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ANCHOR QEA

April 17, 2023

Dale Myers
Washington State Department of Ecology
Northwest Regional Office
15700 Dayton Avenue N
Shoreline, Washington 98133-9716
Sent via email

Re: Quarterly Progress Report: First Quarter 2023
Carson Cleaners Site, Cleanup Site ID: 14878
Washington State Department of Ecology Agreed Order No. DE 19805

Dear Mr. Myers:

This Quarterly Progress Report is submitted on behalf of Tahn Associates, LLC, and summarizes the activities performed from January 1, 2023, through March 31, 2023, as required by the Washington State Department of Ecology (Ecology) Agreed Order (AO) No. DE 19805. This Quarterly Progress Report has been prepared in accordance with the requirements of the AO, Section VII.F, and describes the following:

1. Actions that have been taken to comply with the AO
2. Sampling and testing reports and other data reports received by the Potentially Liable Party
3. Deviations from approved work plans
4. Contacts with representatives of the local community; public interest groups; the press; and federal, state, or tribal governments
5. Problems or anticipated problems in meeting the schedule or objectives set forth in the scope of work and work plans
6. Solutions developed and implemented or planned to address any actual or anticipated problems or delays
7. Changes in key personnel
8. Work planned for the next reporting period

Actions During First Quarter 2023

Actions Performed

- Implementation of the Remedial Investigation Work Plan (RIWP) at the Carson Cleaners Site (Figure 1) included the following:
  - During Fourth Quarter 2022, the drilling rig was mobilizing to install groundwater monitoring well CC-MW-03 (Figure 2) and damaged the sidewalk curb on the south side of NE 47th Street. From February 20, 2023, through February 21, 2023, the sidewalk

was repaired by American West Coast Construction. The repair was coordinated through Seattle Department of Transportation (SDOT) and met all requirements set by SDOT when completed. The Anchor QEA, LLC, street use permit was closed by SDOT on March 4, 2023, after final inspection.

- On February 21, 2023, APS Survey and Mapping completed a professional survey of all groundwater monitoring well locations in the RIWP sampling program.
- On February 21, 2023, Holt Services completed a repair on the lid of monitoring well BP-MW29 (Figure 2) to provide access for groundwater monitoring.
- From February 21, 2023, through February 23, 2023, a full round of groundwater monitoring was completed, including sampling of the newly installed monitoring wells and existing monitoring wells associated with neighboring properties (Figure 2).
- On February 22, 2023, a new vapor pin was installed in the Carson Cleaners building at location SS-03B (Figure 3).
- On February 22, 2023, the first quarterly indoor air, subslab vapor, and ambient air monitoring was conducted (Figure 3).
- Following the completion of the professional survey, groundwater potentiometric surface contour figures were developed based on the groundwater elevations measured during Fourth Quarter 2022 and First Quarter 2023 (Figures 4a and 4b, respectively). A groundwater elevation summary is provided in Table 1.

Sampling and Testing Reports

This report includes the monitoring results for the Fourth Quarter 2022 monitoring event. Groundwater, soil, air and soil vapor samples were collected and analyzed per the RIWP sampling schedule. The analytical results are included in Tables 2 through 5, respectively. Laboratory analytical reports are included in Attachment 1, and data validation reports are included in Attachment 2. A brief summary of the validated data is as follows:

- Soil sampling analytical results (Table 2) indicated the following:
  - Tetrachloroethene (PCE) exceeded the Model Toxics Control Act (MTCA) Method A screening level at four boring locations: CC-MW-2D (at 15 feet below ground surface [bgs]), CC-MW-4D (at 12, 20, 23, and 26 feet bgs), SB-01 (at 12.5, 17.5, and 22 feet bgs), and SB-02 (at 14, 16, and 22 feet bgs).
  - No other target analytes were detected in any soil borings during the Fourth Quarter 2022 event.
- Groundwater monitoring analytical results (Table 3) indicated the following:
  - PCE exceeded the MTCA Method A screening level at seven monitoring well locations, including BP-MW27, BP-MW28, BP-MW8, CC-MW-01, CC-MW-2D, MW-20, and MW-25. PCE exceeded the MTCA Method B noncancer screening level at three monitoring well locations, including CC-MW-01, MW-20, and MW-25. PCE also

exceeded the MTCA Method B cancer screening level at two monitoring well locations, including CC-MW-01 and MW-20.
  - Trichloroethene (TCE) exceeded the MTCA Method A screening level at seven monitoring well locations, including CC-MW-01, MW-20, MW-22, MW-23, MW-25, MW-27, and MW-28.
  - Vinyl chloride exceeded the MTCA Method A screening level at five monitoring well locations, including MW-22, MW-23, MW-25, MW-27, and MW-28.
  - Cis-1,2-dichloroethene exceeded the MTCA Method A, MTCA Method B cancer, and MTCA Method B noncancer screening levels at six monitoring well locations, including: CC-MW-01, MW-22, MW-23, MW-25, MW-27, and MW-28.
  - Trans-1,2-dichloroethene (trans-DCE) was detected in seven monitoring well locations but did not exceed MTCA Method A or B screening levels.
- Indoor and ambient air monitoring analytical results (Table 4) indicated the following:
  - TCE exceeded the MTCA Method B cancer indoor air screening level at CC-IA-04 (Bank of America). Additionally, cis-1,2-dichloroethene was detected at CC-IA-04 but did not exceed the MTCA Method B noncancer screening level.
  - No other target analytes were detected in any of the indoor or ambient air locations during Fourth Quarter 2022.
- Subslab vapor monitoring analytical results (Table 5) indicated the following:
  - No target analytes were detected in any of the subslab vapor monitoring locations during Fourth Quarter 2022.
  - As a reminder, subslab vapor sampling was not conducted at Bank of America as access was not granted to penetrate the slab.

