90%	0.00	0.00	0	0.000
n-Heptane	142-82-5	90%	0.00	0.00	0	0.000
Isopropyl alcohol (2-propanol)	67-63-0	90%	0.00	0.00	1	0.000
2-Hexanone (MBK)	591-78-6	90%	0.00	0.00	0	0.000
2-Butanone (MEK)	78-93-3	90%	0.00	0.00	2	0.001
4-Methyl-2-pentanone (MIBK)	108-10-1	90%	0.00	0.00	0	0.000
Naphthalene	91-20-3	90%	0.00	0.00	0	0.000
Styrene	100-42-5	90%	0.00	0.00	0	0.000
Tetrachloroethene	127-18-4	90%	0.00	0.06	21	0.010
Tetrahydrofuran	109-99-9	90%	0.00	0.00	0	0.000
Toluene	108-88-3	90%	0.00	0.00	0	0.000
Trichloroethene	79-01-6	90%	0.00	0.00	0	0.000
Freon 11 (Trichlorofluoromethane)	75-69-4	90%	0.00	0.00	0	0.000
1,2,4-Trimethylbenzene	95-63-6	90%	0.00	0.00	0	0.000
1,3,5-Trimethylbenzene	108-67-8	90%	0.00	0.00	0	0.000
Vinyl Chloride	75-01-4	90%	0.00	0.00	0	0.000
Xylene (total)	1330-20-7	90%	0.00	0.00	2	0.001
Methylene Chloride	75-09-2	90%	0.00	0.00	0	0.000
Dichloroethane (1,1-DCE)	75-34-3	90%	0.00	0.00	0	0.000

Notes:

1. Influent data for all compounds was obtained from the samples collected in September 2023 by EnviroAssets, Inc. This data will be used as the pre-abatement concentration.
2. Emissions will be abated by A-1 with an efficiency of 90% by weight for all compounds per manufacturer specifications agreed upon by the applicant.
3. It is assumed that equipment will operate 24 hours a day, 365 days a year.
4. All compounds are considered precursor organic compounds.

Table 3 summarizes organic compound emissions based on the data in Table 2, considering an abatement efficiency of 90% by weight.

DRAFT

Table 3. Organic Emissions Review for S-1					
Pollutant	**Effluent Volumetric Concentration (ppmv)**	**Hourly Emission Rate (lb/hr)**	**Daily Emission Rate (lb/day)**	**Annual Emission Rate (lb/yr)**	**Annual Emission Rate (ton/yr)**
POC	3	0.00	0.02	6	0.003
NPOC	10	0.00	0.06	22	0.011
Total	13	0.00	0.08	28	0.014

Health Risk Assessment (HRA)

At the given rates in Table 2, emissions exceed the Chronic or Acute Trigger Level in Regulation 2-5, Table 2-5-1. Consequently, the project is subject to a Health Risk Assessment (HRA). Table 4 and 5 show in detail the toxic air contaminants (TAC) emissions.

Table 4. Project Acute Emissions Review - Regulation 2-5				
Pollutant	**CAS #**	**Hourly Emission Rate (lb/hr)**	**Acute Trigger Level (lb/hr)**	**Exceeds Acute Trigger Level?**
Benzene	71-43-2	3.1E-07	1.2E-02	No
Chloroform	67-66-3	1.7E-06	6.6E-02	No
Carbon disulfide	75-15-0	1.1E-06	2.7E+00	No
Ethylbenzene	100-41-4	4.2E-05	N/A	N/A
Isopropyl alcohol (2-propanol)	67-63-0	7.8E-05	1.4E+00	No
2-Butanone (MEK)	78-93-3	1.7E-04	5.0E+00	No
Naphthalene	91-20-3	1.0E-07	N/A	N/A
Styrene	100-42-5	2.8E-07	9.3E+00	No
Tetrachloroethene	127-18-4	2.4E-03	8.8E+00	No
Toluene	108-88-3	1.5E-06	2.2E+00	No
Trichloroethene	79-01-6	1.1E-06	N/A	N/A
Vinyl Chloride	75-01-4	1.6E-07	8.0E+01	No
Xylene (total)	1330-20-7	2.0E-04	9.7E+00	No
Methylene Chloride	75-09-2	9.2E-07	6.2E+00	No
Dichloroethane (1,1-DCE)	75-34-3	5.8E-07	N/A	No

