GeoEngineers

Memorandum

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To:	Priscilla Tomlinson, Washington State Department of Ecology
From:	Garrett Leque, LG; Terry McPhetridge, LG; LHG
Date:	January 9, 2023
File:	25806-001-00
Subject:	September 2022 Slab Inspection and Vapor Intrusion Priority Monitoring: Precision Engineering, Inc. Agreed Order No. DE 18079

GeoEngineers (GeoEngineers, Inc.) prepared this memorandum to summarize results from the fifth quarterly slab inspection and vapor intrusion priority (VIP) air monitoring event conducted at the Precision Engineering, Inc., site. Activities were conducted in accordance with the Washington State Department of Ecology (Ecology)-approved VIP work plan, included as Section 7 of the document titled "Vapor Report: Vapor Intrusion Assessment, Interim Remedial Actions, Vapor Intrusion Priority Work Plan, Precision Engineering, Inc., Site."

SLAB INSPECTION

A site visit was conducted to inspect slab conditions on September 16, 2022. Slab inspection documentation includes the attached inspection form summarizing observed slab conditions, Figure 1 showing locations of slab conditions noted in the inspection form, and photographs taken during the site reconnaissance.

GeoEngineers observed the slab appeared to be in good condition overall but with localized areas of sealant wear and unsealed cracks and seams (see Figure 1). The changes in condition observed since the last slab inspection (September 20, 2021) was the presence of an unsealed, approximately 20- to 30-foot-long crack at the southeast end of the building in the equipment repair shop along with unsealed cracks approximately 2 feet to 15 feet in length in the southeast end of the building. Three additional unsealed cracks (ranging from 2 to 15 feet in length) and seams were observed in the forklift pathway and truck parking area in the storage warehouse located in the west end of the building. Minor sealant wear was observed in the forklift use area within the storage warehouse. Sealant peeling was discovered in two sections in the central and southeast corner of the building. The changes in condition observed since the last slab inspection do not appear to pose a vapor intrusion concern based on air monitoring results presented in this report. Groundwater seepage was observed in Warehouse 3 during previous investigations. However, no groundwater seepage was observed on September 16, 2022.

AIR MONITORING

Radiello 130 passive vapor samplers were deployed in three locations over a three-week period from September 16, 2022 to October 7, 2022. The three locations include the office (RAD1), the sewing room (RAD4), and Warehouse 1 (RAD5) per the VIP work plan (see attached Figure 1). The samples were analyzed for trichloroethene (TCE) by United States Environmental Protection Agency (EPA) Method TO-17. The laboratory analytical report is provided as Attachment B.

Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they met project-specific data quality objectives. A data validation memorandum summarizing data evaluation procedures, data usability, and deviations from specific field and/or laboratory methods is included as Attachment C. The data are considered acceptable for their intended use. TCE was detected in the three samples at concentrations ranging from 0.14 to 0.27 micrograms per cubic meter (µg/m^3) which are less than the Model Toxics Control Act Method B indoor air cleanup level of 0.33 µg/m^3 and less than Ecology's workplace scenario short-term action limit of 7.5 µg/m^3. TCE concentrations at the three sampling locations were the lowest observed since corrective actions were implemented at the site in April 2020. See Table 1 for a summary of the sampling results to date.

DISCUSSION AND RECOMMENDATIONS

The slab was observed to be in generally good condition, aside from the minor issues noted above. The most significant sealant wear was observed in seams (i.e., expansion joints) that extend only a few centimeters into the concrete slab. Seams do not extend through the entire slab thickness and as such, are not considered to be a vapor intrusion concern. Cracks may extend deeper into the slab. Cracks were previously sealed during the interim action in April 2020. Sealant wear observed in cracks appears to be surficial and does not appear to penetrate the entire sealed thickness, except for in areas where groundwater seepage was historically observed in Warehouse 3.

Indoor air TCE concentrations have declined since the April 2020 interim actions. Table 1 summarizes the five sampling events that have occurred since implementation of the interim actions. TCE concentrations in samples collected during the first three events were initially greater than the Model Toxics Control Act (MTCA) Method B cleanup level. TCE has been detected at concentrations less than the screening level during the past two sampling events. Therefore, the minor slab issues observed do not appear to be a concern for indoor air TCE concentrations.

