

9 March 2023

Shawn Holdridge, CCM
Cook Inlet Housing Authority
3510 Spenard Road, Suite 100
Anchorage, AK 99503
sholdridge@cookinlethousing.org

**Subject: 2023 Annual Report for Long-Term Performance Monitoring of Vapor
Intrusion Mitigation
Ridgeline Terrace Apartments
Anchorage, Alaska
ADEC File Number: 2100.38.569**

Dear Mr. Holdridge:

Geosyntec Consultants (Geosyntec) has prepared this report to document performance of the vapor intrusion mitigation systems (VIMS) at the Ridgeline Terrace Apartments located at 185 Ridgeline Loop in Anchorage, Alaska (Figure 1). This report has been prepared in accordance with the long-term performance monitoring requirements contained in Geosyntec's Vapor Intrusion Summary Report (February 2022). Performance monitoring of the VIMS includes:

- Documentation and resolution of the alarms and notifications from the VIMS;
- Periodic checks;
- Verification sampling; and
- Contingency plans and actions should the objectives of the performance monitoring not be met.

This report covers the time from February 2022 through February 2023.

ALARMS AND NOTIFICATIONS

No VIMS-related alarms were triggered and CIHA personnel received no notifications of VIMS performance issues during the reporting period of February 2022 through February 2023.

PERIODIC CHECKS

Weekly checks of the VIMS in Buildings 106, 138, 146, and 152 continued during 2022 and 2023. CIHA personnel noted vacuum readings. Attachment A contains the weekly vacuum readings for each VIMS.

During other routine building maintenance and inspections, CIHA personnel have not reported issues or abnormalities regarding the structural integrity (e.g., new foundation cracks, damage to utilities) of the buildings or individual apartments. No natural disasters or significant events have occurred to prompt further inspection of the VIMS.

VERIFICATION SAMPLING

2023 Plan

On 13 January 2023, Geosyntec deployed five passive air samplers in two apartment units. On 3 February 2023, Geosyntec deployed eight passive air samplers in three apartment units and two outdoor locations. Additionally, two VIMS effluent samples were collected on 6 February 2023. Sampling locations were as follows:

1. Unit 106A – kitchen (main floor); garage and garage duplicate (first floor)
2. Unit 146A – kitchen (main floor); garage (first floor); fresh air vent (outdoor sample)
3. Unit 146B – kitchen (main floor); garage (first floor)
4. Unit 138A – kitchen (main floor); living room (main floor); fresh air vent (outdoor sample)
5. Unit 138B – kitchen and kitchen duplicate (main floor)
6. Effluent sample from Building 138 VIMS
7. Effluent sample from Building 146 VIMS

The quantity and location of these samples were in accordance with the long-term performance monitoring requirements contained in Geosyntec’s Vapor Intrusion Summary Report (February 2022). Units 138B and 146B were unoccupied at the time of sampling, while units 106A, 138A, and 146A were occupied.

The passive air samplers deployed on 13 January were retrieved after being deployed for 96 hours, and the passive air samplers deployed on 3 February were retrieved after being deployed for 72 hours. The samplers were shipped to Eurofins Air Toxics LLC for analysis of trichloroethene (TCE), tetrachloroethene (PCE), 1,1-dichloroethene (DCE), cis-1,2-DCE (cDCE), and trans-1,1,-DCE (tDCE) by modified method TO-17.

None of the analyzed compounds were detected in the passive air samples from the apartment buildings or outdoor locations. Laboratory reporting limits for each compound were less than indoor air residential target levels. Table 1 presents the analytical results for the indoor and outdoor air samples. Figure 2 displays the results and includes cumulative data for the apartments sampled in 2023 from pre-mitigation investigation and post-mitigation confirmation.

Table 1 – Passive Sampling Analytical Results

Unit	Apartment	Location	Date	PCE µg/m ³	TCE µg/m ³	1,1-DCE µg/m ³	cDCE µg/m ³	tDCE µg/m ³
106	A	2nd Floor (Main)	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.37)	ND (0.77)
		1st Floor (Garage)	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.37)	ND (0.77)
		1st Floor (Garage) - Duplicate	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.37)	ND (0.77)
146	A	Outdoor Fresh 80 Vent	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.37)	ND (0.77)
		2nd Floor (Main)	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.37)	ND (0.77)
		1st Floor (Garage)	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.55)	ND (0.77)
	B	2nd Floor (Main)	Jan-23	ND (0.3)	ND (0.25)	ND (0.92)	ND (0.28)	ND (0.58)
		1st Floor (Garage)	Jan-23	ND (0.3)	ND (0.25)	ND (0.92)	ND (0.28)	ND (0.58)
138	A	Outdoor Fresh 80 Vent	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.37)	ND (0.77)
		Main Floor	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.37)	ND (0.77)
	B	Main Floor	Jan-23	ND (0.3)	ND (0.25)	ND (0.92)	ND (0.28)	ND (0.58)
		Main Floor - Duplicate	Jan-23	ND (0.3)	ND (0.25)	ND (0.92)	ND (0.28)	ND (0.58)
Outdoor Air		North side of Building 146	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.37)	ND (0.77)
		North side of Building 138	Feb-23	ND (0.39)	ND (0.34)	ND (1.2)	ND (0.37)	ND (0.77)
Indoor Air Target Levels				41	2.0	79	NA	790

Key:

- Concentration exceeds target level
- 1,1-DCE - 1,1-Dichloroethene
- cDCE - cis-1,2-dichloroethylene
- µg/m³ - micrograms per cubic meter
- NA - not available
- ND - not detected (reporting limit)
- PCE - tetrachloroethene
- TCE - trichloroethene
- tDCE - trans-1,2-dichloroethylene

The VIMS effluent samples from Building 138 and 146 had elevated concentrations of TCE, although TCE concentrations have decreased significantly since July 2021 when the VIMS were installed: 81 percent for Building 138 and 75 percent for Building 146. Table 2 presents the current and previous analytical results for the VIMS effluent samples.

Table 2 – Effluent Sampling Analytical Results

Unit	Location	Date	PCE µg/m ³	TCE µg/m ³	1,1-DCE µg/m ³	cDCE µg/m ³	tDCE µg/m ³
138	VIMS Effluent sample	Jul-21	ND (74)	13000	ND (43)	ND (43)	ND (43)
	VIMS Effluent sample	Feb-22	48	6700	ND (18)	35	ND (18)
	VIMS Effluent sample	Feb-23	ND (10)	2500	ND (5.9)	10	ND (5.9)
146	VIMS Effluent sample	Jul-21	ND (67)	15000	ND (39)	48	ND (38)
	VIMS Effluent sample	Feb-22	ND (21)	4100	ND (12)	ND (12)	ND (12)
	VIMS Effluent sample	Feb-23	ND (14)	3700	ND (8.3)	ND (8.3)	ND (8.3)

Key:
 1,1-DCE - 1,1-Dichloroethene
 cDCE - cis-1,2-dichloroethylene
 µg/m³ - micrograms per cubic meter
 PCE - tetrachloroethene
 TCE - trichloroethene
 tDCE - trans-1,2-dichloroethylene
 VIMS - vapor intrusion mitigation systems

CONTINGENCY ACTIVITIES

Unit 106A was sampled in February 2023 to further monitor TCE concentrations in response to a detection above the ADEC residential target level in the garage in February 2022. In February 2023, TCE was not detected in unit 106A and therefore no additional sampling is required because sampling unit 106A was not part of the original verification sampling plan for early 2024.

RECOMMENDATIONS

Continuation of the long-term performance monitoring requirements contained in the Geosyntec’s Vapor Intrusion Summary Report (February 2022) is recommended to confirm that the VIMS continue to effectively mitigate the vapor intrusion pathway. Annual verification sampling will take place again in early 2024, consisting of two units from both Buildings 138 and 146, outdoor air samples at the Fresh 80 vents for Buildings 138 and 146, and VIMS effluent samples for Buildings 138 and 146. An annual report will be prepared after verification sampling. As noted above, unit 106A is not part of the verification sampling plan in 2024 because TCE was not detected in the apartment in 2023 and unit 106A was not part of the original verification sampling plan for early 2024.

No contingency activities are required during 2023 since no alarms/notifications, periodic checks, or verification sampling identified potential VIMS performance issues between February 2022 and February 2023. Should alarms/notifications or periodic checks identify potential performance concerns during the course of 2023, CIHA will contact ADEC to discuss and address deficiencies.

CLOSURE

The execution and reporting of the long-term performance monitoring of the VIMS at Ridgeline Terrace Apartments was performed by the undersigned qualified environmental professionals, as defined in 18 AAC 75.333.

