



air pollution control district
SANTA BARBARA COUNTY

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Permit to Operate 15624

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PROPERTY OWNER:

Mission Linen Supply

EQUIPMENT OWNER/OPERATOR:

Geosyntec Consultants

205783

EQUIPMENT LOCATION:

201 E. Haley Street, Santa Barbara

STATIONARY SOURCE/FACILITY:

Haley St, 201 E. (CSC)

SSID: 03908

FID: 03908

PROJECT/PROCESS DESCRIPTION:

This permit grants approval for the operation of a vapor intrusion mitigation system at a former dry cleaning business located at 201 E. Haley Street in Santa Barbara. The system includes an in-situ sub-slab depressurization (SSD) system and treatment with carbon adsorption vessels. The vapors will be collected and sent to two (2) 1,000-pound carbon adsorption emission control devices placed in series. This Permit to Operate incorporates Authority to Construct Modification 15624-01, which authorizes an increase in the effluent toxic concentrations from this system. This modification was requested by the applicant in order to ensure that they could demonstrate compliance with the limits via bag sampling and laboratory analysis.

EQUIPMENT DESCRIPTION:

1. Vacuum Extraction Air Blower: Manufacturer – Roots; Model – 53 URAI; 20 horsepower electric motor; maximum flow capacity – 500 scfm.
2. One (1) vapor extraction well, 3 inch diameter; maximum depth 2 feet; radius of influence approximately 55 feet.

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3. Monitoring devices to monitor common manifold and vapor extraction system temperature, vacuum, and flows.
4. Water/vapor separator tank.
5. Piping, valves, fittings and connections.

Emissions Controls:

6. Two (2) Carbon Canisters: Manufacturer – Carbon Supply Inc; Model – CSI V1000; 1000lbs of carbon per canister; arranged in series.

CARBON ADSORPTION SYSTEM

Maximum influent gas flow rate:	375	scfm
Maximum exhaust gas flow rate:	375	scfm
Stack diameter:	4	inches
Minimum stack height:	14	feet
Minimum stack outlet temperature:	ambient	

CONDITIONS:

1. **Emission Limitations.** At no time shall emissions to the atmosphere exceed any of the following:

TABLE 1. PERMITTED EMISSIONS

<i>Pollutant</i>	<i>lb/hr</i>	<i>lb/day</i>	<i>TPY</i>	<i>ppmv</i>
ROC	0.67	15.99	2.92	200.0
Chloroethane	3.65E-03	8.76E-02	1.60E-02	0.953
Chloroform	3.47E-04	8.33E-03	1.52E-03	0.049
Isopropyl alcohol	3.48E-03	8.36E-02	1.53E-02	0.976
Methylene chloride	9.58E-04	2.30E-02	4.20E-03	0.190
Perchloroethylene (PCE)	9.60E-03	2.30E-01	4.21E-02	0.975
Toluene	1.31E-03	3.14E-02	5.73E-03	0.239
Trichloroethylene (TCE)	8.60E-04	2.06E-02	3.77E-03	0.110

Note: PCE and methylene chloride are not ROCs, as defined by Rule 102.

Compliance with these emission limits shall be determined by sampling and laboratory analysis required in the Monitoring Condition as well as the other conditions of this permit.

2. **Fugitive Emissions.** Contaminated excavated soils and soil borings shall be covered with 20-mil heavy duty plastic sheeting, or two sheets of 10-mil heavy duty plastic sheeting, or placed in a sealed container. The plastic sheeting shall be completely secured to prevent

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fugitive emissions. Contaminated excavated soils and soil borings shall be disposed of within ten days at an approved treatment/disposal facility unless an extension is requested and granted by the District.

- a. ROC Emissions. All equipment that comes in contact with hydrocarbons shall not have detectable leaks. A leak is defined as any reading greater than 100 ppmv above background by a portable photoionization detector (PID) that is calibrated to isobutylene.
- b. Particulate Matter Emissions. During dry periods (defined here as no measurable precipitation during past three calendar days), water sprays or other adequate measures shall be applied twice daily to all areas disturbed by construction with the potential to emit fugitive dust. Additionally, adequate dust control shall be used to prevent fugitive dust from being transmitted offsite. Upon completion of soil-disturbing activities in each area, soil shall be stabilized to prevent wind erosion.