Figures illustrating the groundwater and air monitoring analytical results are not included in this submittal, as the validated data were received late in the quarter with insufficient time to develop figures. The figures will be generated and submitted in the next Quarterly Progress Report.

As of this Quarterly Progress Report submittal, the First Quarter 2023 monitoring data are still pending validation and are not discussed within this report. Validated laboratory results from the First Quarter 2023 monitoring event are expected to be included in the Second Quarter 2023 report.

Deviations from Approved Work Plans

On December 28, 2022, Anchor QEA requested a deviation to the subslab vapor sampling method presented in the RIWP (collection of grab sample rather than use of Summa canister). Ecology approved the change in sampling method on January 17, 2023 (Attachment 3). The deviation was implemented in the First Quarter 2023 sampling event for all subslab vapor monitoring locations.

Contacts with Local, State, Federal, or Tribal Representatives

- Ecology was notified a minimum of 7 days in advance of field work, per the AO.
- SDOT was notified of work in the right-of-way, as required by the Street Use Permit. Communications and coordination with the City of Seattle were ongoing throughout the field work.

Summary of Problems

Problems Encountered

There were no problems encountered during this reporting period.

Changes in Key Personnel

There were no changes to key personnel during this reporting period.

Second Quarter 2023 Planned Work

- Implement the RIWP, including the following:
  - Perform the quarterly indoor air, ambient air, and soil vapor monitoring event.
  - Perform the quarterly groundwater monitoring event.
- Anchor QEA will share validated data with the neighboring Former Chevron Station Site to begin evaluation of the extent of comingled chlorinated solvent and hydrocarbon plumes from the respective sites.

If you have any questions about the Quarterly Progress Report, please call me at (206) 903-3303 or (206) 462-9572.

Best regards,

Halah Voges, PE
Principal Engineer, Anchor QEA, LLC

cc: Nathan Soccorsy and Gavin Casson, Anchor QEA, LLC

Figures

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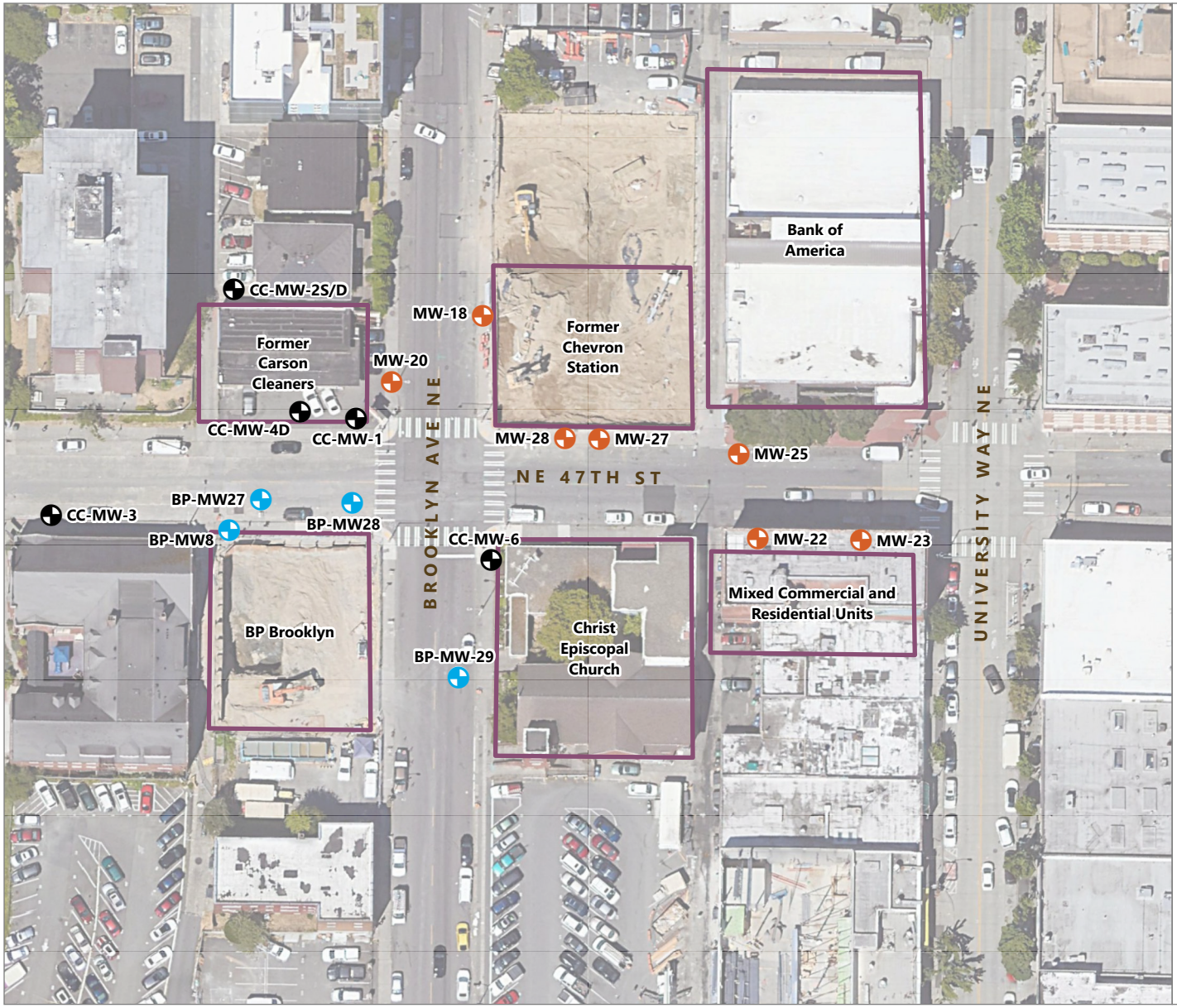
Figure 1
Vicinity Map
Quarterly Progress Report: First Quarter 2023
Carson Cleaners Site