Sincerely,



Cole Richards
Project Manager



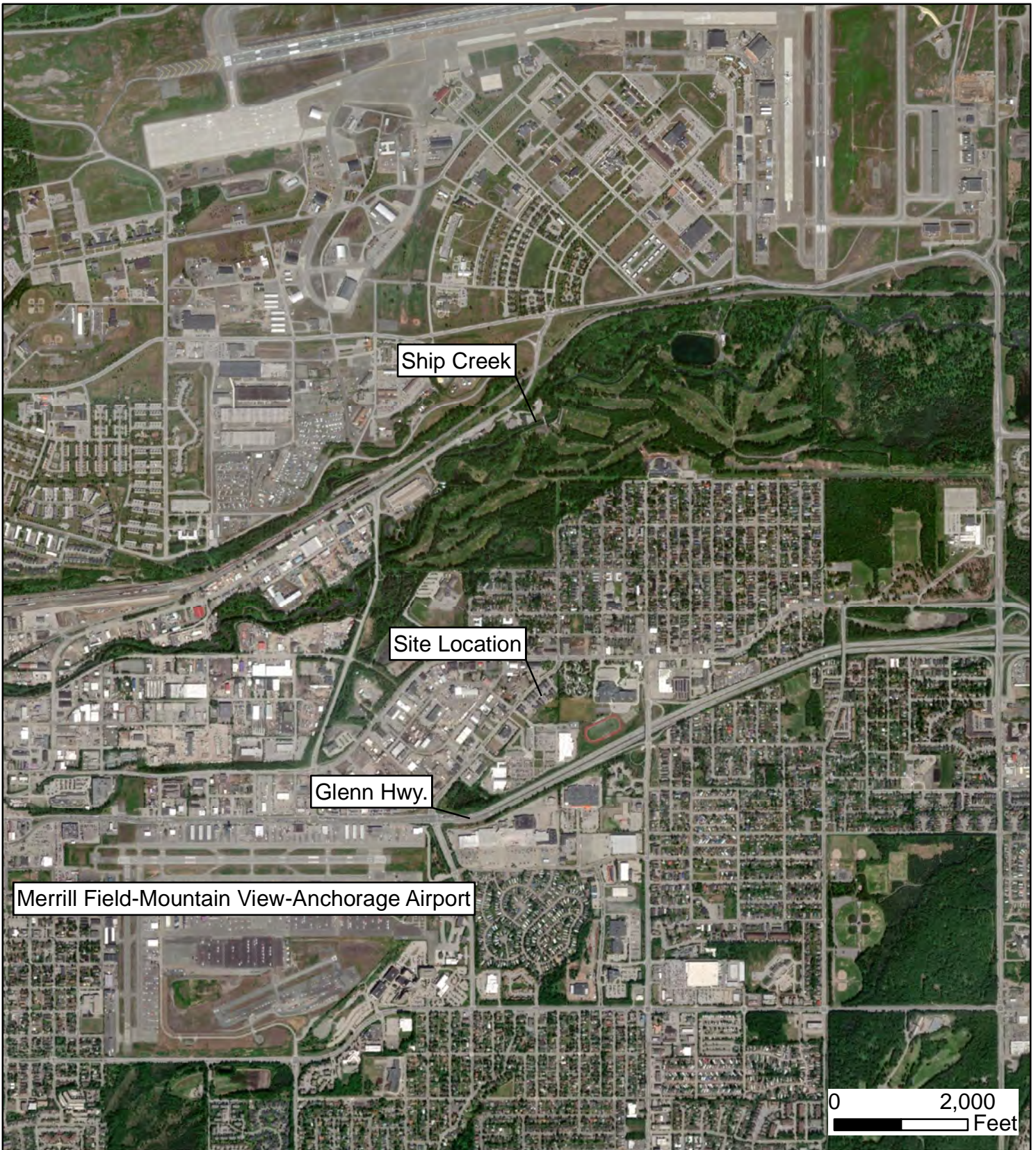
Ben Martich
Principal

cc: Mark Fineman, CIHA
Chelsea Arthur, ACAH
Michael Singleton, AHFC

Attachments

- Figures
- A – VIMS Exhaust Fan Checklist
- B – Field Notes
- C – Photo Log
- D – Laboratory Analytical Reports
- E – Data Quality Checklists

Figures



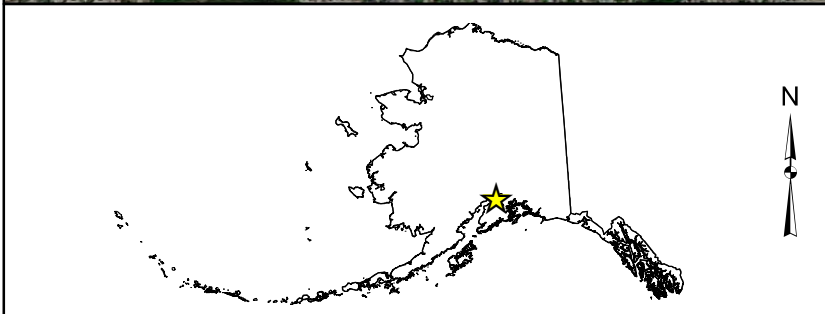
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Ship Creek

Site Location

Glenn Hwy.

0 2,000 Feet



Site Location

Ridgeline Terrace
Anchorage, Alaska

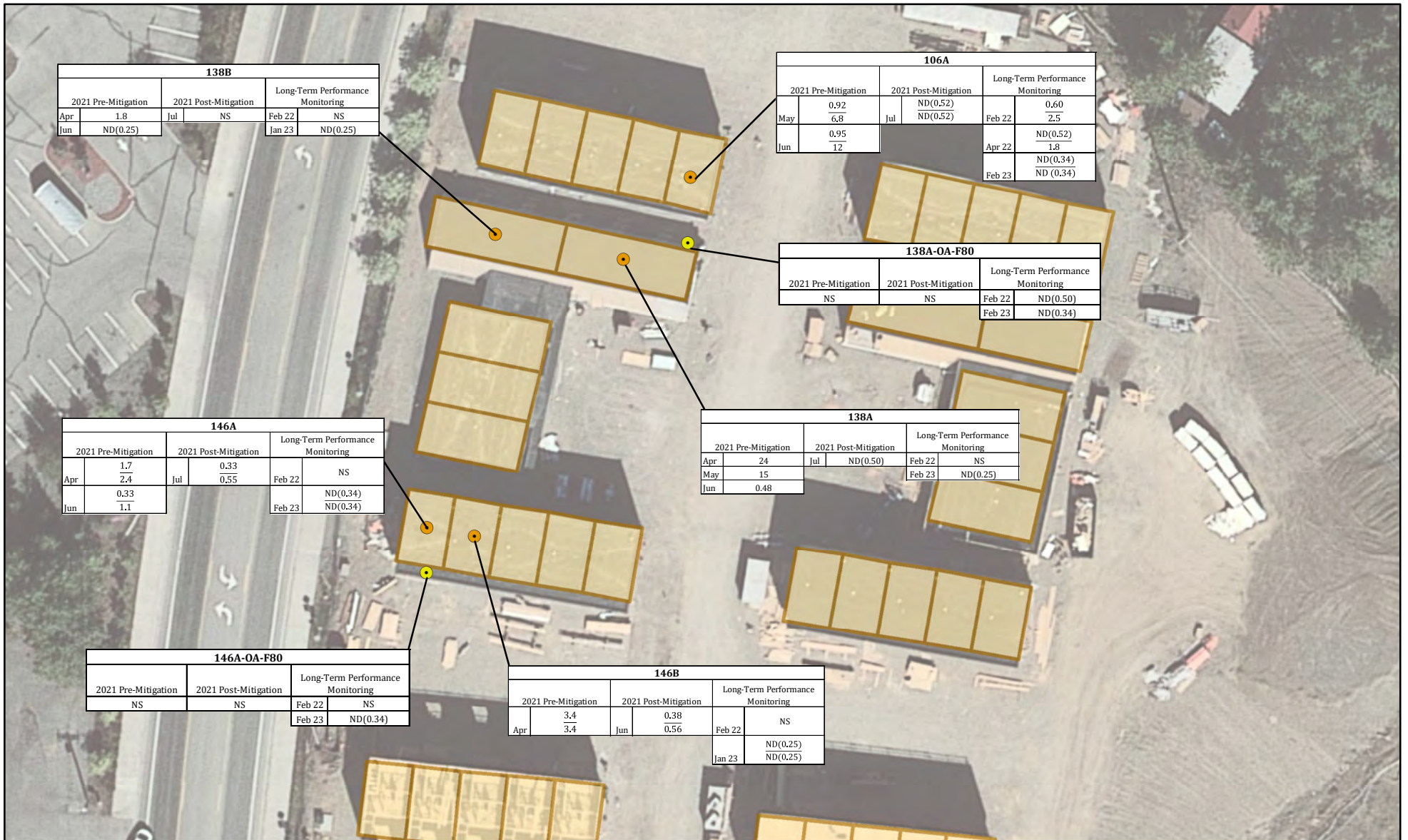
Geosyntec
consultants

Figure

1

PNG0946

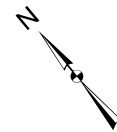
February 2023



- Legend**
- Indoor Air Sample
 - Outdoor Air Sample
 - ▭ Building Outline

Notes:
 ND - Not Detected
 NS - Not Sampled
 TCE - Trichloroethene
 Results in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).
 The 138 units are single story structures. The 146 and 152 units are triple story structures with the first floor being a garage and the second floor consisting of a kitchen and living area.
 "F-80" samples were collect at a fresh 80 air intake of the building.