3. **Operation Limitations.** The permittee shall comply with the following operational limits:

Carbon Adsorption

- a. The stack exhaust gas flow rate shall not exceed 375 scfm.
- b. The ROC removal efficiency across the carbon canisters shall be greater than 90 percent (mass basis), or outlet stack ROC concentrations shall be ≤ 10 ppmv, whichever is attainable.

Compliance with the above conditions shall be determined through monitoring, recordkeeping and reporting conditions of this permit.

4. **Monitoring.** The permittee shall implement a monitoring program consistent with the "Guidance Document for Emission Verification of Contaminated Soil/Groundwater Cleanup Process" (Guidance Document, August 1991 and all updates thereof) and the District-approved Emission Verification Test (EVT) Plan for this facility. The following components shall be monitored for the life of the project:

- a. Weekly PID Breakthrough Sampling. Conduct PID sampling during system operation from the "carbon in," "carbon out" and "carbon mid" sampling ports within 15 minutes of one another at least once every 7 calendar days. Sampling shall test for the concentrations of ROC using a PID calibrated to isobutylene. The permittee shall immediately assess compliance with the requirements of this permit and shall initiate the required actions for carbon replacement and/or system shutdown if breakthrough is detected.
- b. Monthly Lab Analysis. On a monthly basis, collect gas samples from the "carbon in," "carbon out" and "carbon mid" sampling ports using gas tedlar bags (or District approved

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equivalent) within 15 minutes of one another. The gas samples shall be analyzed by a state certified laboratory for the content of ROC and all constituents listed in Table 1 (in units of ppmv and lb/hr). Test results shall be available within 10 calendar days of sampling. The permittee shall immediately assess compliance with the requirements of this permit upon receipt of the test results and shall initiate the required actions for carbon replacement and/or system shutdown.

- c. Stack Exhaust Flow and Temperature. All system process parameters shall be monitored and recorded using District-approved methods while conducting monthly lab analysis sampling required by Condition 4.b. Process parameters include stack exhaust flow rates and temperature (in units of scfm and °F, respectively).

The permittee shall notify the District via e-mail (enfr@sbcapcd.org, Attn: *CSC Project Manager*) within 24 hours of discovery of being out of compliance with the requirements of this permit.

Upon showing reasonable need, the District may require an increased (or decreased) monitoring frequency. Backup documentation such as instrument calibration, equipment maintenance, chain of custody records and sampling logs shall be available for District review. If documentation is not onsite, the permittee shall produce the required documentation within 7 calendar days of request by the District. The instruments shall be maintained according to manufacturer's specifications.

5. **Recordkeeping.** The permittee shall record and maintain the following information. This data shall be maintained for a minimum of three (3) years from the date of each entry and made available to the District upon request:
 - a. A copy of the manufacturer-designed or permittee-designed operations procedures for the process monitoring and control equipment and a copy of the District-approved EVT Plan. These records shall be maintained for the life of the project.
 - b. Weekly PID breakthrough sampling results for ROC from the “carbon in,” “carbon out” and “carbon mid” sampling ports.
 - c. Monthly lab sampling results for ROC and all constituents listed in Table 1 from the “carbon in,” “carbon out” and “carbon mid” vapor sampling in units of ppmv and lbs/hr as well as the calculated ROC control efficiency (mass basis). A District-approved log shall be maintained (tabular format) that contains the following information on an ongoing basis: site location; permit number; sampling date; ROC concentration results at the “carbon in,” “carbon out” and “carbon mid” sampling ports of the control system in units of ppmv; stack exhaust flow rate in units of scfm; stack exhaust temperature; the mass emissions at the inlet and exhaust to the atmosphere of ROC and all constituents listed in Table 1 in units of lb/hr; the calculated system control efficiency for ROC; and whether the unit was in compliance (Y/N). The sampling results data shall be maintained

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using a District-approved tabular format that documents the monthly results on an ongoing basis. All lab reports, including chain of custody documentation, shall be maintained.