LEGEND:

Groundwater Monitoring Locations:

- Carson Cleaners Site
- Chevron Site
- BP Site

0 100

Feet

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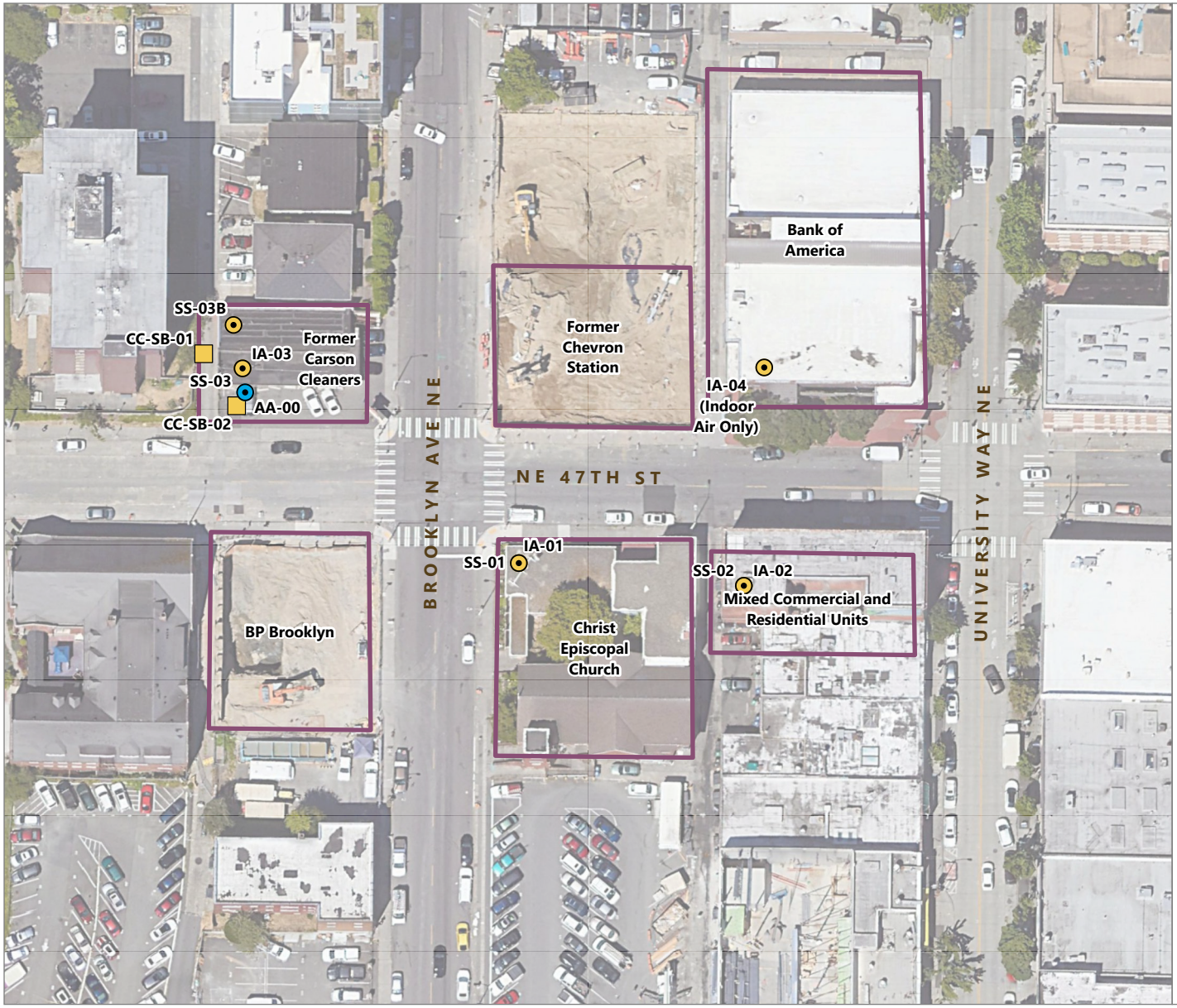
Figure 2
Groundwater Sample Locations
Quarterly Progress Report: First Quarter 2023
Carson Cleaners Site



LEGEND:

Soil Boring Location

Vapor Sample Locations

Ambient Air Sample

Interior Sample (indoor air/sub slab location)

NOTE:

1. Sub-slab sample location SS-03 relocated in first quarter 2023 to SS-03B.

0 100

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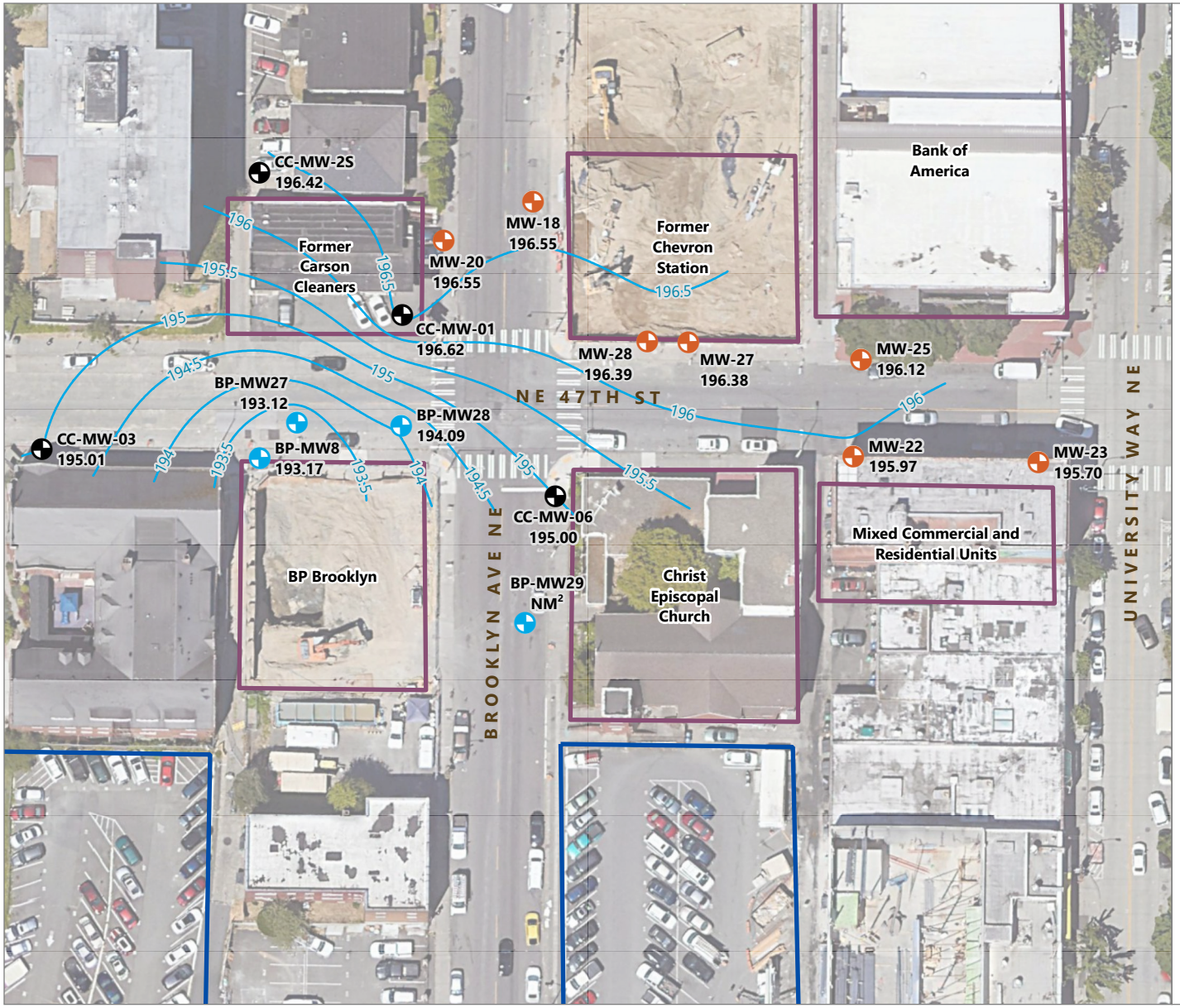
Figure 3
Soil and Vapor Sample Locations
Quarterly Progress Report: First Quarter 2023
Carson Cleaners Site



LEGEND:

- Dewatering Operation Areas
- Potentiometric Surface Contour (feet NAVD88)

Groundwater Monitoring Locations

- Carson Cleaners Site
- Chevron Site
- BP Site

NOTE:

1. Location labels indicate groundwater elevation in units of feet relative to North American Vertical Datum of 1988 (NAVD88).
2. Location BP-MW29 could not be accessed during the 4th Quarter 2022 monitoring event due to a damaged monument lid.
3. NM = not measured.
4. Groundwater flow direction may be impacted by de-watering activities.

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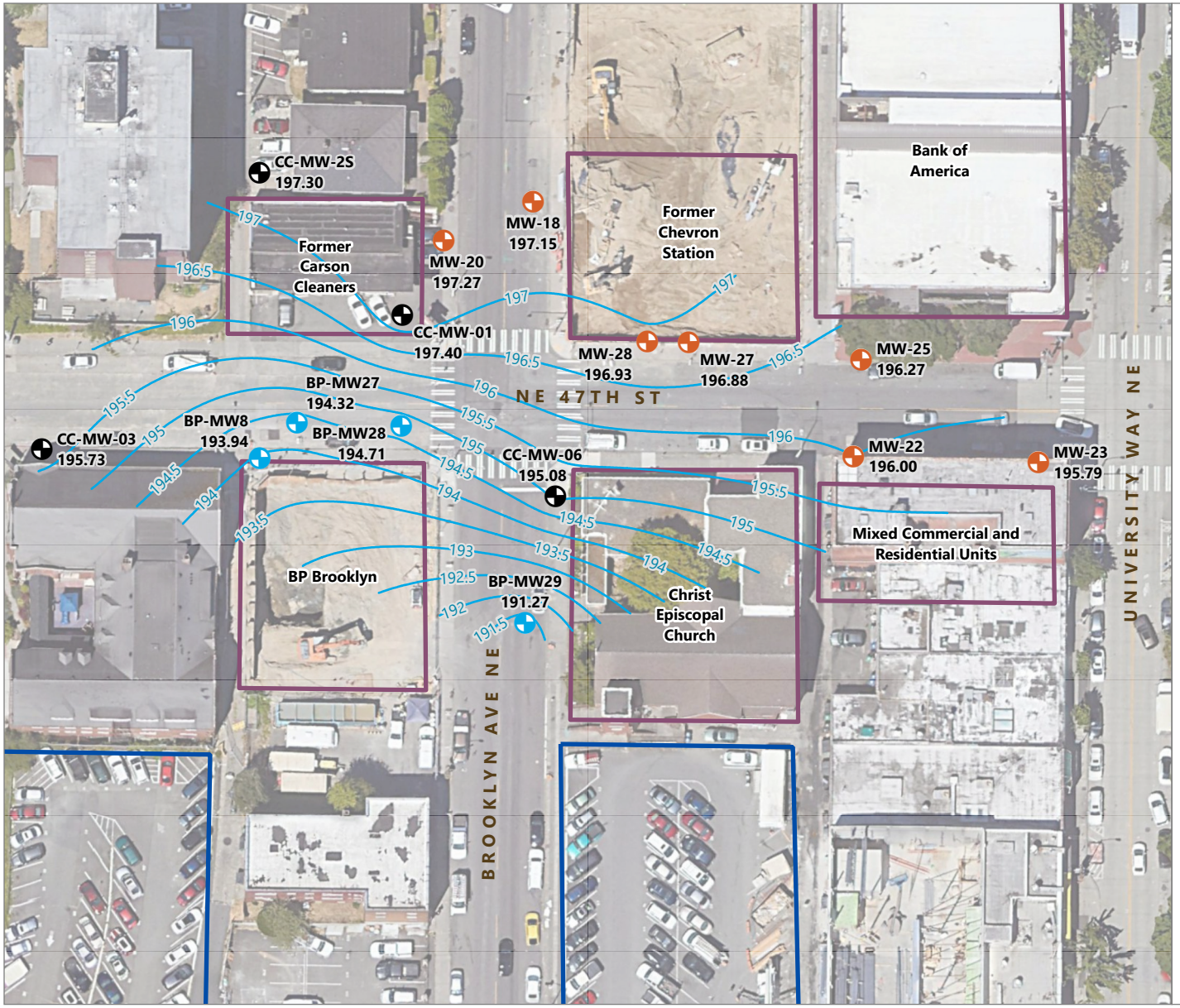
Figure 4a
Potentiometric Surface Map: Fourth Quarter 2022
Quarterly Progress Report: First Quarter 2023
Carson Cleaners Site