Apartment Number	
Sample collection time relative to mitigation system installation	
Month	Second floor TCE concentration ($\frac{\mu\text{g}}{\text{m}^3}$) First floor TCE concentration ($\frac{\mu\text{g}}{\text{m}^3}$)



2023 Long-Term Performance Monitoring TCE Concentrations	
Ridgeline Terrace Anchorage, Alaska	
Geosyntec consultants	
Anchorage	March 2023
Figure 2	

Attachment A

VIMS Exhaust Fan Checklist

Exhaust Fan Checklist

Date (From - To) 4/21/22 - 1/12/23	Bldg: 106
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Directions: Note the date (e.g. 6/23/21) and time of service, initial who is doing the service, pressure of the magnehelic gauge and write out any notes for this particular fan (e.g. was the fan off, how much water was drained, was the alarm activated, is the magnehelic gauge working, etc.). **** These forms are required to be submitted to the Maintenance Supervisor once completed.**

Date	Time	Initials	Pressure	Notes
4/21/2022	9:25am	DR	0.75	No water drained
4/28/2022	9:45am	DR	0.75	No water drained
5/4/2022	10:40am	DR	0.75	No water drained
5/12/2022	9:55am	DR	0.75	No water drained
5/19/2022	1:15pm	DR	0.75	No water drained
5/26/2022	10:10am	DR	0.75	No water drained
6/1/2022	9:15am	DR	0.75	No water drained
6/8/2022	2:25pm	DR	0.75	No water drained
6/16/2022	1:15pm	DR	0.75	No water drained
6/22/2022	2:25pm	DR	0.75	No water drained
6/30/2022	9:25am	DR	0.75	No water drained
7/6/2022	9:00am	DR	0.75	No water drained
7/13/2022	2:55pm	DR	0.75	No water drained
7/21/2022	1:30pm	DR	0.75	No water drained
7/27/2022	3:15pm	DR	0.75	No water drained
8/4/2022	9:30am	DR	0.75	No water drained
8/10/2022	2:10pm	DR	0.75	No water drained
8/15/2022	9:45am	DR	0.75	No water drained
8/21/2022	11:20am	DR	0.7	No water drained
8/30/2022	10:15am	DR	0.75	No water drained
9/8/2022	11:20am	DR	0.75	No water drained
9/14/2022	4:40pm	DR	0.75	No water drained
9/21/2022	9:10am	DR	0.75	No water drained
9/28/2022	10:15am	DR	0.75	No water drained
10/5/2022	1:45pm	DR	0.75	No water drained
10/12/2022	2:30pm	DM	0.75	No water drained
10/19/2022	2:25pm	DM	0.75	No water drained
10/25/2022	2:35pm	DM	0.75	No water drained
10/30/2022	9:15am	DM	0.75	No water drained
11/7/2022	3:00pm	DM	0.75	No water drained
11/14/2022	12:00pm	DM	0.7	No water drained
11/21/2022	12:30pm	DM	0.73	No water drained

Exhaust Fan Checklist

Date (From - To) 4/21/22 - 1/12/23	Bldg: 138
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Directions: Note the date (e.g. 6/23/21) and time of service, initial who is doing the service, pressure of the magnehelic gauge and write out any notes for this particular fan (e.g. was the fan off, how much water was drained, was the alarm activated, is the magnehelic gauge working, etc.). **** These forms are required to be submitted to the Maintenance Supervisor once completed.**

Date	Time	Initials	Pressure	Notes
4/21/2022	9:30am	DR	4.5	No water drained
4/28/2022	9:35am	DR	4.5	No water drained
5/4/2022	10:55am	DR	4.5	No water drained
5/12/2022	9:58am	DR	4.5	No water drained
5/19/2022	1:25pm	DR	4.5	No water drained
5/26/2022	10:20am	DR	4.5	No water drained
6/1/2022	9:40am	DR	4.5	No water drained
6/8/2022	2:32pm	DR	4.5	No water drained
6/16/2022	1:30pm	DR	4.5	No water drained
6/22/2022	2:40pm	DR	4.5	No water drained
6/30/2022	9:30am	DR	4.5	No water drained
7/6/2022	8:45am	DR	4.5	No water drained
7/13/2022	3:10pm	DR	4.5	No water drained
7/21/2022	1:45pm	DR	4.5	No water drained
7/27/2022	3:30pm	DR	4.5	No water drained
8/4/2022	9:45am	DR	4.5	No water drained
8/10/2022	2:35pm	DR	4.5	No water drained
8/15/2022	9:15am	DR	4.5	No water drained
8/21/2022	10:45am	DR	4.4	No water drained
8/30/2022	9:15am	DR	4.5	No water drained
9/8/2022	10:15am	DR	4.4	No water drained
9/14/2022	4:30pm	DR	4.4	No water drained
9/21/2022	9:15am	DR	4.5	No water drained
9/28/2022	10:25am	DR	4.5	No water drained
10/5/2022	2:00pm	DR	4.5	No water drained
10/12/2022	2:40pm	DM	4.7	No water drained
10/19/2022	2:00pm	DM	4.7	No water drained
10/25/2022	2:00pm	DM	4.7	No water drained
10/30/2022	9:00am	DM	4.9	No water drained
11/7/2022	3:15pm	DM	4.5	No water drained
11/14/2022	3:00pm	DM	4.7	No water drained
11/21/2022	12:15pm	DM	4.5	No water drained

Exhaust Fan Checklist

Date (From - To) 4/21/22 - 1/12/23	Bldg: 146
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Directions: Note the date (e.g. 6/23/21) and time of service, initial who is doing the service, pressure of the magnehelic gauge and write out any notes for this particular fan (e.g. was the fan off, how much water was drained, was the alarm activated, is the magnehelic gauge working, etc.). **** These forms are required to be submitted to the Maintenance Supervisor once completed.**

Date	Time	Initials	Pressure	Notes
4/21/2022	9:15am	DR	5	No water drained
4/28/2022	9:30am	DR	5	No water drained
5/4/2022	10:20am	DR	5	No water drained
5/12/2022	9:45am	DR	4.9	No water drained
5/19/2022	1:00pm	DR	5.1	No water drained
5/26/2022	10:00am	DR	5	No water drained
6/1/2022	9:05am	DR	5	No water drained
6/8/2022	9:13am	DR	5	No water drained
6/16/2022	1:00pm	DR	5	No water drained
6/22/2022	2:00pm	DR	5	No water drained
6/30/2022	9:15am	DR	5	No water drained
7/6/2022	9:25am	DR	5.1	No water drained
7/13/2022	2:45pm	DR	5.1	No water drained
7/21/2022	1:20pm	DR	5	No water drained
7/27/2022	3:00pm	DR	5	No water drained
8/4/2022	9:05am	DR	5	No water drained
8/10/2022	2:00pm	DR	5	No water drained
8/15/2022	10:15am	DR	5.1	No water drained
8/21/2022	10:35am	DR	5	No water drained
8/30/2022	10:45am	DR	5	No water drained
9/8/2022	9:00am	DR	5	No water drained
9/14/2022	4:50pm	DR	5	No water drained
9/21/2022	9:25am	DR	5	No water drained
9/28/2022	10:45am	DR	5	No water drained
10/5/2022	2:15pm	DR	5	No water drained
10/12/2022	2:45pm	DM	4.9	No water drained
10/19/2022	3:45pm	DM	5	No water drained
10/25/2022	3:45pm	DM	5	No water drained
10/30/2022	9:05am	DM	4.9	No water drained
11/7/2022	3:05pm	DM	5	No water drained
11/14/2022	12:15pm	DM	4.8	No water drained
11/21/2022	12:00pm	DM	4.7	No water drained

Exhaust Fan Checklist

Date (From - To) 4/21/22 - 1/12/23			Bldg: 152	
Directions: Note the date (e.g. 6/23/21) and time of service, initial who is doing the service, pressure of the magnehelic gauge and write out any notes for this particular fan (e.g. was the fan off, how much water was drained, was the alarm activated, is the magnehelic gauge working, etc.). ** These forms are required to be submitted to the Maintenance Supervisor once completed.				
Date	Time	Initials	Pressure	Notes
4/21/2022	9:40am	DR	0.9	No water drained
4/28/2022	9:20am	DR	0.9	No water drained
5/4/2022	10:30am	DR	0.9	No water drained
5/12/2022	10:10am	DR	0.9	No water drained
5/19/2022	1:35pm	DR	0.9	No water drained
5/26/2022	10:30am	DR	0.9	No water drained
6/1/2022	9:30am	DR	0.9	No water drained
6/8/2022	2:15pm	DR	0.9	No water drained
6/16/2022	1:20pm	DR	0.9	No water drained
6/22/2022	2:15pm	DR	0.9	No water drained
6/30/2022	9:40am	DR	0.9	No water drained
7/6/2022	9:15am	DR	0.9	No water drained
7/13/2022	3:00pm	DR	0.9	No water drained
7/21/2022	1:35pm	DR	0.9	No water drained
7/27/2022	3:20pm	DR	0.9	No water drained
8/4/2022	9:15am	DR	0.9	No water drained
8/10/2022	2:20pm	DR	0.9	No water drained
8/15/2022	10:00am	DR	0.9	No water drained
8/21/2022	11:10am	DR	0.95	No water drained
8/30/2022	10:30am	DR	0.9	No water drained
9/8/2022	11:00am	DR	0.9	No water drained
9/14/2022	4:20pm	DR	0.9	No water drained
9/21/2022	9:35am	DR	0.9	No water drained
9/28/2022	10:35am	DR	0.9	No water drained
10/5/2022	1:50pm	DR	0.9	No water drained
10/12/2022	2:15pm	DM	0.9	No water drained
10/19/2022	2:10pm	DM	0.9	No water drained
10/25/2022	2:20pm	DM	0.9	No water drained
10/30/2022	9:25am	DM	0.9	No water drained
11/7/2022	2:55pm	DM	0.92	No water drained
11/14/2022	12:05pm	DM	0.91	No water drained
11/21/2022	1:00pm	DM	0.9	No water drained