Table 5. Project Chronic Emissions Review - Regulation 2-5				
Pollutant	**CAS #**	**Annual Emission Rate (lb/yr)**	**Chronic Trigger Level (lb/yr)**	**Exceeds Chronic Trigger Level?**
Benzene	71-43-2	2.7E-03	2.9E+00	No
Chloroform	67-66-3	1.5E-02	1.5E+01	No
Carbon disulfide	75-15-0	9.7E-03	3.1E+04	No
Ethylbenzene	100-41-4	3.7E-01	3.3E+01	No
Isopropyl alcohol (2-propanol)	67-63-0	6.8E-01	2.7E+05	No
2-Butanone (MEK)	78-93-3	1.5E+00	N/A	No
Naphthalene	91-20-3	9.1E-04	2.4E+00	No
Styrene	100-42-5	2.5E-03	3.5E+04	No

DRAFT

Table 5. Project Chronic Emissions Review - Regulation 2-5				
Pollutant	**CAS #**	**Annual Emission Rate (lb/yr)**	**Chronic Trigger Level (lb/yr)**	**Exceeds Chronic Trigger Level?**
Tetrachloroethene	127-18-4	2.1E+01	1.4E+01	Yes
Toluene	108-88-3	1.3E-02	1.6E+04	No
Trichloroethene	79-01-6	9.3E-03	4.1E+01	No
Vinyl Chloride	75-01-4	1.4E-03	1.1E+00	No
Xylene (total)	1330-20-7	1.7E+00	2.70E+04	No
Methylene Chloride	75-09-2	8.0E-03	8.2E+01	No
Dichloroethane (1,1-DCE)	75-34-3	5.0E-03	5.0E+01	No

Results from this HRA indicate that the project cancer risk is estimated at 1.3 in a million, the project chronic hazard index (HI) is estimated at 0.0042, and the project acute HI is estimated at 0.00016. In accordance with the District's Regulation 2-5-301, this source requires TBACT because the estimated source risk exceeds a cancer risk of 1.0 in a million. Since the estimated project cancer risk does not exceed 10 in a million and hazard indices do not exceed 1.0, this proposed project complies with the District's Regulation 2-5-302 project risk requirements, for projects not located in an Overburdened Community, as defined in Regulation 2-1-243.

Best Available Control for Toxics (TBACT)

Section 2-5-301 requires Best Available Control Technology for Toxics (TBACT) for any source where the estimated cancer risk is greater than 1.0 in a million.

This project triggers TBACT because the estimated source risk is a cancer risk greater than 1.0 in a million. Per the health risk assessment, 100% of the risk was attributed to PCE emissions.

A TBACT analysis for mitigating volatile organic compounds emissions from soil vapor extraction operations was conducted during the review of Application No. 31556, based on those findings, TBACT for a project like this was determined to be meeting a minimum abatement efficiency of 99.8 percent or an exhaust concentration of 1.0 parts per million by volume (ppmv) of PCE. Per information provided by the applicant, the proposed abatement system will be able to meet a minimum abatement efficiency of 99.8 percent. A permit condition will be imposed requiring that PCE emissions be abated by a minimum of 99.8 percent or an exhaust concentration of 1.0 ppmv.

Cumulative Increase

As stated above, TBACT has been determined to meet a minimum abatement efficiency of 99.8 percent for tetrachloroethylene. PCE comprises almost 100 percent of the estimated emissions from S-1. Therefore, the estimated emissions shown in Table 2 were revised to reflect an abatement efficiency of 99.8 percent with revised estimates shown in Table 6 and Table 7, below.

Table 6. SVE System Abated Emissions for S-1						
Pollutant	**CAS #**	**Abated Emissions**				
		Abatement Efficiency (%)	**Hourly Emission Rate (lb/hr)**	**Daily Emission Rate (lb/day)**	**Annual Emission Rate (lb/yr)**	**Annual Emission Rate (ton/yr)**
Acetone	67-64-1	99.8%	2.8E-06	6.6E-05	0	0.000
Benzene	71-43-2	99.8%	6.1E-09	1.5E-07	0	0.000