- d. Actions taken to remedy non-compliance based on monthly lab analysis tests (ppmv, lb/hr, efficiency). These actions shall be documented in a District-approved *CSC Non-Compliance Reporting Form*.
6. **Reporting.** By March 1 of each year and within 60 days of completion of the project, a written report documenting compliance with the terms and conditions of this permit for the previous calendar year shall be provided by the permittee to the District (Attn: *Annual Report Coordinator*). The report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit. The report shall be in a format approved by the District. Compliance with all limitations and restrictions shall be documented in the submittals. All logs and other basic source data not included in the report shall be made available to the District upon request. The report shall include the following information:
 - a. Results of monthly sampling lab analyses. Include the District-approved reporting log.
 - b. Results from weekly PID sampling for ROC from the “carbon in,” “carbon out” and “carbon mid” sampling ports.
 - c. Copies of all *CSC Non-Compliance Reporting Forms* that documented the actions taken to remedy non-compliance based on monthly lab analysis tests (ppmv, lb/hr, efficiency).
7. **IC Engines.** Any internal combustion engine with a rated brake horsepower of 50 or greater which is used on-site (i.e. drill rig engines) must have a valid District Permit to Operate, or must be registered in the Statewide Portable Equipment Registration Program. Engines used to propel vehicles do not require a permit.
8. **Consistency with Analysis.** Operation under this permit shall be conducted consistent with all data, specifications and assumptions included with the application and supplements thereof (as documented in the District's project file) and the District's analyses under which this permit is issued as documented in the Permit Analyses prepared for and issued with the permit.
9. **Equipment Maintenance.** The equipment listed in this permit shall be properly maintained and kept in good condition at all times. The equipment manufacturer’s maintenance manual, maintenance procedures and/or maintenance checklists (if any) shall be kept on site.
10. **Compliance.** Nothing contained within this permit shall be construed as allowing the violation of any local, state or federal rules, regulations, air quality standards or increments.
11. **Severability.** In the event that any condition herein is determined to be invalid, all other conditions shall remain in force.

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12. **Conflict Between Permits.** The requirements or limits that are more protective of air quality shall apply if any conflict arises between the requirements and limits of this permit and any other permitting actions associated with the equipment permitted herein.
13. **Access to Records and Facilities.** As to any condition that requires for its effective enforcement the inspection of records or facilities by the District or its agents, the permittee shall make such records available or provide access to such facilities upon notice from the District. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A.
14. **Emission Factor Revisions.** The District may update the emission factors for any calculation based on USEPA AP-42 or District emission factors at the next permit modification or permit reevaluation to account for USEPA and/or District revisions to the underlying emission factors.
15. **Reimbursement of Costs.** All reasonable expenses, as defined in District Rule 210, incurred by the District, District contractors, and legal counsel for the activities listed below that follow the issuance of this permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by the permittee as required by Rule 210. Reimbursable activities include work involving permitting, compliance, CEMS, modeling/AQIA, ambient air monitoring and air toxics.
16. **Nuisance.** Except as otherwise provided in Section 41705 of the California H&SC, no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
17. **Grounds for Revocation.** Failure to abide by and faithfully comply with this permit or any Rule, Order, or Regulation may constitute grounds for revocation pursuant to California Health & Safety Code Section 42307 *et seq.*
18. **Transfer of Owner/Operator.** This permit is only valid for the owner and operator listed on this permit unless a *Transfer of Owner/Operator* application has been applied for and received by the District. Any transfer of ownership or change in operator shall be done in a manner as specified in District Rule 203. District Form -01T and the appropriate filing fee shall be submitted to the District within 30 days of the transfer.

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AIR POLLUTION CONTROL OFFICER

DATE

Attachments:

- Permit Evaluation for Permit to Operate 15624

Notes:

- Reevaluation Due Date: 12/1/2024
- Stationary sources are subject to an annual emission fee (see Fee Schedule B-3 of Rule 210).
- Annual reports are due by March 1st of each year.
- CSC Non-Compliance Reporting Form ENF-88 and CSC Monthly Monitoring Form ENF-89 are available on the District website here: <https://www.ourair.org/csc-projects/>.
- This permit supersedes ATC 15624 and ATC Mod 15624-01.