Attachment B

Field Notes

PNG 0937 RTA

4/6/22

1125 Cole Richards (Geosyntec) onsite with Shawn

1130 collect ~~LQ300~~ CR LQ300
from LOGA kitchen1137 collect LQ301 from
LOGA garage1140 collect LQ302 from
LOGA garage

1150 Geosyntec offsite

Shawn
 Richards
 4/6/22

Scale: 1 square = _____

PNG 0937

RTA

1/13/23

0950 Richards arrives at
at RTA site for passive
air sample for long term
performance monitoring.1000 meet with Shawn Haldrup
and enter vacant unit

138 B

1005 set out kitchen sample
LQ303 Sample ID

23-RTA-13-01-01-IA

clipped to kitchen hood.

1010 set out duplicate kitchen

sample LQ304 Sample ID

[23-RTA-13-01-01-IA]

clipped to kitchen hood. wrote
time as 1035.1012 Shawn confirms that
there has not been problems
with VIMS, alarms or anything
else. will get us the logs
for reporting.1015 Deploy kitchen sample upstairs
unit vacant 146 B. Clipped to
light above island. LQ305

Sample ID 23-RTA-02-01-01-IA

Scale: 1 square = _____

Richards

PNG0937 RTA

1/13/23

1017 Deploy Garage Sample

clipped to garage door opener

sample LQ306. Sample ID 23-RTA-02-02-01-IA

1029 Sample LQ308 Sample ID

~~23-RTA-02-02-01-IA~~ (C)

is being used as a blank,
time marked 1000 ID=23-RTA-01-18

1030 Richards and Holdridge
leave eight.

[Large handwritten signature]
1/13/23

Scale: 1 square = _____

PNG0937

RTA

1/17/23

0920 Richards onsite to
retrieve samples.

0931 retrieve LQ303 and
LQ304 → mark LQ304
as lost time. from 1380

0937 retrieve kitchen 46B
sample LQ305

1002 retrieve garage 46B
sample LQ306

1005 Richards and Holdridge
off site

[Large handwritten signature]
1/17/23
Rite in the Rain

Scale: 1 square = _____

PNG-0937 RTA 2/3/2023

Scope of work for remaining LTPM sampling
 of Summa canister samples from VIMS at 146 and 138.

- passive 138 A 1
 - 138 fresh 80 1
 - passive 146 A garage/kitchen 2
 - 146 fresh 80 1
 - 106A passive garage/kitchen 2
 - dup 1
 - trip blank 1
- 9
total

Take field photos.
 0946 Richards onsite with client Sean Wolitzke
 1000 decide with Sean to push Summa canister sampling for money 2/6/23 because snow build up has prevented access to VIMS

1005 138A deploy RD730 on outside [23-RTA-79-01-01-AA]

1100 deploy RD731 in 138A on [23-RTA-14-01-01-AA] bottles in living room

PNG-0937 RTA 2/3/2023

1012 Deploy LQ309 146A kitchen island [23-RTA-01-01-01-IA]

1014 Deploy RD732 146A garage [23-RTA-01-02-01-IA]

1019 Deploy QY261 106A kitchen island [23-RTA-30-01-01-IA]

1027 Deploy ~~QY259, QY260~~ in 106A garage [23-RTA-30-02-01-IA]

1029 Deploy dup ~~QY260~~ in 106A garage. [23-RTA-94-01-01-IA]

Tenant notes, all same stuff is in garage as last year.

Mark dup time as 1052
 1049 Deploy QY264 on Fresh 80 outside vent of 146A [23-RTA-81-01-01-IA]
 1045 Richards offsite.

~~2/3/23~~

24 PNG 0937 RTA

2/6/2023

0945 Richards arrives on site to collect passive samples from 2/3/2023 and summa canister samples from VIMS.

955 Holdridge (CIBA) onsite, retrieving ladder for sample collection.

1001 Retrieve RD730 from outdoor Fresh 80 138A.

1005 Retrieve RD732 from 146A garage

1007 Retrieve LQ309 from 146A kitchen island.

1012 Retrieve RD731 from 13A living room blind

1019 Retrieve QY261 from 100A kitchen island.

1021 Retrieve QY260 from 106A garage

1022 Retrieve dep QY259 from 106A garage mark time

1052 Retrieve QY264 from outside fresh 80 unit 146A

End 2/6/23

Scale: 1 square =

PN0937 RTA

2/6/2023

1034 remove cover of VIMS. prepare to sample summa canister at building 138

canister: serial # A70022 flow 23588

Starts at 30 in mercury, end at 55 in mercury time 10:45 to 10:50 Sample ID [23-RTA-138-01-SG]

1055 remove cover of VIMS 146

canister N7009 flow # 24029

Starts 29 in mercury end 65 in mercury

Start time: 11:07 [sample ID 23-RTA-146-01-SG] end time: 11:12

1115 Holdridge mentions that there have been no alarms since last year (2022) Long term perf, monitoring sample event, even with a very wet fall season.

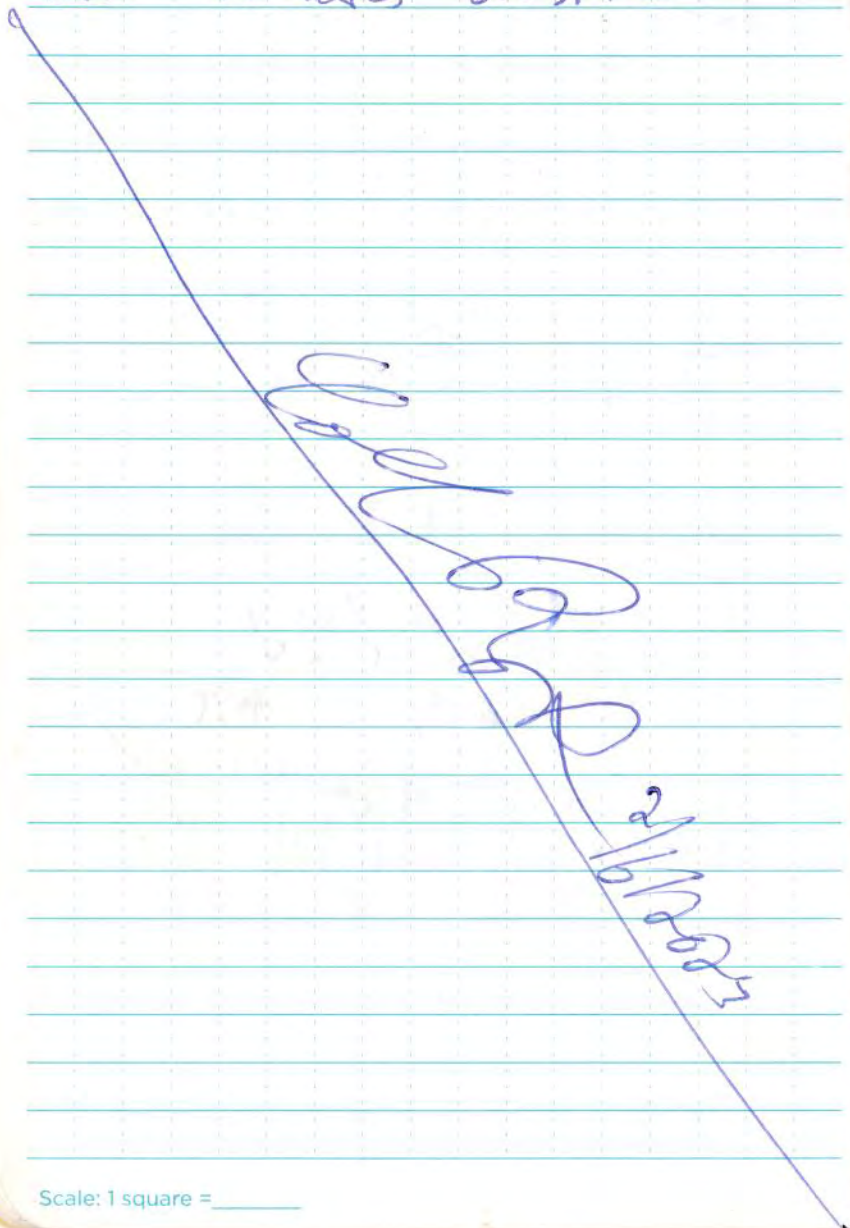
End 2/6/23

Scale: 1 square =

PNG 0937 RTA

2/6/2023

1125 Richards offsite



Scale: 1 square = _____

Scale: 1 square = _____

Attachment C

Photo Log



Photo 1: Indoor air sample on the second story (main floor) of unit 146B Date: 1/13/2023