GeoEngineers proposes to reduce the sampling frequency from the current quarterly basis to semi-annual sampling (twice per year) based on these results. One sampling event would be performed during the heating season (November through March) with the second event completed during the cooling season (April through October). The next sampling event would be performed in March 2023.

LIMITATIONS

We have prepared this report for the exclusive use of Dick Morgan for the Precision Engineering Site located at 1231 South Director Street, Seattle, Washington. Dick Morgan may distribute copies of this report to authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to this report.

Any electronic form, facsimile or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments should be considered a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Attachments:

Table 1. Indoor Air TCE Results

Figure 1. Slab Inspection September 16, 2022

Attachment A. Slab Inspection Form

Attachment B. Analytical Lab Report

Attachment C. Data Validation Memorandum

Attachment D. Slab Photographs

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Table 1

Indoor Air TCE Results

Precision Engineering, Inc.

Seattle, Washington

Location	Sample Identification	Sample Collection Start Date	Sample Collection End Date	Trichloroethene ($\mu g/m^3$)
RAD1	RAD1-121720	12/17/2020	1/7/2021	**0.54**
	RAD1-032221	3/22/2021	4/12/2021	**0.44**
	RAD1-062121	6/21/2021	7/12/2021	**0.42**
	RAD1-092021	9/20/2021	10/11/2021	**0.27**
	RAD1-091622	9/16/2022	10/7/2022	**0.19**
RAD4	RAD4-121720	12/17/2020	1/7/2021	**0.87**
	RAD4-032221	3/22/2021	4/12/2021	**0.95**
	RAD4-062121	6/21/2021	7/12/2021	**0.76**
	RAD4-092021	9/20/2021	10/11/2021	**0.28**
	RAD4-091622	9/16/2022	10/7/2022	**0.27**
RAD5	RAD5-121720	12/17/2020	1/7/2021	**0.77**
	RAD5-032221	3/22/2021	4/12/2021	**0.71**
	RAD5-062121	6/21/2021	7/12/2021	**0.38**
	RAD5-092021	9/20/2021	10/11/2021	**0.16**
	RAD5-091622	9/16/2022	10/7/2022	**0.14**
MTCA Method B VI CUL[(1)]				0.33
Indoor Air Action Level, Workplace Scenario[(2)]				7.5

Notes:

Each sample was collected over a three-week period, using a Radiello R130 passive indoor air sampler.

A bolded value indicates that the analyte was detected at the reported concentration.

A shaded cell indicated that the analyte was detected at a concentration greater than the MTCA Method B VI CUL

CUL = cleanup level

MTCA = Model Toxics Control Act

$\mu g/m^3$ = microgram per cubic meter

VI = vapor intrusion

Reference:

[1] Ecology Cleanup level and risk calculation data tables. Washington State Department of Ecology, Lacey, Washington

[2] Ecology Implementation Memorandum No.22 vapor intrusion investigations and short-term trichloroethene toxicity. Washington State Department of Ecology, Lacey, Washington.

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Property Parcel
- Trichloroethene Tank
- Passive Sampler
- Indoor/Ambient Air
- Sub-slab Soil Gas

Slab Inspection Areas

- Unsealed Crack and Seams[(a)]
- Minor Sealant Wear
- Sealant Peeling from Seams[(a)]

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. The slab inspection was conducted by GeoEngineers on September 16, 2022. Monitoring well locations were surveyed by True North Surveying. All other locations are approximate.
4. (a) Seams are approximately 1-centimeter deep, linear depressions in the concrete slab with a visible bottom. Seams are not anticipated to contribute to vapor intrusion.

Data Source: 2021 image from King County GIS.
Site features from Figure 2-4 Previous Sample Locations, July 9, 2021, Maul Foster Alongi.
Projection: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet

N
W E
S

50 0 50
Feet

Slab Inspection
September 16, 2022

Precision Engineering, Inc.
Seattle, Washington

GeoEngineers

Figure 1

P:\25\258060001\GIS\258060001_Project\258060001_Project.aprx\2580600100_FOX_SlabInspection_Sept2022 Date Exported: 11/17/22 by ccabrera

ATTACHMENT A
Slab Inspection Form

Slab Inspection Form

www.geoengineers.com

Date:	9/16/2022
Weather	Overcast, 57 Fahrenheit
Precipitation (Prior 24 hours):	NA
Completed By:	Katy Atakturk, LG, GeoEngineers, Inc.