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**PERMIT EVALUATION FOR
PERMIT TO OPERATE 15624**

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1.0 BACKGROUND

1.1 General: Geosyntec Consultants, on behalf of the property owner, is operating in-situ vapor intrusion mitigation equipment for the treatment of VOC-containing soil contaminated by a former dry cleaning business located at 201 E. Haley Street in Santa Barbara. The operation consists of one vapor extraction well controlled by two 1,000-lb carbon adsorption canisters in series. The application for Permit to Operate 15624 was received by the District on September 24, 2021. The laboratory test results included with the application showed that the detection limits of chloroethane, chloroform, isopropyl alcohol, methylene chloride and toluene were too high to determine compliance with the effluent concentration limits in Authority to Construct 15624. For this reason, on September 30, 2021, Geosyntec submitted the application for Authority to Construct Modification 15624-01 to increase the effluent toxic concentration limits. This requested modification has been incorporated into the Permit to Operate.

1.2 Permit History: The following permits have been issued in the last three years.

PERMIT	FINAL ISSUED	PERMIT DESCRIPTION
ATC 15624	6/1/2021	Sub slab depressurization system.
Exempt 15652	2/2/2021	Pilot test.

1.3 Compliance History: The Emissions Verification Test (EVT) was performed on July 26, 2021. The District was notified of the EVT date but did not witness the testing. The submitted EVT report shows that the system was operating according to the requirements of ATC 15624, except the laboratory detection limits for chloroethane, chloroform, isopropyl alcohol, methylene chloride and toluene were too high to determine compliance with the limits in ATC 15624. This is being rectified with the issuance of this Permit to Operate by increasing the effluent concentration limits of these toxic pollutants. On August 27, 2021, District inspector Bryan Wong conducted the SCDP inspection. At the time of inspection, no compliance issues were found.

2.0 ENGINEERING ANALYSIS

2.1 Equipment/Processes: The contaminated soil is being remediated using a sub-slab depressurization vapor intrusion mitigation system to remove the contaminated vapor from the soil. The soil vapors are extracted through the well to a knock-out tank where water vapor condenses. The dehydrated vapors are then sent to two carbon adsorption vessels in series.

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- 2.2 Emission Controls: There are two (2) Carbon Supply Inc. CSI V1000 carbon canisters connected in series. Each canister contains approximately 1,000 lbs of granular activated carbon (GAC). The system has an assumed control efficiency of 90%.
- 2.3 Emission Factors: Emissions are based on engineering calculations using inlet concentration data, flow rates and an emission control efficiency of 90%.
- 2.4 Reasonable Worst Case Emission Scenario: The emission operations scenario for this project is 24 hr/day, 365 days/year.
- 2.5 Emission Calculations: Emissions were calculated using influent concentrations, flow rates and assumed control efficiencies. Detailed emission calculation spreadsheets may be found in the Emission Calculations Attachment. These emissions define the Potential to Emit for the permitted equipment.
- 2.6 Special Calculations: The concentration of the effluent was calculated from the system exhaust flow rate. See the Emission Calculations Attachment for details.
- 2.7 BACT Analyses: Best Available Control Technology was not required for this project.
- 2.8 Enforceable Operational Limits: The permit has enforceable operating conditions that ensure the equipment is operated properly.
- 2.9 Monitoring Requirements: Monitoring of the equipment's operational limits are required to ensure that these are enforceable. The monitoring includes monthly stack exhaust flow, stack temperature and lab analyses of samples for mass emission determinations.
- 2.10 Recordkeeping and Reporting Requirements: The permit requires that the monitored data be recorded and reported to the District.

3.0 REEVALUATION REVIEW (not applicable)

4.0 REGULATORY REVIEW

4.1 Partial List of Applicable Rules:

Rule 201.	Permits Required
Rule 202.	Exemptions to Rule 201
Rule 205.	Standards for Granting Permits
Rule 301.	Circumvention
Rule 302.	Visible Emissions
Rule 303.	Nuisance
Rule 345.	Control of Fugitive Dust from Construction and Demolition Activities

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- Rule 801. New Source Review – Definitions and General Requirements
- Rule 802. New Source Review
- Rule 809. Federal Minor Source New Source Review
- Rule 810. Federal Prevention of Significant Deterioration

4.2 Rules Requiring Review:

4.2.1 *Rule 345 - Control of Fugitive Dust from Construction and Demolition Activities:* This rule requires fugitive dust control for any activity associated with construction or demolition of a structure or structures. The soil vapor extraction activities allowed by this permit do not constitute construction or demolition, and are therefore not subject to the requirements of this rule. Any construction or demolition of structures (including but not limited to grading, excavating or paving) is subject to the requirements and standards of this rule.