LEGEND:

- Dewatering Operation Areas
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Groundwater Monitoring Locations

- Carson Cleaners Site
- Chevron Site
- BP Site

NOTE:

1. Location labels indicate groundwater elevation in units of feet relative to North American Vertical Datum of 1988 (NAVD88).
2. Groundwater flow direction may be impacted by de-watering activities.

0 100

Feet

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Figure 4b
Potentiometric Surface Map: First Quarter 2023
Quarterly Progress Report: First Quarter 2023
Carson Cleaners Site

Tables

Table 1

Groundwater Elevation Summary

Site	Well ID	Deep/Shallow Well	Date	TOC Elevation (NAV88/18)	Measured Depth to GW (ft BTOC)	Groundwater Elevation (NAV88/18)	Measured Total Well Depth (ft BTOC)
Carson Cleaners	CC-MW-01	Shallow	12/5/2023	215.83	19.21	196.62	29.20
			2/21/2023		18.43	197.40	29.23
	CC-MW-2S	Shallow	12/5/2023	223.13	26.71	196.42	35.27
			2/22/2023		25.83	197.30	35.28
	CC-MW-2D	Deep	12/5/2023	222.94	69.10	153.84	84.50
			2/22/2023		68.75	154.19	84.51
	CC-MW-03	Shallow	12/5/2023	212.77	17.76	195.01	29.69
			2/23/2023		17.04	195.73	29.69
	CC-MW-4D	Deep	12/5/2023	215.31	62.37	152.94	70.80
			2/23/2023		62.25	153.06	70.80
	CC-MW-06	Shallow	12/5/2023	214.92	19.92	195.00	29.42
			2/23/2023		19.84	195.08	29.42
Chevron Site	MW-18	Shallow	12/6/2023	216.08	19.53	196.55	24.45
			2/21/2023		18.93	197.15	24.45
	MW-20	Shallow	12/6/2023	216.01	19.46	196.55	27.61
			2/21/2023		18.74	197.27	27.61
	MW-22	Shallow	12/6/2023	213.10	17.13	195.97	25.69
			2/21/2023		17.10	196.00	25.69
	MW-23	Shallow	12/6/2023	211.89	16.19	195.70	24.77
			2/21/2023		16.10	195.79	24.77
	MW-25	Shallow	12/7/2023	212.98	16.86	196.12	29.91
			2/21/2023		16.71	196.27	29.91
	MW-27	Shallow	12/6/2023	214.49	18.11	196.38	23.43
			2/21/2023		17.61	196.88	23.43
	MW-28	Shallow	12/6/2023	214.54	18.15	196.39	25.07
			2/21/2023		17.61	196.93	25.07
BP Site	BP-MW8	Shallow	12/5/2023	214.17	21.00	193.17	24.29
			2/23/2023		20.23	193.94	24.29
	BP-MW27	Shallow	12/7/2023	213.82	20.70	193.12	23.92
			2/23/2023		19.50	194.32	23.92
	BP-MW28	Shallow	12/7/2023	214.63	20.54	194.09	24.12
			2/23/2023		19.92	194.71	24.12
	MW29	Shallow	---	213.10	NM	---	NM
			2/23/2023		21.83	191.27	23.95

Notes:
Vertical Datum: NAV88/18
BTOC: below top of casing
ft: feet
GW: groundwater
NM : not measured
TOC: top of casing