DRAFT

Table 6. SVE System Abated Emissions for S-1						
Pollutant	CAS #	Abated Emissions				
		Abatement Efficiency (%)	Hourly Emission Rate (lb/hr)	Daily Emission Rate (lb/day)	Annual Emission Rate (lb/yr)	Annual Emission Rate (ton/yr)
Chloroform	67-66-3	99.8%	3.4E-08	8.2E-07	0	0.000
Carbon disulfide	75-15-0	99.8%	2.2E-08	5.3E-07	0	0.000
1,2-Dichloroethene (cis)	156-59-2	99.8%	5.2E-09	1.3E-07	0	0.000
1,2-Dichloroethene (trans)	156-60-5	99.8%	3.5E-09	8.4E-08	0	0.000
Ethyl acetate	141-78-6	99.8%	5.5E-08	1.3E-06	0	0.000
Ethanol	64-17-5	99.8%	3.9E-06	9.5E-05	0	0.000
Ethylbenzene	100-41-4	99.8%	8.5E-07	2.0E-05	0	0.000
4-Ethyltoluene	622-96-8	99.8%	3.2E-08	7.8E-07	0	0.000
n-Heptane	142-82-5	99.8%	2.8E-08	6.6E-07	0	0.000
Isopropyl alcohol (2-propanol)	67-63-0	99.8%	1.6E-06	3.7E-05	0	0.000
2-Hexanone (MBK)	591-78-6	99.8%	1.8E-08	4.3E-07	0	0.000
2-Butanone (MEK)	78-93-3	99.8%	3.5E-06	8.3E-05	0	0.000
4-Methyl-2-pentanone (MIBK)	108-10-1	99.8%	4.3E-08	1.0E-06	0	0.000
Naphthalene	91-20-3	99.8%	2.1E-09	5.0E-08	0	0.000
Styrene	100-42-5	99.8%	5.6E-09	1.3E-07	0	0.000
Tetrachloroethene	127-18-4	99.8%	4.7E-05	1.1E-03	0	0.000
Tetrahydrofuran	109-99-9	99.8%	6.0E-07	1.4E-05	0	0.000
Toluene	108-88-3	99.8%	2.9E-08	7.0E-07	0	0.000
Trichloroethene	79-01-6	99.8%	2.1E-08	5.1E-07	0	0.000
Freon 11 (Trichlorofluoromethane)	75-69-4	99.8%	1.2E-07	3.0E-06	0	0.000
1,2,4-Trimethylbenzene	95-63-6	99.8%	4.7E-08	1.1E-06	0	0.000
1,3,5-Trimethylbenzene	108-67-8	99.8%	6.0E-09	1.4E-07	0	0.000
Vinyl Chloride	75-01-4	99.8%	3.1E-09	7.5E-08	0	0.000
Xylene (total)	1330-20-7	99.8%	3.9E-06	9.4E-05	0	0.000
Methylene Chloride	75-09-2	99.8%	1.8E-09	4.4E-08	0	0.000
Dichloroethane (1,1-DCE)	75-34-3	99.8%	1.2E-09	2.8E-08	0	0.000

Table 7. Organic Emissions Review for S-1					
Pollutant	Effluent Volumetric Concentration (ppmv)	Hourly Emission Rate (lb/hr)	Daily Emission Rate (lb/day)	Annual Emission Rate (lb/yr)	Annual Emission Rate (ton/yr)
POC	0.1	1.5E-05	3.5E-04	0	0.000
NPOC	0.2	5.0E-05	1.2E-03	0	0.000
Total	0.3	6.5E-05	1.6E-03	1	0.000

DRAFT

Offsets

Pursuant to Regulation 2-2-302, offsets must be provided for any new or modified source at a facility that emits, or is permitted to emit, more than 10 tons per year of precursor organic compounds (POCs) or nitrogen oxides (NO_X). Furthermore, pursuant to Regulation 2-2-303 offsets must be provided for any new or modified source at a major facility with a cumulative increase that exceeds 1.0 ton per year of PM_{10}, $PM_{2.5}$, or sulfur dioxide (SO_2).

The facility is not expected to have a PTE greater than 10 tons per year of POC. Therefore, the requirements of Regulations 2-2-302 and 2-2-303 do not apply.

Best Available Control Technology (BACT)

In accordance with Regulation 2-2-301, Best Available Control Technology (BACT) is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxides (SO_2), particulate matter less than 10 micrometer (PM_{10}) and particulate matter less than 2.5 micrometer ($PM_{2.5}$).

NPOC and POC emissions are expected to be below 10 lb/day for S-1. Therefore, BACT is not required.

California Environmental Quality Act (CEQA)

This permit application is not subject to CEQA per Regulation 2-1-312.9: "[a]ny other project which is exempt from CEQA review pursuant to the State CEQA Guidelines". California CEQA Guidelines Section 15300 lists classes of projects that do not have a significant effect on the environment and are declared to be categorically exempt from the requirement for the preparation of environmental documents.