Photo 2: Outdoor air sample taken in vicinity of Fresh 80 vent on unit 138A. Date: 2/3/2023

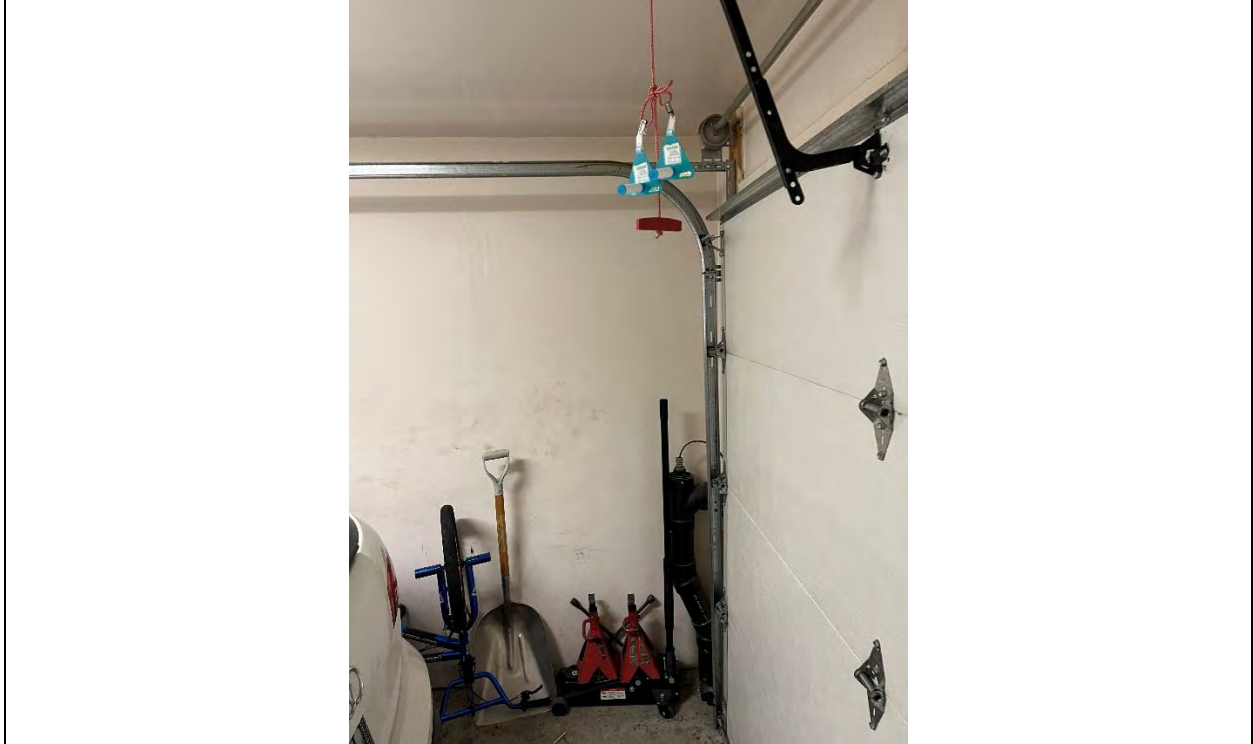


Photo 3: Indoor air sample and duplicate in garage of unit 106A. Date: 2/3/2023

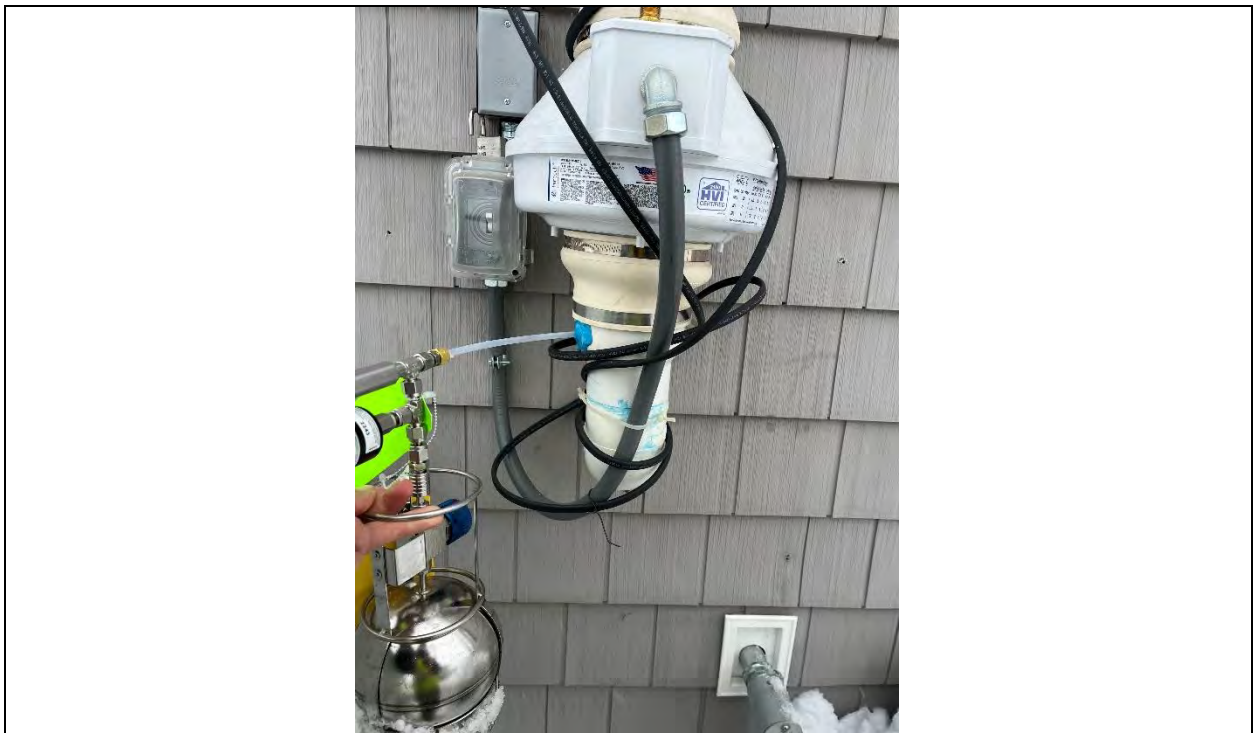


Photo 4: Effluent air sample from VIMS of Building 138. Date: 2/6/2023



Photo 5: VIMS exiting Building 146 after protective box casing was removed in preparation for sampling. Date: 2/6/2022

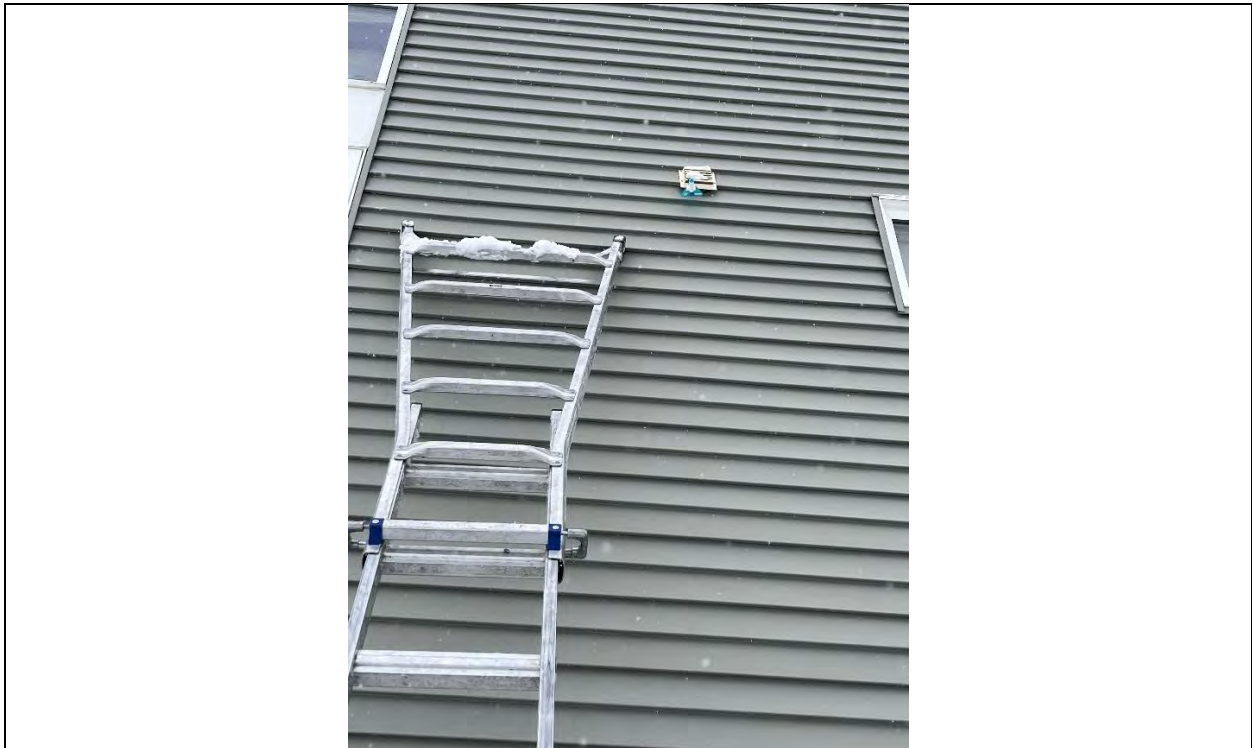


Photo 6. Outdoor air sample taken in vicinity of Fresh 80 vent on unit 146A. Date: 2/3/2023