Table 2
Soil Analytical Results

Chemical	MTCA Method A Unrestricted	MTCA Method B Direct Contact Noncancer	MTCA Method B Direct Contact Cancer	Location ID Sample Date Sample Depth Sample Type Matrix X Y	CC-MW-03 11/17/2022 15 - 15 ft Normal Soil 1275318.054 245369.1423	CC-MW-03 11/17/2022 18 - 18 ft Normal Soil 1275318.054 245369.1423	CC-MW-03 11/16/2022 2.5 - 2.5 ft Normal Soil 1275318.054 245369.1423	CC-MW-03 11/17/2022 23 - 23 ft Normal Soil 1275318.054 245369.1423	CC-MW-03 11/17/2022 29 - 29 ft Normal Soil 1275318.054 245369.1423	CC-MW-03 11/17/2022 34 - 34 ft Normal Soil 1275318.054 245369.1423	CC-MW-03 11/17/2022 5 - 5 ft Normal Soil 1275318.054 245369.1423	CC-MW-06 11/17/2022 13 - 13 ft Normal Soil 1275543.84 245344.4173
Conventional Parameters (pct)												
Moisture (water) content					**29**	**15**	**9**	**51**	**36**	**31**	**22**	**53**
Volatile Organics (µg/kg)												
1,2-Dichloroethene, cis-		160000			0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2-Dichloroethene, trans-		1600000			0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene (PCE)	50	480000	480000		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Trichloroethene (TCE)	30	40000	12000		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride		240000	670		0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U

Table 2
Soil Analytical Results

Chemical	MTCA Method A Unrestricted	MTCA Method B Direct Contact Noncancer	MTCA Method B Direct Contact Cancer	Location ID Sample Date Sample Depth Sample Type Matrix X Y	CC-MW-06 11/17/2022 16 - 16 ft Normal Soil 1275543.84 245344.4173	CC-MW-06 11/16/2022 2.5 - 2.5 ft Normal Soil 1275543.84 245344.4173	CC-MW-06 11/17/2022 22 - 22 ft Normal Soil 1275543.84 245344.4173	CC-MW-06 11/17/2022 27 - 27 ft Normal Soil 1275543.84 245344.4173	CC-MW-06 11/17/2022 34 - 34 ft Normal Soil 1275543.84 245344.4173	CC-MW-06 11/17/2022 7 - 7 ft Normal Soil 1275543.84 245344.4173	CC-MW-06 11/17/2022 7 - 7 ft Field Duplicate Soil 1275543.84 245344.4173	CC-MW-2S 11/10/2022 2.5 - 2.5 ft Normal Soil 1275416.277 245489.299
Conventional Parameters (pct)												
Moisture (water) content					**26**	**14**	**34**	**19**	**30**	**37**	**7**	**11**
Volatile Organics (µg/kg)												
1,2-Dichloroethene, cis-		160000			0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2-Dichloroethene, trans-		1600000			0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene (PCE)	50	480000	480000		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Trichloroethene (TCE)	30	40000	12000		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride		240000	670		0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U

Table 2
Soil Analytical Results

Chemical	MTCA Method A Unrestricted	MTCA Method B Direct Contact Noncancer	MTCA Method B Direct Contact Cancer	Location ID Sample Date Sample Depth Sample Type Matrix X Y	CC-MW-2D 11/15/2022 7 - 7 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/15/2022 7 - 7 ft Field Duplicate Soil 1275417.739 245489.105	CC-MW-2D 11/15/2022 15 - 15 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/15/2022 18 - 18 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/15/2022 20 - 20 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/15/2022 20 - 20 ft Field Duplicate Soil 1275417.739 245489.105	CC-MW-2D 11/15/2022 27 - 27 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/15/2022 33 - 33 ft Normal Soil 1275417.739 245489.105
Conventional Parameters (pct)												
Moisture (water) content					**6**	**5**	**11**	**13**	**12**	**11**	**13**	**13**
Volatile Organics (µg/kg)												
1,2-Dichloroethene, cis-		160000			0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2-Dichloroethene, trans-		1600000			0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene (PCE)	50	480000	480000		**6.8**	**7.8**	**1000**	**19**	**18**	**28**	0.55 U	0.55 U
Trichloroethene (TCE)	30	40000	12000		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride		240000	670		0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U

Table 2
Soil Analytical Results

Chemical	MTCA Method A Unrestricted	MTCA Method B Direct Contact Noncancer	MTCA Method B Direct Contact Cancer	Location ID Sample Date Sample Depth Sample Type Matrix X Y	CC-MW-2D 11/15/2022 39 - 39 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/15/2022 41 - 41 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/16/2022 60 - 60 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/16/2022 63 - 63 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/16/2022 69 - 69 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/16/2022 71 - 71 ft Normal Soil 1275417.739 245489.105	CC-MW-2D 11/16/2022 78 - 78 ft Normal Soil 1275417.739 245489.105	CC-MW-4D 11/14/2022 3.9 - 3.9 ft Normal Soil 1275450.192 245420.9992
Conventional Parameters (pct)												
Moisture (water) content					**11**	**8**	**7**	**8**	**6**	**12**	**9**	**10**
Volatile Organics (µg/kg)												
1,2-Dichloroethene, cis-		160000			0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2-Dichloroethene, trans-		1600000			0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene (PCE)	50	480000	480000		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	**5.2**	0.55 U	**14**
Trichloroethene (TCE)	30	40000	12000		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride		240000	670		0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U