5.0 AQIA

The project is not subject to the Air Quality Impact Analysis requirements of Regulation VIII.

6.0 OFFSETS/ERCs

- 6.1 Offsets: The emission offset thresholds of Regulation VIII are not exceeded.
- 6.2 ERCs: This source does not generate emission reduction credits.

7.0 AIR TOXICS

An air toxics Health Risk Assessment (HRA) screening was conducted by the Santa Barbara County Air Pollution Control District (District) for the contaminated soil cleanup (CSC) project located at 201 E. Haley Street in Santa Barbara. The HRA screening was conducted using the USEPA-recommended screening model, AERSCREEN, with the Hotspots Analysis and Reporting Program (HARP) software, Version 2 (Build 21081). Cancer risk and chronic, 8-hour and acute non-cancer Hazard Index (HI) risk values were calculated and compared to the significance thresholds for cancer risk and chronic, 8-hour and acute non-cancer risk adopted by the District’s Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>E. Haley St CSC Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	9.8/million	≥10/million
Chronic non-cancer risk:	<0.1	>1
8-hour non-cancer risk:	<0.1	>1
Acute non-cancer risk:	<0.1	>1

Based on these results, modifications to the effluent toxic concentration limits for the CSC project at 201 E. Haley Street do not present a significant risk to the surrounding community. More information can be found in the HRA Documentation Attachment.

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8.0 CEQA / LEAD AGENCY

The District is the lead agency under CEQA for this project. This project is exempt from CEQA pursuant to the Environmental Review Guidelines for the Santa Barbara County APCD (revised April 30, 2015). Appendix A.2 (*Equipment or Operations Exempt from CEQA*) specifically exempts onsite remediation of contaminated groundwater or soil using vapor extraction and treatment or water extraction and treatment. No further action is required under CEQA.

9.0 SCHOOL NOTIFICATION

A school notice pursuant to the requirements of H&SC §42301.6 was required for Authority to Construct Modification 15624-01, which is incorporated into the issuance of this Permit to Operate. The impacted K-12 school is La Cuesta High School.

10.0 PUBLIC and AGENCY NOTIFICATION PROCESS/COMMENTS ON DRAFT PERMIT

- 10.1 This project is subject to a 30 day public notice.
- 10.2 Draft and public comments, if any, may be found in the final permit attachments.

11.0 FEE DETERMINATION

Fees for this permit are assessed under the cost reimbursement provisions of Rule 210. The Project Code is 205783 (*CSC 201 E Haley/Geosyntec*).

12.0 RECOMMENDATION

It is recommended that this permit be granted with the conditions as specified in the permit.

Charlotte Mountain	10/29/2021		
AQ Engineer/Technician	Date	Supervisor	Date

13.0 ATTACHMENT(S)

- A. Emission Calculations
- B. IDS Tables
- C. HRA Documentation

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ATTACHMENT A
Emission Calculations

CALCULATION SUMMARY FOR PROJECT TOTAL ROC AND TOXIC EMISSIONS
PTO 15624 Contaminated Soil Remediation Project at 201 E Haley St

Table 1: Maximum Projected ROC Emissions

Source	Total ROC Influent into Control Device (ppmv as C ₄ H ₈)	System Flow Rate (scfm)	C ₄ H ₈ Molecular Weight (lb/lb-mol)	ROC Influent into Control Device (lb/hr)	Control Efficiency (%)	ROC Effluent from Control Device (lb/hr)	ROC Effluent Concentration from Control Device (ppmv as C ₄ H ₈)	ROC Effluent from Control Device (lb/day)	ROC Effluent from Control Device (TPY)
Carbon Canister Ph III	2,000.0	375	56.11	6.662	90	0.67	200.00	15.99	2.92