General Observations:

Several changes in conditions from the previous inspection conducted on September 20, 2021 were observed. The presence of an unsealed, approximately 20 to 30-foot-long crack at the southeast end of the building in the equipment repair shop along with unsealed cracks approximately 2-15 feet in length in the southeast end of the building (see attached site plan). Three additional unsealed cracks and seams were discovered to be 2 to 15 feet in length in the forklift pathway and truck parking area in the storage warehouse located on the west end of the building. Minor sealant wear was discovered in the forklift in the storage warehouse. Sealant peeling was discovered in two 2-10 feet sections in the central and southeast corner of the building.

The evaporator pit cap appears to be in good condition.

Specific Observations:

In Warehouse 1, several unsealed cracks and seams were observed on the southeast end of the warehouse in the equipment repair shop along with unsealed drain and drill holes. There is minimal cracking or flaking of sealant.

In Warehouse 2, no significant changes from the previous inspection were observed. A few areas continue to show minor sealant wear and sealant peeling from seams, but these appear to be surficial. Areas with the heaviest forklift traffic have the most obvious sealant wear, and in some cases, sealant is no longer present (see the attached figure).

In Warehouse 3, several unsealed cracks and seams were observed along with minor sealant wear. Most significant wear has been observed in this area and this area receives the heaviest forklift traffic, this area should continue to be monitored (see the attached figure).

Evaporator Pit Cap:

The former evaporator pit was backfilled with compacted gravel and capped with concrete on April 13, 2020. The cap is currently in good condition.

The former evaporator pit is currently covered with heavy equipment, but the exposed areas appear to be intact, with no visible damage to the concrete.

No settling or bulging was observed.

ATTACHMENT B
Analytical Lab Report

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10/20/2022
Ms. Katy Atakturk
GeoEngineers, Inc.
2101 4th Ave Suite 950

Seattle WA 98121

Project Name: Precision Engines
Project #: 25806-001-00
Workorder #: 2210221

Dear Ms. Katy Atakturk

The following report includes the data for the above referenced project for sample(s) received on 10/11/2022 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Passive S.E. RAD130/SKC are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Monica Tran at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Monica Tran

Project Manager

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WORK ORDER #: 2210221

Work Order Summary

CLIENT:	Ms. Katy Atakturk GeoEngineers, Inc. 2101 4th Ave Suite 950 Seattle, WA 98121	**BILL TO:**	CORP Accounts Payables GeoEngineers, Inc. 8410 154th Avenue NE Redmond, WA 98052
PHONE:	206-728-2674	**P.O. #**	
FAX:	206-728-2732	**PROJECT #**	25806-001-00 Precision Engines
DATE RECEIVED:	10/11/2022	**CONTACT:**	Monica Tran
DATE COMPLETED:	10/20/2022		

FRACTION #	NAME	TEST
01A	RAD4-100722	Passive S.E. RAD130/SKC
02A	RAD1-100722	Passive S.E. RAD130/SKC
03A	RAD5-100722	Passive S.E. RAD130/SKC
04A	Lab Blank	Passive S.E. RAD130/SKC
05A	CCV	Passive S.E. RAD130/SKC
06A	LCS	Passive S.E. RAD130/SKC
06AA	LCSD	Passive S.E. RAD130/SKC

CERTIFIED BY: Heidi Hayes DATE: 10/20/22

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209221, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-21-17, UT NELAP – CA009332021-13, VA NELAP - 10615, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-015, Effective date: 10/18/2021, Expiration date: 10/17/2022.
Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
RAD130 Passive SE by Mod EPA TO-17
GeoEngineers, Inc.
Workorder# 2210221

Three Radiello 130 (Solvent) samples were received on October 11, 2022. The laboratory analyzed the charcoal sorbent bed of the passive sampler following modified method EPA TO-17. The VOCs were chemically extracted using carbon disulfide and an aliquot of the extract was injected into a GC/MS for identification and quantification of volatile organic compounds (VOCs).