Table 2
Soil Analytical Results

Chemical	MTCA Method A Unrestricted	MTCA Method B Direct Contact Noncancer	MTCA Method B Direct Contact Cancer	Location ID Sample Date Sample Depth Sample Type Matrix X Y	CC-MW-4D 11/14/2022 9 - 9 ft Normal Soil 1275450.192 245420.9992	CC-MW-4D 11/14/2022 12 - 12 ft Normal Soil 1275450.192 245420.9992	CC-MW-4D 11/14/2022 20 - 20 ft Normal Soil 1275450.192 245420.9992	CC-MW-4D 11/14/2022 23 - 23 ft Normal Soil 1275450.192 245420.9992	CC-MW-4D 11/14/2022 26 - 26 ft Normal Soil 1275450.192 245420.9992	CC-MW-4D 11/14/2022 33 - 33 ft Normal Soil 1275450.192 245420.9992	CC-MW-4D 11/14/2022 62 - 62 ft Normal Soil 1275450.192 245420.9992	CC-MW-4D 11/14/2022 68 - 68 ft Normal Soil 1275450.192 245420.9992
Conventional Parameters (pct)												
Moisture (water) content					**7**	**14**	**17**	**20**	**13**	**11**	**6**	**12**
Volatile Organics (µg/kg)												
1,2-Dichloroethene, cis-		160000			0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.32 U	0.37 U	0.37 U
1,2-Dichloroethene, trans-		1600000			0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.47 U	0.50 U	0.50 U
Tetrachloroethene (PCE)	50	480000	480000		**30**	**110**	**380**	**590**	**530**	0.55 U	0.55 U	0.55 U
Trichloroethene (TCE)	30	40000	12000		0.50 U	0.50 U	0.50 U	**4.7**	**5**	0.92 U	0.50 U	0.50 U
Vinyl chloride		240000	670		0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.60 U	0.47 U	0.47 U

Table 2
Soil Analytical Results

Chemical	MTCA Method A Unrestricted	MTCA Method B Direct Contact Noncancer	MTCA Method B Direct Contact Cancer	Location ID Sample Date Sample Depth Sample Type Matrix X Y	CC-MW-4D 11/14/2022 74 - 74 ft Normal Soil 1275450.192 245420.9992	CC-MW-4D 11/14/2022 77 - 77 ft Normal Soil 1275450.192 245420.9992	CC-SB-01 11/10/2022 2.5 - 2.5 ft Normal Soil	CC-SB01 11/10/2022 8 - 8 ft Normal Soil	CC-SB01 11/10/2022 12.5 - 12.5 ft Normal Soil	CC-SB01 11/10/2022 17.5 - 17.5 ft Normal Soil	CC-SB01 11/10/2022 22 - 22 ft Normal Soil	CC-SB-02 11/10/2022 2.5 - 2.5 ft Normal Soil
Conventional Parameters (pct)												
Moisture (water) content					**9**	**10**	**14**	**7**	**14**	**15**	**20**	**10**
Volatile Organics (µg/kg)												
1,2-Dichloroethene, cis-		160000			0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2-Dichloroethene, trans-		1600000			0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene (PCE)	50	480000	480000		0.55 U	0.55 U	0.55 U	**9.3**	**64**	**150**	**240**	0.55 U
Trichloroethene (TCE)	30	40000	12000		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride		240000	670		0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U

Table 2
Soil Analytical Results

Chemical	MTCA Method A Unrestricted	MTCA Method B Direct Contact Noncancer	Location ID Sample Date Sample Depth Sample Type Matrix X Y MTCA Method B Direct Contact Cancer	CC-SB-02 11/10/2022 7.5 - 7.5 ft Normal Soil	CC-SB-02 11/10/2022 14 - 14 ft Normal Soil	CC-SB-02 11/10/2022 16 - 16 ft Normal Soil	CC-SB-02 11/10/2022 22 - 22 ft Normal Soil
Conventional Parameters (pct)							
Moisture (water) content				**14**	**14**	**14**	**20**
Volatile Organics (µg/kg)							
1,2-Dichloroethene, cis-		160000		0.37 U	0.37 U	0.37 U	0.37 U
1,2-Dichloroethene, trans-		1600000		0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene (PCE)	50	480000	480000	**43**	**230**	**440**	**660**
Trichloroethene (TCE)	30	40000	12000	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride		240000	670	0.47 U	0.47 U	0.47 U	0.47 U

Notes:
Detected concentration is greater than MTCA Method A Unrestricted screening level
Detected concentration is greater than MTCA Method B Direct Contact Noncancer screening level
Detected concentration is greater than MTCA Method B Direct Contact Cancer screening level
Bold: Detected result
U: Compound analyzed for, but not detected above the reporting limit
UJ: Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated

Table 3
Groundwater Monitoring Analytical Results

				Fourth Quarter 2022						
			Sample Location Well Network Sample Date Sample Type Matrix X Y	BP-MW27 BP Property 12/7/2022 Normal Groundwater 1275430.763 245378.8402	BP-MW27 BP Property 12/7/2022 Field Duplicate Groundwater 1275430.763 245378.8402	BP-MW28 BP Property 12/7/2022 Normal Groundwater 1275476.611 245376.6242	BP-MW8 BP Property 12/5/2022 Normal Groundwater 1275414.082 245363.5173	CC-MW-01 Carson Cleaners 12/5/2022 Normal Groundwater -122.3144222 47.6632	CC-MW-03 Carson Cleaners 12/5/2022 Normal Groundwater 1275318.054 245369.1423	CC-MW-06 Carson Cleaners 12/5/2022 Normal Groundwater 1275543.84 245344.4173
Chemical	MTCA Method A	MTCA Method B Noncancer	MTCA Method B Cancer							
Volatile Organics (µg/L)										
1,2-Dichloroethene, cis-		16		0.015 U	0.016 UJ	**0.13**	0.016 UJ	**43 J**	0.015 U	0.015 U
1,2-Dichloroethene, trans-		160		0.021 U	0.021 U	0.021 U	0.035 UJ	3.5 UJ	0.021 U	0.021 U
Tetrachloroethene (PCE)	5	48	21	**18**	**19**	**19**	**20 J**	**2800 J**	0.023 U	0.023 U
Trichloroethene (TCE)	5	4	0.54	**0.2**	**0.21**	**0.3**	**0.29 J**	**190 J**	0.032 U	0.032 U
Vinyl chloride	0.2	24	0.029	**0.024 J**	**0.029 J**	0.017 UJ	0.018 UJ	1.8 UJ	0.017 U	0.017 U