Attachment D

Laboratory Analytical Reports

1/27/2023

Mr. Shawn Holdridge
Cook Inlet Housing Authority
3510 Spenard Road
Suite 100
Anchorage AK 99503

Project Name: Ridgeline Terrace

Project #:

Workorder #: 2301300

Dear Mr. Shawn Holdridge

The following report includes the data for the above referenced project for sample(s) received on 1/19/2023 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

WORK ORDER #: 2301300

Work Order Summary

CLIENT:	Mr. Shawn Holdridge Cook Inlet Housing Authority 3510 Spenard Road Suite 100 Anchorage, AK 99503	BILL TO:	Accounts Payable Cook Inlet Housing Authority 3510 Spenard Road Suite 100 Anchorage, AK 99503
PHONE:	907-793-3036	P.O. #	PO020964
FAX:		PROJECT #	Ridgeline Terrace
DATE RECEIVED:	01/19/2023	CONTACT:	Monica Tran
DATE COMPLETED:	01/27/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
01A	23-RTA-13-01-01-IA	Passive S.E. RAD130/SKC
02A	23-RTA-93-01-01-IA	Passive S.E. RAD130/SKC
03A	23-RTA-02-01-01-IA	Passive S.E. RAD130/SKC
04A	23-RTA-02-02-01-IA	Passive S.E. RAD130/SKC
05A	23-RTA-01-TB	Passive S.E. RAD130/SKC
06A	Lab Blank	Passive S.E. RAD130/SKC
07A	CCV	Passive S.E. RAD130/SKC
08A	LCS	Passive S.E. RAD130/SKC
08AA	LCSD	Passive S.E. RAD130/SKC

CERTIFIED BY: 

 Technical Director

DATE: 01/27/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-017, Effective date: 10/18/2022, Expiration date: 10/17/2023.

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
Cook Inlet Housing Authority
Workorder# 2301300**

Five Radiello 130 (Solvent) samples were received on January 19, 2023. 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:

<i>Requirement</i>	<i>TO-17</i>	<i>ATL Modifications</i>
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

There were no receiving discrepancies.

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.

If validated uptake rates were not available, rates were estimated using the chemical's diffusion coefficient in air and the geometric constant of the sampler. Chemicals that are poorly retained by the sorbent over the sampling duration may exhibit a low bias. All concentrations calculated using estimated rates are qualified with a "C" flag.

To calculate ug/m³ concentrations in the Lab Blank, a sampling duration of 5760 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

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

Client Sample ID: 23-RTA-13-01-01-IA

Lab ID#: 2301300-01A

No Detections Were Found.

Client Sample ID: 23-RTA-93-01-01-IA

Lab ID#: 2301300-02A

No Detections Were Found.

Client Sample ID: 23-RTA-02-01-01-IA

Lab ID#: 2301300-03A

No Detections Were Found.

Client Sample ID: 23-RTA-02-02-01-IA

Lab ID#: 2301300-04A

No Detections Were Found.

Client Sample ID: 23-RTA-01-TB

Lab ID#: 2301300-05A

No Detections Were Found.



Air Toxics

Client Sample ID: 23-RTA-13-01-01-IA

Lab ID#: 2301300-01A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c012422sim	Date of Collection:	1/17/23 9:31:00 AM
Dil. Factor:	1.00	Date of Analysis:	1/24/23 03:51 PM
		Date of Extraction:	1/24/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	0.92	Not Detected C	Not Detected C
Trichloroethene	0.10	0.25	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.58	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.28	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.30	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 5726 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130



Air Toxics

Client Sample ID: 23-RTA-93-01-01-IA

Lab ID#: 2301300-02A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c012423sim	Date of Collection:	1/17/23 10:01:00 AM
Dil. Factor:	1.00	Date of Analysis:	1/24/23 04:18 PM
		Date of Extraction:	1/24/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	0.92	Not Detected C	Not Detected C
Trichloroethene	0.10	0.25	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.58	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.28	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.30	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 5726 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130



Air Toxics

Client Sample ID: 23-RTA-02-01-01-IA

Lab ID#: 2301300-03A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c012424sim	Date of Collection:	1/17/23 9:37:00 AM
Dil. Factor:	1.00	Date of Analysis:	1/24/23 04:45 PM
		Date of Extraction:	1/24/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	0.92	Not Detected C	Not Detected C
Trichloroethene	0.10	0.25	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.58	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.28	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.30	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 5722 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130



Client Sample ID: 23-RTA-02-02-01-IA

Lab ID#: 2301300-04A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c012425sim	Date of Collection:	1/17/23 10:02:00 AM
Dil. Factor:	1.00	Date of Analysis:	1/24/23 05:13 PM
		Date of Extraction:	1/24/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	0.92	Not Detected C	Not Detected C
Trichloroethene	0.10	0.25	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.58	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.28	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.30	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 5745 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	109	70-130



Air Toxics

Client Sample ID: 23-RTA-01-TB

Lab ID#: 2301300-05A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c012426sim	Date of Collection:	1/17/23 10:00:00 AM
Dil. Factor:	1.00	Date of Analysis:	1/24/23 05:40 PM
		Date of Extraction:	1/24/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	0.91	Not Detected C	Not Detected C
Trichloroethene	0.10	0.25	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.58	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.28	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.29	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 5760 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2301300-06A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c012406sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/24/23 08:36 AM
		Date of Extraction:	1/24/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	0.91	Not Detected C	Not Detected C
Trichloroethene	0.10	0.25	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.58	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.28	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.29	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 5760 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2301300-07A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c012402sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/24/23 06:52 AM
		Date of Extraction:	NA

Compound	%Recovery
1,1-Dichloroethene	109
Trichloroethene	91
trans-1,2-Dichloroethene	104
cis-1,2-Dichloroethene	99
Tetrachloroethene	87

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 2301300-08A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c012404sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/24/23 07:44 AM
		Date of Extraction:	1/24/23

Compound	%Recovery	Method Limits
1,1-Dichloroethene	89	70-130
Trichloroethene	84	70-130
trans-1,2-Dichloroethene	89	70-130
cis-1,2-Dichloroethene	86	70-130
Tetrachloroethene	81	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2301300-08AA

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c012405sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/24/23 08:10 AM
		Date of Extraction:	1/24/23

Compound	%Recovery	Method Limits
1,1-Dichloroethene	97	70-130
Trichloroethene	85	70-130
trans-1,2-Dichloroethene	94	70-130
cis-1,2-Dichloroethene	89	70-130
Tetrachloroethene	81	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	109	70-130

2/22/2023

Mr. Shawn Holdridge
Cook Inlet Housing Authority
3510 Spenard Road
Suite 100
Anchorage AK 99503

Project Name: Ridgeline Terrace

Project #:

Workorder #: 2302194

Dear Mr. Shawn Holdridge

The following report includes the data for the above referenced project for sample(s) received on 2/9/2023 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

WORK ORDER #: 2302194

Work Order Summary

CLIENT:	Mr. Shawn Holdridge Cook Inlet Housing Authority 3510 Spenard Road Suite 100 Anchorage, AK 99503	BILL TO:	Accounts Payable Cook Inlet Housing Authority 3510 Spenard Road Suite 100 Anchorage, AK 99503
PHONE:	907-793-3036	P.O. #	PO020964
FAX:		PROJECT #	Ridgeline Terrace
DATE RECEIVED:	02/09/2023	CONTACT:	Monica Tran
DATE COMPLETED:	02/22/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
01A	23-RTA-79-01-01AA	Passive S.E. RAD130/SKC
02A	23-RTA-14-01-01-IA	Passive S.E. RAD130/SKC
03A	23-RTA-01-01-01-IA	Passive S.E. RAD130/SKC
04A	23-RTA-01-02-01-IA	Passive S.E. RAD130/SKC
05A	23-RTA-94-01-01-IA	Passive S.E. RAD130/SKC
06A	23-RTA-30-02-01-IA	Passive S.E. RAD130/SKC
07A	23-RTA-02-TB	Passive S.E. RAD130/SKC
08A	23-RTA-30-01-01-IA	Passive S.E. RAD130/SKC
09A	23-RTA-81-01-01-AA	Passive S.E. RAD130/SKC
10A	Lab Blank	Passive S.E. RAD130/SKC
11A	CCV	Passive S.E. RAD130/SKC
12A	LCS	Passive S.E. RAD130/SKC
12AA	LCSD	Passive S.E. RAD130/SKC

CERTIFIED BY:  DATE: 02/22/23

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-017, Effective date: 10/18/2022, Expiration date: 10/17/2023.