The mass of each target compound adsorbed by the sampler was converted to units of concentration using the sample deployment time and the sampling rate for each VOC. If sampling rates were calculated by the lab or the manufacturer, the concentration result has been flagged as an estimated value. Results are not corrected for desorption efficiency.

The reference method used for this procedure is EPA TO-17, which describes the collection of VOCs in ambient air using sorbents and analysis by GC/MS. Because TO-17 describes active sample collection using a pump and thermal desorption as the preparation step, several modifications are required. Modifications to TO-17 are listed in the table below:

Requirement	***TO-17***	***ATL Modifications***
Sample Collection	Pump pulls measured air volume through sorbent tube	VOCs in air adsorbed onto sorbent bed passively through diffusion
Sample Preparation	Thermal extraction	Solvent extraction
Sorbent tube conditioning	Condition newly packed tubes prior to use	Charcoal-based sorbent is a single use media and conditioning is conducted by vendor.
Instrumentation	Thermal desorption introduction system	Liquid injection introduction system
Internal Standard	Gas-phase internal standard introduced on the tube or focusing trap during analysis	Liquid-phase internal standard introduced on the tube at the time of extraction
Media and sample storage	<4 deg C, 30 days	Media shelf life is determined by vendor; sample hold-time is 6 months for the RAD130 and WMS. Sample preservation requirements are storage in a cool, solvent-free refrigerator and optional use of ice during shipping.
Internal Standard Recovery	+/-40% of daily CCV area	-50% to +100% of daily CCV area

Receiving Notes

The Chain of Custody (COC) was not relinquished properly. A time was not provided by the field sampler.

Analytical Notes

The uptake rates were corrected based on average field temperatures if provided. In the absence of

field temperatures, the uptake rates determined at 25 deg C were used.

To calculate ug/m3 concentrations in the Lab Blank, a sampling duration of 30165 minutes was applied. The assumed temperature used for the uptake rate is listed on the data page. If the field temperatures were provided, the rate was adjusted in the same manner as the field samples.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

C - Estimated concentration due to calculated sampling rate

CN - See case narrative explanation.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
VOCS BY PASSIVE SAMPLER - GC/MS

Client Sample ID: RAD4-100722

Lab ID#: 2210221-01A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Trichloroethene	0.10	0.048	0.56	0.27

Client Sample ID: RAD1-100722

Lab ID#: 2210221-02A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Trichloroethene	0.10	0.048	0.40	0.19

Client Sample ID: RAD5-100722

Lab ID#: 2210221-03A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Trichloroethene	0.10	0.048	0.29	0.14

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Client Sample ID: RAD4-100722

Lab ID#: 2210221-01A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**c101223sim**	**Date of Collection: 10/7/22 9:15:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/22 06:18 PM**	
		Date of Extraction: 10/12/22	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Trichloroethene	0.10	0.048	0.56	0.27

Temperature = 77.0F , duration time = 30165 minutes.
Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130

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Client Sample ID: RAD1-100722

Lab ID#: 2210221-02A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**c101224sim**	**Date of Collection: 10/7/22 9:30:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/22 06:44 PM**	
		Date of Extraction: 10/12/22	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Trichloroethene	0.10	0.048	0.40	0.19

Temperature = 77.0F , duration time = 30150 minutes.
Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130

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Client Sample ID: RAD5-100722

Lab ID#: 2210221-03A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**c101225sim**	**Date of Collection: 10/7/22 9:00:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/22 07:11 PM**	
		Date of Extraction: 10/12/22	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Trichloroethene	0.10	0.048	0.29	0.14

Temperature = 77.0F , duration time = 30090 minutes.
Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130

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Client Sample ID: Lab Blank

Lab ID#: 2210221-04A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**c101205sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/22 10:00 AM**	
		Date of Extraction: 10/12/22	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Trichloroethene	0.10	0.048	Not Detected	Not Detected

Temperature = 77.0F , duration time = 30165 minutes.
Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130

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Client Sample ID: CCV

Lab ID#: 2210221-05A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**c101202sim**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/22 08:33 AM**
		Date of Extraction: NA