Table 2: Maximum Projected Toxic Emissions

Toxic Pollutant	Molecular Weight (lb/lb-mol)	Control Device Influent Concentration (ppmv)	Flow Rate (scfm)	Pollutant Influent into Control Device (lb/hr)	Control Efficiency (%)	Pollutant Effluent from Control Device (lb/hr)	Pollutant Effluent Concentration from Control Device (ppmv)	Pollutant Effluent from Control Device (lb/day)	Pollutant Effluent from Control Device (TPY)
Chloroethane	64.51	9.53	375	3.65E-02	90	3.65E-03	0.953	8.76E-02	1.60E-02
Chloroform	119.38	0.49	375	3.47E-03	90	3.47E-04	0.049	8.33E-03	1.52E-03
Isopropyl alcohol	60.1	9.76	375	3.48E-02	90	3.48E-03	0.976	8.36E-02	1.53E-02
Methylene chloride	84.93	1.90	375	9.58E-03	90	9.58E-04	0.190	2.30E-02	4.20E-03
Perchloroethylene	165.83	9.75	375	9.60E-02	90	9.60E-03	0.975	2.30E-01	4.21E-02
Toluene	92.14	2.39	375	1.31E-02	90	1.31E-03	0.239	3.14E-02	5.73E-03
Trichloroethylene	131.4	1.10	375	8.60E-03	90	8.60E-04	0.110	2.06E-02	3.77E-03

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ATTACHMENT B
IDS Tables

PERMIT POTENTIAL TO EMIT

	NO _x	ROC	CO	SO _x	PM	PM ₁₀	PM _{2.5}
lb/day		15.99					
lb/hr							
TPQ							
TPY		2.92					

FACILITY POTENTIAL TO EMIT

	NO _x	ROC	CO	SO _x	PM	PM ₁₀	PM _{2.5}
lb/day		15.99					
lb/hr							
TPQ							
TPY		2.92					

STATIONARY SOURCE POTENTIAL TO EMIT

	NO _x	ROC	CO	SO _x	PM	PM ₁₀	PM _{2.5}
lb/day		15.99					
lb/hr							
TPQ							
TPY		2.92					

Notes:

- (1) Emissions in these tables are from IDS.
- (2) Because of rounding, values in these tables shown as 0.00 are less than 0.005, but greater than zero.

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ATTACHMENT C
HRA Documentation

Santa Barbara County Air Pollution Control District
Health Risk Assessment

Owner: Mission Linen Supply
Operator: Geosyntec Consultants
Facility: 201 E. Haley St (CSC)
Permit Type: Authority to Construct Modification
Permit No: 15624-01
FID No: 03908
SSID No: 03908

1.0 SUMMARY

An air toxics Health Risk Assessment (HRA) screening was conducted by the Santa Barbara County Air Pollution Control District (District) for the contaminated soil cleanup (CSC) project located at 201 E. Haley Street in Santa Barbara. The HRA screening was conducted using the USEPA-recommended screening model, AERSCREEN, with the Hotspots Analysis and Reporting Program (HARP) software, Version 2 (Build 21081). Cancer risk and chronic, 8-hour and acute non-cancer Hazard Index (HI) risk values were calculated and compared to the significance thresholds for cancer risk and chronic, 8-hour and acute non-cancer risk adopted by the District's Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>E. Haley St CSC Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	9.8/million	≥10/million
Chronic non-cancer risk:	<0.1	>1
8-hour non-cancer risk:	<0.1	>1
Acute non-cancer risk:	<0.1	>1

Based on these results, modifications to the effluent toxic concentration limits for the CSC project at 201 E. Haley Street do not present a significant risk to the surrounding community.

2.0 BACKGROUND

Health risk assessments are completed with computer modeling for all CSC projects. The USEPA-approved dispersion model AERSCREEN was used to determine the maximum hourly and the annual average ambient air pollutant concentrations under the worst-case meteorological conditions through Lakes AERSCREEN View Version 2.7.0. After the ambient concentrations were calculated by AERSCREEN View, the concentration of each pollutant was scaled based on actual emission rates. The Risk Assessment Standalone Tool (Build 21081) of Hotspots Analysis and Reporting Program Version 2 (HARP 2) was then used to calculate a screening risk value for cancer as well as chronic, 8-hour and

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ATTACHMENT C
HRA Documentation

acute non-cancer effects. The pollutants included in the health risk assessment were chloroethane, chloroform, isopropyl alcohol, methylene chloride, perchloroethylene, toluene and trichloroethylene.