CEQA Guidelines Section 15330 lists Class 30 as "any minor cleanup actions taken to prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance which are small or medium removal actions costing $1 million or less." It further states that "[n]o cleanup action shall be subject to this Class 30 exemption if the action requires the onsite use of a hazardous waste incinerator or thermal treatment unit or the relocation of residences or businesses, or the action involves the potential release into the air of volatile organic compounds as defined in Health and Safety Code Section 25123.6, except for small scale in situ soil vapor extraction and treatment systems which have been permitted by the local Air Pollution Control District or Air Quality Management District. All actions must be consistent with applicable state and local environmental permitting requirements including, but not limited to, off-site disposal, air quality rules such as those governing volatile organic compounds and water quality standards, and approved by the regulatory body with jurisdiction over the site." [emphasis added] The proposed project is a soil vapor extraction and treatment system that will be permitted with a local Air Quality Management District. The cost to remediate is expected to be less than $1 million. Therefore, the proposed project qualifies for the CEQA Guidelines Class 30 exemption and is deemed exempt from CEQA per Section 2-1-312.9

Statement of Compliance

Regulation 2-1-243 Public Notice. Prior to approving an application for an authority to construct or permit to operate, a public notice, fully describing the potential emissions, shall be prepared for the following cases:

(i) A new or modified source located within 1000 feet of the outer boundary of a K-12 school site and which results in the increase in emissions of any substance into the ambient air which has been identified by the California Air Resources Board or the APCO as a toxic air contaminant or a hazardous air contaminant or which is on the list required to be prepared pursuant to subdivision (a) of Section 25532 or Section 44321 subsections(a) to (f) inclusive of the Health and Safety Code.

(ii) A new or modified source located within an Overburdened Community as defined in Section 2-1-243 and for which a Health Risk Assessment is required pursuant to Section 2-5-401

The project does not operate within an Overburdened Community (OBC) as defined in Regulation 2-1-412 and triggers an HRA, however it is within 1000 ft of the K-12 school Del Mar High School located at 1224 Del Mar Avenue, San Jose, CA 95128,

Therefore, the project is subject to the public noticing requirement of the California Health & Safety Code and Regulation 2-1-412.

Regulation 8-47-301, any soil vapor extraction operation which emits benzene, vinyl chloride, tetrachloroethene, methylene chloride, and/or trichloroethene shall be vented to a control device which reduces emissions to the atmosphere by at least 90 percent by weight. The facility will use granular activated carbon vessels (A-1) with an efficiency of 99.8% to abate emissions from S-1.

Regulation 8-47-501 Recordkeeping. The facility is required to keep the pertinent records per condition #100356 pursuant to Regulation 8-47-501.

Prevention of Significant Deterioration (PSD), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPS) do not apply to this project.

Permit Conditions

Permit Condition #100901 for S-1

1. The influent vapor flow rate shall not exceed 100 standard cubic feet per minute from the blower of each soil-vapor extraction (SVE) (S-1) system.
   [Basis: Cumulative Increase, Regulation 2-5]

2. The owner/operator of S-1 shall abate all precursor organic compound (POC) and non-precursor organic compound (NPOC) emissions from each soil vapor extraction system with the permanganate vessel and granular activated carbon vessel (GAC) during all periods of operation as follows:
   S-1 SVE system shall be abated by two (2) 200-lb. Granular Activated Carbon vessels (total 400 lbs. GAC), and one (1) 200-lb. Permanganate-Infused Alumina vessel (total 200 lbs. Permanganate) in series (A-1).
   [Basis: Regulations 8-47-301 and 8-47-302 and Regulation 2-5]

3. The owner/operator of the abatement system (A-1) shall maintain the abatement efficiency at a minimum of 99.8 percent by weight for total organics (sum of POC and NPOC) or a maximum outlet total organics (sum of POC and NPOC) concentration of 1.0 ppmv (measured as methane).
   [Basis: Cumulative Increase, Regulations 8-47-301 and 8-47-302, and Regulation 2-5]

4. The owner/operator of S-1 shall abate perchloroethylene / tetrachloroethylene emissions by a minimum of 99.8 percent by weight or a maximum exhaust concentration of 1.0 ppmv as tetrachloroethylene.
   [Basis: Regulation 2-5, TBACT]

5. In no event shall the owner/operator of S-1 emit more than 0.4 pounds perchloroethylene / tetrachloroethylene emissions in any consecutive twelve month period.
   [Basis: Regulations 8-47-301, 8-47-302, Regulation 2-5]