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
Cook Inlet Housing Authority
Workorder# 2302194

Nine Radiello 130 (Solvent) samples were received on February 09, 2023. 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:

<i>Requirement</i>	<i>TO-17</i>	<i>ATL Modifications</i>
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

A revised Chain of Custody (COC) was provided by the client on 2/8/2023.

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.

If validated uptake rates were not available, rates were estimated using the chemical's diffusion coefficient in air and the geometric constant of the sampler. Chemicals that are poorly retained by the sorbent over the sampling duration may exhibit a low bias. All concentrations calculated using estimated rates are qualified with a "C" flag.

To calculate ug/m³ concentrations in the Lab Blank, a sampling duration of 4322 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

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

Client Sample ID: 23-RTA-79-01-01AA

Lab ID#: 2302194-01A

No Detections Were Found.

Client Sample ID: 23-RTA-14-01-01-IA

Lab ID#: 2302194-02A

No Detections Were Found.

Client Sample ID: 23-RTA-01-01-01-IA

Lab ID#: 2302194-03A

No Detections Were Found.

Client Sample ID: 23-RTA-01-02-01-IA

Lab ID#: 2302194-04A

No Detections Were Found.

Client Sample ID: 23-RTA-94-01-01-IA

Lab ID#: 2302194-05A

No Detections Were Found.

Client Sample ID: 23-RTA-30-02-01-IA

Lab ID#: 2302194-06A

No Detections Were Found.

Client Sample ID: 23-RTA-02-TB

Lab ID#: 2302194-07A

No Detections Were Found.

Client Sample ID: 23-RTA-30-01-01-IA

Lab ID#: 2302194-08A

No Detections Were Found.

Client Sample ID: 23-RTA-81-01-01-AA

Lab ID#: 2302194-09A

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

Client Sample ID: 23-RTA-81-01-01-AA

Lab ID#: 2302194-09A

No Detections Were Found.



Air Toxics

Client Sample ID: 23-RTA-79-01-01AA

Lab ID#: 2302194-01A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022121sim	Date of Collection:	2/6/23 10:01:00 AM
Dil. Factor:	1.00	Date of Analysis:	2/21/23 03:37 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4316 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130



Air Toxics

Client Sample ID: 23-RTA-14-01-01-IA

Lab ID#: 2302194-02A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022122sim	Date of Collection:	2/6/23 10:12:00 AM
Dil. Factor:	1.00	Date of Analysis:	2/21/23 04:05 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4322 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130



Air Toxics

Client Sample ID: 23-RTA-01-01-01-IA

Lab ID#: 2302194-03A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022123sim	Date of Collection:	2/6/23 10:07:00 AM
Dil. Factor:	1.00	Date of Analysis:	2/21/23 04:33 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4315 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130

Client Sample ID: 23-RTA-01-02-01-IA

Lab ID#: 2302194-04A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022124sim	Date of Collection:	2/6/23 10:05:00 AM
Dil. Factor:	1.00	Date of Analysis:	2/21/23 05:00 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4311 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130



Air Toxics

Client Sample ID: 23-RTA-94-01-01-IA

Lab ID#: 2302194-05A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022125sim	Date of Collection:	2/6/23 10:52:00 AM
Dil. Factor:	1.00	Date of Analysis:	2/21/23 05:27 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4320 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130



Air Toxics

Client Sample ID: 23-RTA-30-02-01-IA

Lab ID#: 2302194-06A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022126sim	Date of Collection:	2/6/23 10:21:00 AM
Dil. Factor:	1.00	Date of Analysis:	2/21/23 05:55 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4319 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130



Air Toxics

Client Sample ID: 23-RTA-02-TB

Lab ID#: 2302194-07A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022127sim	Date of Collection:	2/6/23 9:00:00 AM
Dil. Factor:	1.00	Date of Analysis:	2/21/23 06:22 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4320 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130



Air Toxics

Client Sample ID: 23-RTA-30-01-01-IA

Lab ID#: 2302194-08A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022128sim	Date of Collection:	2/6/23 10:19:00 AM
Dil. Factor:	1.00	Date of Analysis:	2/21/23 06:49 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4320 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130



Air Toxics

Client Sample ID: 23-RTA-81-01-01-AA

Lab ID#: 2302194-09A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022129sim	Date of Collection:	2/6/23 10:29:00 AM
Dil. Factor:	1.00	Date of Analysis:	2/21/23 07:17 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4309 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130



Client Sample ID: Lab Blank

Lab ID#: 2302194-10A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022120sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/21/23 03:10 PM
		Date of Extraction:	2/21/23

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
1,1-Dichloroethene	0.40	1.2	Not Detected C	Not Detected C
Trichloroethene	0.10	0.34	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.20	0.77	Not Detected C	Not Detected C
cis-1,2-Dichloroethene	0.10	0.37	Not Detected C	Not Detected C
Tetrachloroethene	0.10	0.39	Not Detected	Not Detected

C = Estimated concentration due to calculated sampling rate.

Temperature = 77.0F , duration time = 4322 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2302194-11A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022117sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/21/23 01:47 PM
		Date of Extraction:	NA

Compound	%Recovery
1,1-Dichloroethene	96
Trichloroethene	96
trans-1,2-Dichloroethene	96
cis-1,2-Dichloroethene	94
Tetrachloroethene	98

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	91	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 2302194-12A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022118sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/21/23 02:14 PM
		Date of Extraction:	2/21/23

Compound	%Recovery	Method Limits
1,1-Dichloroethene	101	70-130
Trichloroethene	91	70-130
trans-1,2-Dichloroethene	97	70-130
cis-1,2-Dichloroethene	97	70-130
Tetrachloroethene	92	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2302194-12AA

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	c022119sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/21/23 02:42 PM
		Date of Extraction:	2/21/23

Compound	%Recovery	Method Limits
1,1-Dichloroethene	93	70-130
Trichloroethene	89	70-130
trans-1,2-Dichloroethene	91	70-130
cis-1,2-Dichloroethene	91	70-130
Tetrachloroethene	91	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130

2/21/2023

Mr. Shawn Holdridge
Cook Inlet Housing Authority
3510 Spenard Road
Suite 100
Anchorage AK 99503

Project Name: Ridgeline Terrace

Project #:

Workorder #: 2302291

Dear Mr. Shawn Holdridge

The following report includes the data for the above referenced project for sample(s) received on 2/8/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 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

WORK ORDER #: 2302291

Work Order Summary

CLIENT:	Mr. Shawn Holdridge Cook Inlet Housing Authority 3510 Spenard Road Suite 100 Anchorage, AK 99503	BILL TO:	Accounts Payable Cook Inlet Housing Authority 3510 Spenard Road Suite 100 Anchorage, AK 99503
PHONE:	907-793-3036	P.O. #	PO020964
FAX:		PROJECT #	Ridgeline Terrace
DATE RECEIVED:	02/08/2023	CONTACT:	Monica Tran
DATE COMPLETED:	02/21/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	23-RTA-138-01-SG	TO-15	4.7 "Hg	9.9 psi
02A	23-RTA-146-01-SG	TO-15	5.9 "Hg	9.9 psi
03A	Lab Blank	TO-15	NA	NA
04A	CCV	TO-15	NA	NA
05A	LCS	TO-15	NA	NA
05AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 02/21/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-017, Effective date: 10/18/2022, Expiration date: 10/17/2023.

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
EPA Method TO-15
Cook Inlet Housing Authority
Workorder# 2302291

Two 1 Liter Summa Canister samples were received on February 08, 2023. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

Sample identification for samples 23-RTA-138-01-SG and 23-RTA-146-01-SG were not provided on the sample tags. Therefore the information on the Chain of Custody was used to process and report the sample.

Analytical Notes

Dilution was performed on samples 23-RTA-138-01-SG and 23-RTA-146-01-SG due to the presence of high level target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates 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, LOD, or MDL value. See data page for project specific U-flag definition.