Section 8.0 of this document contains a link to more information on health risk assessments.

3.0 MODELING INFORMATION

The stack parameter inputs to AERSCREEN View are outlined in Table 3.1.

Table 3.1 – Summary of Stack Parameter Inputs

Source ID	Source Type	Release Type	Release Height (ft)	Temperature (°F)	Velocity (ft/s)	Diameter (ft)
STCK1	POINT	Vertical	14.0	ambient	21.83	0.333

The urban option was enabled, a population of 88,410 was used for Santa Barbara, and a flagpole height of 1.5 meters was used for all receptors. The AERSURFACE output file for the Santa Barbara National Guard meteorological data for the years 2012-2016 was used. The default minimum distance of 1 meter from the source to the property boundary was used. The closest residential receptor at 20 m from the source was included. The inversion break-up fumigation and shoreline fumigation options were not enabled. Building downwash and terrain effects were not included.

After the pollutant concentrations were entered into HARP 2, the cancer risk was calculated at the maximally exposed individual resident (MEIR) using the “individual resident” receptor type and the breathing rate from the “RMP using the Derived Method” for an exposure duration of 30 years. Under the inhalation pathway, the fraction of time at home (FAH) values were not applied for any age bins. The cancer risk was also calculated at the maximally exposed individual worker (MEIW) using the “worker” receptor type and the breathing rate from the “OEHHA Derived Method” for an exposure duration of 25 years. The chronic non-cancer hazard index was calculated for the MEIR using the “individual resident” receptor type and the breathing rate from the “OEHHA Derived Method.” The chronic non-cancer hazard index was also calculated for the MEIW using the “worker” receptor type and the breathing rate from the “OEHHA Derived Method.” The 8-hour chronic non-cancer hazard index was calculated only for the MEIW because the facility’s emissions were modeled on a continuous basis. The acute non-cancer hazard index was calculated at the point of maximum impact (PMI). The only exposure pathway analyzed was the inhalation pathway because none of the modeled pollutants are multipathway. A list of multipathway pollutants can be found in Table 5.1 of OEHHA’s 2015 Guidance Manual which is included in Section 3.4 of the District’s *Modeling Guidelines for Health Risk Assessments*, referenced in Section 8.0 of this document.

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ATTACHMENT C
HRA Documentation

4.0 EMISSIONS

The facility’s calculated annual and hourly emissions are shown in Table 4.1. These emissions were calculated based on a contaminated vapor flow rate of 375 scfm and carbon canister control efficiency of 90%. The maximum design flow capacity of the system is 500 scfm, but the flow has been limited to 375 scfm in the permit in order to ensure the risk results are below the District’s significant risk thresholds.

Table 4.1 –Facility Emissions Summary

Pollutant	Outlet Concentration (ppm)	Annual Emissions (lb/yr)	Hourly Emissions (lb/hr)
Chloroethane	0.953	31.97	3.65E-03
Chloroform	0.049	3.04	3.47E-04
Isopropyl alcohol	0.976	30.51	3.48E-03
Methylene chloride	0.190	8.39	9.58E-04
Perchloroethylene	0.975	84.13	9.60E-03
Toluene	0.239	11.45	1.31E-03
Trichloroethylene	0.110	7.53	8.60E-04

5.0 CALCULATIONS

Because AERSCREEN calculates maximum hourly pollutant concentrations based on a unit emission rate of 1 g/s, the resulting concentrations must be scaled based on actual emission rates before they are used to calculate cancer risks. Equation 1 below was used to calculate the maximum hourly concentrations of each emitted pollutant.

$$C_{hourly} = C_{screening,h} * \frac{E_h}{E} \tag{Eq. 1}$$

where: C_{hourly} = maximum hourly concentration of a pollutant
 $C_{screening,h}$ = maximum hourly concentration calculated by AERSCREEN
 E_h = actual maximum hourly emission rate of the pollutant
 E = unit emission rate (1 g/s)

