

**DRAFT  
ENGINEERING EVALUATION REPORT  
WELL TEST, INC.  
PLANT NUMBER 19967  
APPLICATION NUMBER 27358**

**Portable SVE System  
827 South First Street  
San Jose, CA 95110**

## **Background**

Well Test, Inc. (Well Test) has a permitted portable soil vapor extraction system subject to permit condition ID# 22594. The soil vapor extraction system consists of a liquid ring blower and ancillary equipment abated by a catalytic oxidizer. Emission monitoring for operation of the system is conducted according to established Source Test methodology. Procedures are outlined in the permit conditions.

On behalf of Well Test, RRM, Inc. has applied to operate this unit to remediate soil and groundwater impacted with petroleum products at the above referenced site. This site is within 1000 feet of the nearest school, and therefore requires public notice per District Regulation 2-1-412. The source will comply with the updated permit condition as shown below in strikeout/underlined format.

The application covers the following source:

- S-1 Portable Dual Phase Soil Vapor Extraction System, liquid ring blower and ancillary equipment, abated by A-1.**
- A-1 Electric Catalytic Oxidizer**

## **Emission Calculations**

Emissions were calculated and accounted for when the source was issued an authority to construct and a permit to operate for a previous location (Application #13397; Plant #17311). The calculation along with the basis is presented as follows:

### **Basis:**

1. Operating conditions: Pressure = 1 Atm; Inlet Temperature = 70 deg F; 1 lb-mole occupies 386 cu.ft.;
2. Molecular weight (MW) of gasoline range organics (TPHg) = 100 lb/lb-mole; MW of Benzene = 78 lb/lb-mole;
3. Effluent flow rate = 400 cubic feet per minute (max.);
4. Influent concentrations:  
TPHg = 9000 ppmv; Benzene = 135 ppmv (assuming benzene is 1.5% of TPHg concentration)
5. Abatement efficiency = 98.5%

Emissions are calculated using the following equation:

$$\text{Emissions, lb/day} = \text{ppmv} * 400 \text{ cfm} * 1440 \text{ min/day} * \text{lb-mole/386 cu.ft} * \text{MW} * (1 - 0.985)$$

$$\begin{aligned} \text{Precursor Organic Compounds (POC) or TPHg emissions} &= 20.1 \text{ lb/day} \\ &= 7336.5 \text{ lb/yr @ 365 days/yr} \\ &= 3.67 \text{ tons per year (tpy)} \end{aligned}$$

$$\text{Benzene emissions} = 0.24 \text{ lb/day}$$

### **Plant Cumulative Increase**

$$\begin{aligned} \text{POC} &= 3.7 \text{ tpy (current)} + 0.0 \text{ tpy (new)} \\ &= 3.7 \text{ tpy (new total)} \end{aligned}$$

### **Toxics Emissions and Health Risk Screening Analysis**

Permit condition limit toxics emissions to not exceed the trigger levels given in Table 2-5-1 of Regulation 2-5. A health risk screening analysis is not required.

### **Toxics Best Available Control Technology (TBACT)**

The source complies with the TBACT requirements of Regulation 2-5.

### **Offsets**

Per Regulation 2-2-302 offset are required for facility wide or permitted POC emissions  $\geq$  10 tons per year. Offsets were not required when this source was originally permitted.

### **California Environmental Quality Act (CEQA)**

This project is considered to be ministerial under the Districts 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 evaluated as per the guidance in Chapters 9.2 of the permit handbook.

### **Statement of 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 a catalytic oxidizer at all times of operation.

**8-47-301 Emission Control Requirement, Specific Compounds:** Any air stripping and soil vapor extraction operations which emit benzene, vinyl chloride, perchloroethylene, methylene chloride and/or trichloroethylene shall be vented to a control device, which reduces emissions to the atmosphere by at least 90 percent by weight.

**8-47-302 Organic Compounds:** Any air stripping and soil vapor extraction operations with total organic compound emissions greater than 15 pounds per day shall be vented to a control device, which reduces the total organic compound emissions to the atmosphere by at least 90 percent by weight.

Prevention of Significant Deterioration, New Source Performance Standards, and National Emissions Standards for Hazardous Air Pollutants are not triggered.

### Public Notification, Schools

The project is located within 1000 feet of the nearest K-12 school, St. Leander School, and therefore is subject to the public notice requirements of Regulation 2-1-412. A public notice will be distributed to the parents and guardians of the students of the schools within ¼ mile of the project and to all the addresses within 1000 feet of the project.

### Permit Conditions

Permit condition ID# 22594 is updated. The revisions are shown in strikeout/underlined format.

COND# 22594 -----

1. The operator of this source shall provide written notification to the Permit Services Division at least 3 days prior to start-up of operation at any new location. The notification shall include:
  - a. ~~Application Source~~ Number (~~S-143397~~) and Plant Number (~~1996717311~~).
  - b. Street address, including zip code, for the location where the ~~sourceequipment~~ will be operated.
  - c. The name and telephone number of a contact person where the ~~sourceequipment~~ will be operated.
  - d. The date of initial start-up and estimated duration of operations at that location.
  - e. The distance from the source to the outer boundary of the nearest K-12 school, or indication that the distance is greater

than 1500 feet.