DRAFT

6. Except for perchloroethylene, the owner/operator of S-1 shall not emit any toxic air contaminant in quantities that exceed the trigger levels listed in Air District Regulation 2-5, Table 2-5-1.
   [Basis: Regulation 2-5]

7. The owner/operator shall not emit from the SVE system (S-1) more than 0.1 pounds of precursor organic compounds (POC) and 0.4 pounds of non-precursor organic compounds (NPOC) per 12-month consecutive period. [Basis: Cumulative Increase]

8. Upon initial start-up, the owner/operator shall take air samples from the SVE system (S-1) for laboratory analysis using EPA Method TO-15. The air samples shall be taken at the following locations:
   a. At the inlet to the first vessel in series.
   b. At the outlet of the last vessel in series prior to venting to the atmosphere.
   [Basis: Regulation 2-1-403, Regulation 2-5, Regulation 8-47-301]

9. The owner/operator shall use the results from the laboratory report from Part 8 to calculate the following:
   a. POC and NPOC emissions to demonstrate compliance with Part 7.
   b. Total organics (POC and NPOC) abatement efficiency and PCE abatement efficiency or outlet total organics (POC and NPOC) concentration of the SVE system (S-1) to demonstrate compliance with Parts 3 and 4.
   c. TAC emissions emitted to the atmosphere, using the maximum permitted flowrate of the SVE system (S-1).

   The owner/operator shall submit the laboratory report, abatement efficiency, outlet POC concentration, and calculated POC, NPOC, TAC emissions within 21 days of the initial startup, to demonstrate compliance with Parts 1 through 8 of this condition.
   [Basis: Regulation 2-1-403, Regulation 2-5]

10. During operation of the abatement device (A-1), the owner/operator shall monitor with a 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 first vessel in series of A-1.
    b. At the inlet to the second vessel in series of A-1.
    c. At the inlet to the third vessel in series of A-1.
    d. At the outlet of the last vessel in series of A-1, prior to venting to the atmosphere.
    [Basis: Cumulative Increase, Regulation 2-5, Regulation 8-47, Regulation 2-1-403]

11. 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 1 through 6 of this condition and shall be conducted on a daily basis.

    a. If the owner/operator can demonstrate one (1) month of consecutive daily monitoring readings where the sum of monitoring results of the SVE system (S-1) is lower than 1.0 ppmv, measured as methane, the monitoring frequency may be reduced to weekly.

    b. After the monitoring frequency has been reduced to weekly, if the owner/operator can demonstrate one (1) month of consecutive weekly monitoring readings of the SVE system (S-1) is lower than 2 ppmv, measured as methane, the monitoring frequency may be reduced to once every two (2) weeks.

DRAFT

c. After the monitoring frequency has been reduced to once every two (2) weeks, if the owner/operator can demonstrate one (1) month of consecutive bi-weekly readings where the monitoring results of the SVE system (S-1) is lower than 1.0 ppmv, measured as methane, the monitoring frequency may be reduced to monthly.

If any subsequent results from monitoring where the sum of monitoring results of the SVE system (S-1) exceed 1.0 ppmv, measured as methane, the owner/operator shall revert to daily monitoring. If monitoring reverts back to daily, the owner/operator may reduce the monitoring frequency in accordance with Parts 10(a) through (c) of this condition.
[Basis: Cumulative Increase, Toxics, and Regulations 8-47 and 2-1-403]

12. The owner/operator shall maintain the following information for each month of operation:
    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. Total throughput of soil vapor from the SVE system (S-1) in standard cubic feet.

    Such records shall be retained and made available for inspection by the Air District for two (2) years following the date the data is recorded.
    [Basis: Recordkeeping]

13. During the operation of the abatement devices, the first carbon vessel of each abatement system (A-1) shall be immediately changed out with unspent carbon upon breakthrough, defined as the detection at the outlet of the permanganate vessel in excess of the higher of the following limits:
    a. 0.2 % of the inlet stream concentration to the first carbon bed.
    b. 1.0 ppmv (measured as methane).
    [Basis: Cumulative Increase and Regulations 8-47 and 2-1-403]

14. During the operation of the abatement devices, the second carbon vessel of each abatement system (A-1) shall be immediately changed out with unspent carbon upon breakthrough, defined as the detection at the outlet of the permanganate vessel in excess of the higher of the following limits:
    a. 0.2 % of the inlet stream concentration to the first carbon bed.
    b. 1.0 ppmv (measured as methane).
    [Basis: Cumulative Increase, TBACT, Regulation 8-47, Regulation 2-1-403]