Compound	%Recovery
Trichloroethene	104

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130

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Client Sample ID: LCS

Lab ID#: 2210221-06A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**c101203sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/22 09:06 AM**	
		Date of Extraction: 10/12/22	

Compound	%Recovery	Method Limits
Trichloroethene	92	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130

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Client Sample ID: LCSD

Lab ID#: 2210221-06AA

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**c101204sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/22 09:32 AM**	
		Date of Extraction: 10/12/22	

Compound	%Recovery	Method Limits
Trichloroethene	90	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130

ATTACHMENT C
Data Validation Memorandum

GeoEngineers

1101 Fawcett Avenue, Suite 200, Tacoma, Washington 98402, Telephone: 253.383.4940, Fax: 253.383.4923 www.geoengineers.com

Data Validation Report

Project: Dick Morgan – Precision Engineering Remedial Investigation
October 2022 Radiello Air Samples

GEI File No: 25806-001-00

Date: November 16, 2022

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A data validation (USEPA Document 540-R-08-005; USEPA 2009) of analytical data from the analyses of air samples collected as part of the October 2022 sampling event, and the associated laboratory quality control (QC) samples. The samples were obtained from the Precision Engineering site located at 1231 S Director Street in Seattle, Washington.

OBJECTIVE AND QUALITY CONTROL ELEMENTS

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review (USEPA, 2020) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide detection and reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

The data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times
- Surrogate Recoveries
- Method Blanks
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Continuing Calibrations (CCALs)

VALIDATED SAMPLE DELIVERY GROUPS

This data validation summary included review of the sample delivery group (SDG) listed below in Table 1.

TABLE 1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory SDG	Samples Validated
2210221	RAD1-100722, RAD4-100722, RAD5-100722

CHEMICAL ANALYSIS PERFORMED

Eurofins Air Toxics, Inc. (Eurofins) located in Folsom, California, performed laboratory analysis on the air samples using the following method:

- Volatile Organic Compounds (VOCs) by GC/MS collected on Charcoal-based Passive Samplers

DATA VALIDATION SUMMARY

The results for each of the QC elements are summarized below.

DATA PACKAGE COMPLETENESS

Eurofins analyzed the air samples evaluated as part of this data validation. The laboratory provided the required deliverables for the data validation. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the case narrative.

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COC documentation parameters were met.

Holding Times

The holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection.

Established holding times were met for the requested analyses.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added to the samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added at a known concentration and percent recoveries are calculated following analysis.

The surrogate recoveries for field samples were within the laboratory control limits.

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. Method blanks were analyzed with each batch of

samples, at a frequency of 1 per 20 samples. None of the analytes of interest were detected above the reporting limits in the method blanks.

Laboratory Control Samples/Laboratory Control Sample Duplicates

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. As there is no actual sample matrix (such as soil or groundwater) in the analysis, the analytical expectations for accuracy and precision are usually more rigorous and qualification would apply to the samples in the batch, instead of the parent sample only.

Laboratory control sample analyses should be performed once per analytical batch or every 20 field samples, whichever is more frequent. The recovery criteria for laboratory control samples are specified in the laboratory documents, as are the relative percent difference (RPD) control limits for LCS/LCSD sample sets.

The frequency requirements were met for each analysis, and the percent recovery and RPD values were within the proper control limits.

Continuing Calibrations (CCALs)

The continuing calibrations were conducted according to the laboratory methods and consisted of the appropriate number of standards. The percent difference (%D) and relative response factors (RRF) were within the internal laboratory control limits, or the control limits stated in the National Functional Guidelines (USEPA 2020).

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate and LCS/LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD values.

No analytical results were qualified. The data are acceptable for the intended use.

REFERENCES

U.S. Environmental Protection Agency (USEPA). 2009. "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (USEPA). 2020. "Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review," EPA-540-R-201-005. November 2020.