In the event that the start-up is delayed less than 5 days, the operator may provide telephone notice of said change to the assigned **Plant** Engineer in the **Engineering Permit Services** Division. If the start-up is delayed more than 5 days, written notification must be resubmitted. [Basis: Reg. 1-441]

2. This **sourceequipment** shall not remain at any single location for a period in excess of 12 consecutive months, following the date of initial operation except as allowed under Section 2-1-220.10. If this portable **sourceequipment** remains at any fixed location for more than 12 months, the portable permit will automatically revert to a conventional permanent location permit and will lose its portability. [Basis: Reg. 2-1-220.2]
3. This portable **sourceequipment**, S-1, shall operate at all times in conformance with the eligibility requirements set forth in Regulation 2-1-220 for portable equipment. [Basis: Reg. 2-1-220]
4. This **sourceequipment** is not to be operated within 1000 feet of the outer boundary of any K-12 school, unless the applicable requirements of the California Health and Safety Code Section 42301.6 have been met. This will require the submittal of an application for a revised permit to operate. [Basis: Reg. 2-1-220.4]
5. This **sourceequipment** shall be used only for the testing and abatement of non-chlorinated volatile organic compounds associated with petroleum products from extracted soil vapor. Concentrations of non-chlorinated VOC shall be demonstrated by sampling required in part 10, below. [Basis: Reg. 2-5-601, 2-5-603]
6. Precursor Organic Compound (POC) emissions from Source S-1 shall be abated by abatement device A-1 catalytic oxidizer during all

periods of operation. Soil vapor flow rate shall not exceed 400 scfm. [Basis: Reg. 8-47-301.1,2]

7. The POC abatement efficiency of abatement device A-1 shall be maintained at a minimum of 98.5% by weight for inlet POC concentrations greater than or equal to 2000 ppmv (measured as C6). For inlet concentrations below 2000 ppmv and greater than or equal to 200 ppmv, a minimum abatement efficiency of 97% shall be maintained. For inlet concentrations below 200 ppmv, a minimum abatement efficiency of 90% shall be maintained. The minimum abatement efficiency shall be waived if outlet POC concentrations are shown to be less than 10 ppmv (measured as C6). In no event shall ~~Toxic compounds~~benzene emissions to the atmosphere exceed ~~2.9 pounds per hour~~the toxic trigger levels listed in the Table 2-5-1 of Regulation 2, Rule 5. In case, any toxic compound emissions are expected to exceed the toxic trigger levels then the health risk screening analysis requirements of Regulation 2, Rule 5 shall be met before commencement of operation at that site. Cumulative emissions of benzene shall not exceed ~~3.86.40~~ pounds in any 12-month period. [Basis: BACT; Reg. 2-5 Table 2-5-1]
8. The minimum operating temperature of A-1 catalytic oxidizer shall not be less than 600 degrees Fahrenheit. [Basis: Reg. 1-523]
9. To determine compliance with ~~PartCondition Number~~ 8, the catalytic oxidizer shall be equipped with continuous (data recording intervals not to exceed 15 minutes) measuring and temperature recording instrumentation. The temperature data collected from the temperature recorder shall be maintained 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: Reg. 1-441]
10. To determine compliance with ~~PartCondition~~ 7,

within 24 hours after start-up of the catalytic oxidizer at any new location, the operator of this source shall:

- a. Analyze the inlet gas stream to determine the vapor 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 hour based on the exhaust gas analysis and the operating exhaust flow rate. The soil vapor flow rate shall be decreased, if necessary, to demonstrate compliance with ~~Part~~Condition 7.
- d. Calculate the POC abatement efficiency based on the inlet and exhaust gas sampling analysis. For the purpose of determining compliance with ~~Part~~condition 7, the POC concentration shall be reported as hexane.
- e. Submit to the District's ~~Engineering~~Permit Services Division the test results and emission calculations within one month from the testing date. Samples shall be analyzed according to modified EPA test methods 8015 and 8021 or their equivalent to determine the concentrations of POC and benzene.

[Basis: Reg. 1-441]

11. Within 30 days from the completion of each treatment operation at a given location, the operator of this source shall provide the assigned ~~Plant~~ Engineer in the ~~Engineering~~Permit Services Division with a summary showing the following information:
  - a. The dates and total number of days that the ~~source~~equipment was at that location and the dates, and total number of days that the ~~source~~equipment was operated at that location.
  - b. A summary of the abatement efficiency and

benzene emission rate as determined and reported in the start-up sampling report required by ~~Partecondition~~ 10e above.

- c. The results of any additionally performed emission test, analysis, or monitoring result logged in for the day of operation they were taken.
- d. The total throughput of contaminated soil vapor processed by S-1 at that location (indicated in cubic feet).
- e. The total emissions of benzene at that location based on the sampling results required by ~~Parteconditions~~ 10 above.

[Basis: Reg. 1-523]

12. Within 30 days after the end of every calendar year, the operator of this source shall provide the assigned ~~Plant~~ Engineer in the ~~EngineeringPermit-Services~~ Division a year-end summary showing the following information:

- a. The location(s) at which the ~~sourceequipment~~ was operated including the dates operated at each location.
- b. The total throughput of contaminated soil vapor for the previous four quarters (indicated in cubic feet).
- c. The total benzene emissions for the previous four quarters (indicated in pounds).

[Basis: Reg. 1-523]

13. The 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 Permit to Operate. All measurements, records and data required to be maintained by the operator shall be retained for at least two years following the date the data is recorded.

[Basis: Reg. 1-522.9, 523.4]

14. 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. [Basis: Reg. 1-522.7, 523.3]

### **Recommendations**

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 the District, State, and federal air-quality related regulations. Since the source will be located within 1000 feet of a K-12 school, the public notification requirements of the District Regulation 2-1-412 are triggered. After receiving and reviewing the public comments, the District will make a final determination on the permit.

**S-1 Portable Dual Phase Soil Vapor Extraction System, liquid ring blower and ancillary equipment, abated by A-1.**

**A-1 Electric Catalytic Oxidizer**

**By:** \_\_\_\_\_  
Dharam Singh, PE  
Air Quality Engineer II