15. During the operation of the abatement devices, the permanganate vessel of each abatement system (A-1) shall be immediately changed out with unspent permanganate infused granular activated carbon upon breakthrough, defined as the detection at the outlet of the permanganate vessel in excess of the higher of the following limits:
    a. 0.2 % of the inlet stream concentration to the first carbon bed.
    b. 1.0 ppmv (measured as methane).
    [Basis: Cumulative Increase, TBACT, Regulation 8-47]

16. The owner/operator shall report any noncompliance 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: Regulation 2-1-403]

17. 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 condition. All measurements, records

DRAFT

and data required to be maintained by the operator shall be retained for at least two (2) years following the date the data is recorded.
[Basis: Regulation 8-47]

18. Upon final completion of the remediation project, the operator shall notify the Engineering Division within two weeks of decommissioning the operation.
[Basis: Regulation 2-1-403]

End of Conditions

Recommendation

The Air 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 Air District, State, and Federal air quality-related regulations. The preliminary recommendation is to issue an Authority to Construct for the equipment listed below. However, because the proposed source is located within 1000 ft of two K-12 grade schools with more than 12 students, it triggers the public notification requirements of Regulation 2-1-412. Once public comments are received and reviewed, the Air District will make a final determination on the permit.

I recommend that the Air District initiate a public notice and consider any comments received prior to taking final action on the issuance of an Authority to Construct and/or a Permit to Operate for the following equipment:

S-1 Soil Vapor Extraction (SVE) System
Make: Rotron, Model: DR555K58
Maximum Outflow: 190 SCFM, Abated by: A-1

A-1 Granular Activated Carbon (GAC) Vessels
Two 200-pound vapor-phase GAC units in series
Activated Alumina impregnated with 8% Potassium Permanganate
One 200-pound unit in series

By Isis Virrueta,
Senior Air Quality Engineer
May 2026

DRAFT

Appendix A

Cost Estimate Methodology

DRAFT

Abating volatile organic compounds emissions by 99.8 percent has been deemed achieved in practice, while achieving an abatement efficiency of 99.9 percent is considered technically feasible.

Unabated emissions of PCE from the project are estimated to be 0.010 tons per year (20.7 pounds per year). Meeting the achieved-in-practice abatement efficiency of 99.8 percent, emissions after abatement are estimated to be 0.000 tons per year (0.4 pounds per year).

Abating emissions to at least 99.9 percent would reduce tetrachloroethylene emissions from 0.010 ton per year to 0.000 ton per year, an emissions reduction of 0.010 ton per year.

To estimate the costs to reduce emissions from the achieved-in-practice level of 99.8 percent abatement to a technically feasible level of 99.9 percent, the United States Environmental Protection Agency's (EPA) "Air Pollution Control Cost Estimation Spreadsheet for Carbon Adsorbers[1]" was used. This spreadsheet utilizes equations and assumptions outlined in Chapter 3 (Carbon Adsorbers), dated October 2018, of EPA's *Air Pollution Control Cost Manual.*

To estimate costs, the following assumptions were made:

- Required removal efficiency: 50% (reducing from 99.8 to 99.9 percent abatement),
- PCE emission rate: 0.4 pound/hour (after 99.8 percent abatement),
- Waste gas flow rate: 750 actual, cubic feet per minute
- Operating rate: 8,760 hours per year,
- Estimated life of adsorber vessels: 15 years,
- Estimated carbon life: 2 years, and
- Carbon cannister size: 200 pounds of carbon per canister.

Because the project already includes carbon cannisters, no additional costs were considered for either site preparation or buildings.

The estimated cost to reduce PCE emissions by 50% per year from 99.8 percent abatement to 99.9 percent abatement was estimated to cost $89,545 for a cost-effectiveness of $829,120,657 per ton of PCE emissions removed. Section 2-5-205 (definition of TBACT) requires that the Air District take into consideration the cost of achieving technologically feasible emissions reductions.

Although technically feasible, requiring an abatement efficiency of 99.9 percent is considered not cost-effective because it exceeds $17,500 per ton of VOC (PCE).

DRAFT

[1] Source: U.S. Environmental Protection Agency. Office of Air Quality Planning Standards. *Air Pollution Control Cost Estimation Spreadsheet for Carbon Adsorbers*. November 2020. https://www.epa.gov/sites/default/files/2020-11/epa_carbon_adsorber_calc_sheet_7thedition_nov2020.xlsm