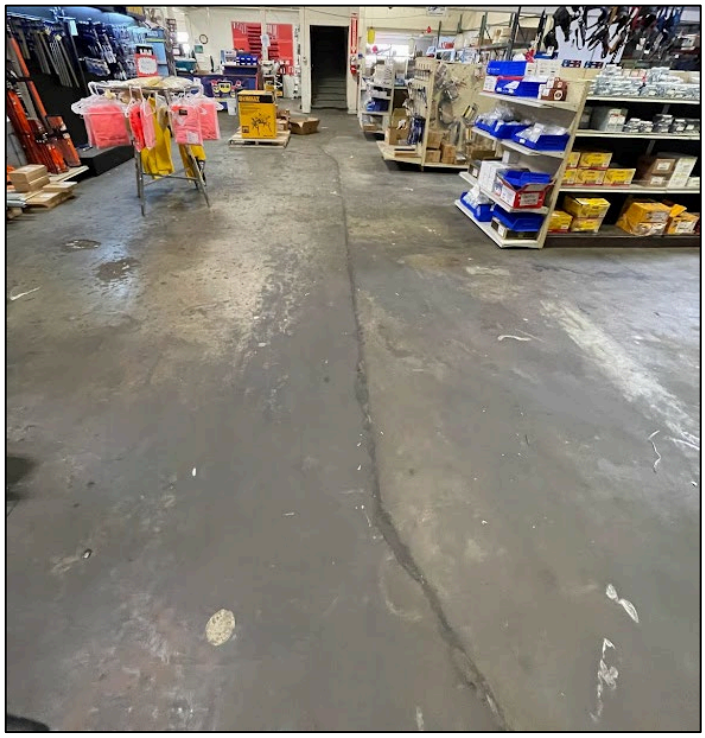
ATTACHMENT D
Slab Photographs

Area 1 (looking south) in the Equipment Repair Shop with unsealed cracks and seams

Area 1 (looking north) in the Equipment Repair Shop with unsealed cracks and seams

Area 2 unsealed drain and drill holes

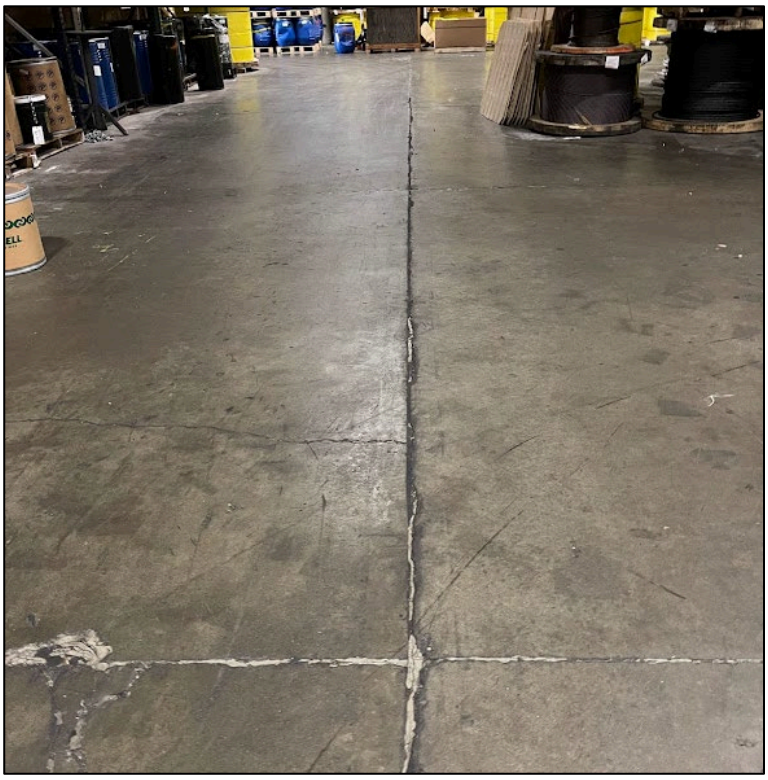
Area 3 unsealed cracks



Area 4 sealant peeling from seams

Area 5 containing hazardous materials locker and sealant peeling from seams

Central warehouse area showing minor sealant wear



Area 6 showing unsealed cracks and minor sealant wear

Area 7 showing unsealed cracks and seams

Area 8 showing minor sealant wear

Area 9 showing sealant peeling from seams and unsealed drill holes

Area 9 showing unsealed cracks

Evaporator pit sealed in April 2020 with heavy equipment stored on top

Exposed edge to evaporator pit showing seals covered in metal shavings and no cracks