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

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

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

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: 23-RTA-138-01-SG

Lab ID#: 2302291-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.5	2.5	5.9	10
Trichloroethene	1.5	470	8.0	2500

Client Sample ID: 23-RTA-146-01-SG

Lab ID#: 2302291-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	2.1	680	11	3700



Air Toxics

Client Sample ID: 23-RTA-138-01-SG

Lab ID#: 2302291-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j021616	Date of Collection:	2/6/23 10:50:00 AM
Dil. Factor:	2.98	Date of Analysis:	2/16/23 07:48 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	1.5	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.5	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	1.5	2.5	5.9	10
Trichloroethene	1.5	470	8.0	2500
Tetrachloroethene	1.5	Not Detected	10	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: 23-RTA-146-01-SG

Lab ID#: 2302291-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j021617	Date of Collection:	2/6/23 11:12:00 AM
Dil. Factor:	4.17	Date of Analysis:	2/16/23 08:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	2.1	Not Detected	8.3	Not Detected
trans-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
cis-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
Trichloroethene	2.1	680	11	3700
Tetrachloroethene	2.1	Not Detected	14	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	110	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2302291-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j021607a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/16/23 12:40 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2302291-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j021603	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/16/23 09:32 AM

Compound	%Recovery
1,1-Dichloroethene	94
trans-1,2-Dichloroethene	101
cis-1,2-Dichloroethene	106
Trichloroethene	98
Tetrachloroethene	97

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 2302291-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j021604	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/16/23 10:04 AM

Compound	%Recovery	Method Limits
1,1-Dichloroethene	93	70-130
trans-1,2-Dichloroethene	101	70-130
cis-1,2-Dichloroethene	102	70-130
Trichloroethene	96	70-130
Tetrachloroethene	95	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2302291-05AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j021605	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/16/23 10:35 AM

Compound	%Recovery	Method Limits
1,1-Dichloroethene	96	70-130
trans-1,2-Dichloroethene	101	70-130
cis-1,2-Dichloroethene	105	70-130
Trichloroethene	97	70-130
Tetrachloroethene	96	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	102	70-130

Attachment E

Data Quality Checklists

Laboratory Data Review Checklist for Air Samples

Completed By:

Amani Royce

Title:

Senior Staff Scientist

Date:

2/28/2023

Consultant Firm:

Geosyntec Consultants

Laboratory Name:

Eurofins Air Toxics, LLC. Folsom, CA

Laboratory Report Number:

2302194

Laboratory Report Date:

2/22/2023

CS Site Name:

Ridgeline Terrace

ADEC File Number:

2100.38.569

Hazard Identification Number:

4145

2302194

Laboratory Report Date:

2/22/2023

CS Site Name:

Ridgeline Terrace

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No N/A Comments:

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No N/A Comments:

The samples were not transferred to another laboratory for analysis.

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes No N/A Comments:

A revised COC was submitted to the laboratory on 8 February 2023 to add samples 23-RTA-30-01-01-IA and 23-RTA-81-01-01-AA.

Incorrect error corrections were observed on the COC forms, instead of the proper procedure of a single strike through, correction, and initials and date of person making the corrections.

b. Correct analyses requested?

Yes No N/A Comments:

3. Laboratory Sample Receipt Documentation

a. Sample condition documented - Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

Yes No N/A Comments:

2302194

Laboratory Report Date:

2/22/2023

CS Site Name:

Ridgeline Terrace

b. If there were discrepancies, were they documented? For example, incorrect sample containers, insufficient or missing samples, canister not holding a vacuum etc.?

Yes No N/A Comments:

No discrepancies were documented.

c. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes No N/A Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes No N/A Comments:

No discrepancies, errors, or QC failures were identified by the laboratory

c. Were all corrective actions documented?

Yes No N/A Comments:

No corrective actions were documented.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The case narrative did not indicate that data quality/usability were affected.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No N/A Comments:

2302194

Laboratory Report Date:

2/22/2023

CS Site Name:

Ridgeline Terrace

b. All applicable holding times met?

Yes No N/A Comments:

c. Are the reported LOQs less than the target level or screening level for the project, as defined in the approved work plan?

Yes No N/A Comments:

Approved work plan not applicable. The reporting limits were less than ADEC indoor air target levels.

d. Data quality or usability affected?

Data quality and usability were not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes No N/A Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

The samples were not affected by the method blank results.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Laboratory flags were not applied to the data based on the method blank results.

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Laboratory Report Date:

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Ridgeline Terrace

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes No N/A Comments:

iii. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable?

Yes No N/A Comments:

RPDs were not reported in the laboratory report for the LCS/LCSD pair. Calculated RPDs were less than the method specific limits.

iv. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

The samples were not affected by the LCS/LCSD results.

v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Laboratory flags were not applied to the data based on the LCS/LCSD results.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability were not affected.

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Laboratory Report Date:

2/22/2023

CS Site Name:

Ridgeline Terrace

c. Surrogates – VOCs only

i. Are surrogate recoveries reported for VOC analyses – field, QC and laboratory samples?

Yes No N/A Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes No N/A Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Laboratory flags were not applied to the data based on the surrogate results.

iv. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

d. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No N/A Comments:

One field duplicate pair was submitted with the sample set:
• 23-RTA-30-02-01-IA/23-RTA-94-01-01-IA

ii. Submitted blind to lab?

Yes No N/A Comments:

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iii. Precision – All relative percent differences (RPD) less than specified project objectives?
(Recommended: 30% air)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

Yes No N/A Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and usability were not affected.

e. Field Blank (If not applicable, a comment stating why must be entered below)?

Yes No N/A Comments:

Trip blank 23-RTA-02-TB was submitted with the sample set.

i. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

The samples were not affected by the trip blank results.

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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Laboratory Report Date:

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CS Site Name:

Ridgeline Terrace

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No N/A Comments:

The laboratory applied C flags to indicate the results were estimated due to the calculated sampling rate. Based on professional and technical judgement, no qualifications were applied to the data.

Additionally, the laboratory applied ND flags in the laboratory report to indicate the results were not detected at the RLs. The ND flags were updated to U flags in the electronic data deliverable (EDD) for consistency with validation qualifier standards.

Laboratory Data Review Checklist for Air Samples

Completed By:

Amani Royce

Title:

Senior Staff Scientist

Date:

2/28/2023

Consultant Firm:

Geosyntec Consultants

Laboratory Name:

Eurofins Air Toxics, LLC. Folsom, CA

Laboratory Report Number:

2301300

Laboratory Report Date:

1/27/2023

CS Site Name:

Ridgeline Terrace

ADEC File Number:

2100.38.569

Hazard Identification Number:

4145

2301300

Laboratory Report Date:

1/27/2023

CS Site Name:

Ridgeline Terrace

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No N/A Comments:

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No N/A Comments:

The samples were not transferred to another laboratory for analysis.

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes No N/A Comments:

b. Correct analyses requested?

Yes No N/A Comments:

3. Laboratory Sample Receipt Documentation

a. Sample condition documented - Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

Yes No N/A Comments:

b. If there were discrepancies, were they documented? For example, incorrect sample containers, insufficient or missing samples, canister not holding a vacuum etc.?

Yes No N/A Comments:

No discrepancies were documented.

2301300

Laboratory Report Date:

1/27/2023

CS Site Name:

Ridgeline Terrace

c. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes No N/A Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes No N/A Comments:

No discrepancies, errors, or QC failures were identified by the laboratory

c. Were all corrective actions documented?

Yes No N/A Comments:

No corrective actions were documented.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The case narrative did not indicate that data quality/usability were affected.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No N/A Comments:

b. All applicable holding times met?

Yes No N/A Comments:

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c. Are the reported LOQs less than the target level or screening level for the project, as defined in the approved work plan?

Yes No N/A Comments:

Approved work plan not applicable. The reporting limits were less than ADEC indoor air target levels.

d. Data quality or usability affected?

Data quality and usability were not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes No N/A Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

The samples were not affected by the method blank results.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Laboratory flags were not applied to the data based on the method blank results.

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

2301300

Laboratory Report Date:

1/27/2023

CS Site Name:

Ridgeline Terrace

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes No N/A Comments:

iii. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable?

Yes No N/A Comments:

RPDs were not reported in the laboratory report for the LCS/LCSD pair. Calculated RPDs were less than the method specific limits.

iv. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

The samples were not affected by the LCS/LCSD results.

v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Laboratory flags were not applied to the data based on the LCS/LCSD results.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability were not affected.

c. Surrogates – VOCs only

i. Are surrogate recoveries reported for VOC analyses – field, QC and laboratory samples?

Yes No N/A Comments:

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Laboratory Report Date:

1/27/2023

CS Site Name:

Ridgeline Terrace

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes No N/A Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Laboratory flags were not applied to the data based on the surrogate results.

iv. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

d. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No N/A Comments:

One field duplicate pair was submitted with the sample set:
• 23-RTA-13-01-01-IA/23-RTA-93-01-01-IA

ii. Submitted blind to lab?

Yes No N/A Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% air)

$$RPD (\%) = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2) / 2)} \times 100$$

Where R₁ = Sample Concentration
R₂ = Field Duplicate Concentration

Yes No N/A Comments:

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Laboratory Report Date:

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CS Site Name:

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iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and usability were not affected.

e. Field Blank (If not applicable, a comment stating why must be entered below)?

Yes No N/A Comments:

Trip blank 23-RTA-01-TB was submitted with the sample set.

i. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

The samples were not affected by the trip blank results.

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No N/A Comments:

The laboratory applied C flags to indicate the results were estimated due to the calculated sampling rate. Based on professional and technical judgement, no qualifications were applied to the data.

Additionally, the laboratory applied ND flags in the laboratory report to indicate the results were not detected at the RLs. The ND flags were updated to U flags in the electronic data deliverable (EDD) for consistency with validation qualifier standards.