Equation 2 below was used to calculate the average annual concentrations of each emitted pollutant. The scaling factor of 0.1 used for estimating the annual concentration comes from the USEPA’s *AERSCREEN User’s Guide*, referenced in Section 8.0 of this document.

$$C_{annual} = C_{screening,a} * \frac{E_a}{E} \tag{Eq. 2}$$

where: C_{annual} = average annual concentration of a pollutant
 $C_{screening,a}$ = average annual concentration = $C_{screening,h} * 0.1$
 E_a = actual average annual emission rate of the pollutant
 E = unit emission rate (1 g/s)

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6.0 RESULTS

Using the unit emission rate of 1 g/s, AERSCREEN predicted a maximum hourly concentration ($C_{\text{screening,h}}$) of $7081 \mu\text{g}/\text{m}^3$. The predicted annual average concentration ($C_{\text{screening,a}}$) was $519.9 \mu\text{g}/\text{m}^3$ at the MEIR, and $708.1 \mu\text{g}/\text{m}^3$ at the MEIW. Table 6.1 displays the cancer risk results at the MEIR, chronic and 8-hour non-cancer risk results at the MEIW, and the acute non-cancer risk results at the PMI. All of the calculated risk values are below the District's significance thresholds.

Table 6.1 – Summary of Screening Model Results

Pollutant	C_{annual} at MEIR ($\mu\text{g}/\text{m}^3$)	C_{annual} at MEIW ($\mu\text{g}/\text{m}^3$)	C_{hourly} at PMI ($\mu\text{g}/\text{m}^3$)	Cancer Risk at MEIR (per million)	Chronic Non-Cancer Risk at MEIW (Hazard Index)	8-Hour Non-Cancer Risk at MEIW (Hazard Index)	Acute Non-Cancer Risk at PMI (Hazard Index)
Chloroethane	0.2391	0.3256	3.256	—	—	—	—
Chloroform	0.0227	0.0310	0.310	0.298	0.0001	—	0.0021
Isopropyl alcohol	0.2281	0.3107	3.107	—	<0.0001	—	—
Methylene chloride	0.0628	0.0855	0.855	0.152	—	—	0.0010
Perchloroethylene	0.6291	0.8568	8.568	9.118	0.0245	—	0.0004
Toluene	0.0856	0.1166	1.166	—	—	0.0004	0.0002
Trichloroethylene	0.0563	0.0767	0.767	0.272	—	—	—
Total:				9.840	0.0246	0.0004	0.0037

7.0 CONCLUSION

Per District guidelines, if a facility's toxic emissions result in a cancer risk equal to or greater than 10 in a million, it is considered a *significant risk* facility. For non-cancer risk, if a facility's toxic emissions result in a Hazard Index greater than 1.0, it is considered a *significant risk* facility. The risk assessment results show that modifications to the effluent toxic concentration limits for the CSC project at 201 E. Haley Street do not present a significant risk to the surrounding community.

8.0 REFERENCES

- Risk notification levels were adopted by the Santa Barbara County Air Pollution Control Board of Directors on June 1993. The risk notification levels were set at 10 per million for cancer risk and a Hazard Index of greater than 1.0 for non-cancer risk.

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- Office of Environmental Health Hazard Assessment. February 2015. *Air Toxics Hot Spots Program: Risk Assessment Guidelines*. California Environmental Protection Agency. http://www.oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf.
- Santa Barbara County Air Pollution Control District. June 2020. *Modeling Guidelines for Health Risk Assessments*. <http://www.ourair.org/wp-content/uploads/apcd-15i.pdf>.
- USEPA. April 2021. *AERSCREEN User's Guide*. https://gaftp.epa.gov/Air/aqmg/SCRAM/models/screening/aerscreen/aerscreen_userguide.pdf.

9.0 ATTACHMENT

Source parameter data and the AERSCREEN and HARP 2 input and output files may be found in the following location:

\\sbcapcd.org\shares\Toxics\SourceFiles\CSC_Screenings\SSID_03908_201_E_Haley_St\ATC Mod 15624-01