Table 3
Groundwater Monitoring Analytical Results

				Fourth Quarter 2022						
			Sample Location Well Network Sample Date Sample Type Matrix X Y	CC-MW-2D Carson Cleaners 12/5/2022 Normal Groundwater 1275417.739 245489.105	CC-MW-2S Carson Cleaners 12/5/2022 Normal Groundwater 1275416.277 245489.299	CC-MW-4D Carson Cleaners 12/5/2022 Normal Groundwater 1275450.192 245420.9992	MW-18 Chevron Property 12/6/2022 Normal Groundwater 1275536.328 245474.4521	MW-20 Chevron Property 12/6/2022 Normal Groundwater 1275496.916 245457.6561	MW-22 Chevron Property 12/6/2022 Normal Groundwater 1275675.336 245359.6153	MW-23 Chevron Property 12/6/2022 Normal Groundwater 1275756.798 245355.6953
Chemical	**MTCA Method A**	**MTCA Method B Noncancer**	**MTCA Method B Cancer**							
Volatile Organics (µg/L)										
1,2-Dichloroethene, cis-		16		0.016 UJ	0.016 UJ	**1.2 J**	0.015 U	**1.1**	**700**	**700**
1,2-Dichloroethene, trans-		160		0.035 UJ	0.035 UJ	**0.19 J**	0.021 U	**0.11**	**12**	**19**
Tetrachloroethene (PCE)	5	48	21	**6.2 J**	**0.14 J**	**0.38 J**	**1.4**	**100**	**1.4**	**0.47**
Trichloroethene (TCE)	5	4	0.54	**0.15 J**	0.045 UJ	**0.28 J**	**0.45**	**5.4**	**410**	**220**
Vinyl chloride	0.2	24	0.029	0.018 UJ	0.018 UJ	0.018 UJ	0.017 U	0.017 U	**5.5 J**	**18 J**

Table 3
Groundwater Monitoring Analytical Results

				Fourth Quarter 2022		
Chemical	MTCA Method A	MTCA Method B Noncancer	Sample Location Well Network Sample Date Sample Type Matrix X Y MTCA Method B Cancer	MW-25 Chevron Property 12/7/2022 Normal Groundwater 1275679.66 245402.2612	MW-27 Chevron Property 12/6/2022 Normal Groundwater 1275603.89 245410.9792	MW-28 Chevron Property 12/6/2022 Normal Groundwater 1275585.667 245411.5502
Volatile Organics (µg/L)						
1,2-Dichloroethene, cis-		16		**310**	**88**	**36**
1,2-Dichloroethene, trans-		160		**48**	**6.4**	**1.4**
Tetrachloroethene (PCE)	5	48	21	**45**	**0.21**	**2.1**
Trichloroethene (TCE)	5	4	0.54	**150**	**42**	**5.7**
Vinyl chloride	0.2	24	0.029	**6.4 J**	**2 J**	**0.69 J**

Notes:
Detected concentration is greater than MTCA Method A screening level
Detected concentration is greater than MTCA Method B Noncancer screening level
Detected concentration is greater than MTCA Method B Cancer screening level

Bold: Detected result
J: Estimated value
U: Compound analyzed for, but not detected above the reporting limit
UJ: Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated

Table 4

Indoor and Ambient Air Monitoring Analytical Results

Chemical	MTCA Method B Non Cancer	MTCA Method B Cancer	Fourth Quarter 2022				
		Sample Location	CC-AA-01	CC-IA-01	CC-IA-02	CC-IA-03	CC-IA-04
		Property Location	Carson Cleaners	Episcopal Church	Mixed Use Building	Carson Cleaners	Bank of America
		Sample Date	12/9/2022	12/9/2022	12/9/2022	12/9/2022	12/7/2022
		Type	Ambient Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air
		X	-122.314676	-122.3140972	-122.3136028	-122.3146444	-122.3135833
		Y	47.66324732	47.6629944	47.6629556	47.6632583	47.6632639
Volatile Organics (µg/m^3)							
1,2-Dichloroethene, cis-	18		0.036 U	0.036 U	0.036 U	0.036 U	**0.57**
1,2-Dichloroethene, trans-	18		0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
Tetrachloroethene (PCE)	18	9.6	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Trichloroethene (TCE)	0.91	0.33	0.051 U	0.051 U	0.051 U	0.051 U	**0.51**
Vinyl chloride	46	0.28	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U

Notes:

Detected concentration is greater than MTCA Method B Cancer screening level

Detected concentration is greater than MTCA Method B Noncancer screening level

Bold: Detected result

U: Compound analyzed for, but not detected above the reporting limit

Table 5

Subslab Vapor Monitoring Analytical Results

Chemical	MTCA Method B Non Cancer	Sample Location Property Location Sample Date Matrix X Y MTCA Method B Cancer	Fourth Quarter 2022 CC-SS-01 Episcopal Church 12/9/2022 Sub-Slab Vapor -122.3140972 47.6629944	 CC-SS-02 Mixed Use Building 12/9/2022 Sub-Slab Vapor -122.3136028 47.6629556	 CC-SS-03 Carson Cleaners 12/9/2022 Sub-Slab Vapor -122.3146444 47.6632583
Volatile Organics (µg/m^3)					
1,2-Dichloroethene, cis-	18		0.18 U	2.0 U	0.40 U
1,2-Dichloroethene, trans-	18		0.17 U	2.0 U	0.38 U
Tetrachloroethene (PCE)	18	9.6	0.70 U	7.8 U	1.5 U
Trichloroethene (TCE)	0.91	0.33	0.25 U	2.9 U	0.56 U
Vinyl chloride	46	0.28	0.12 U	1.3 U	0.26 U

Notes:

Detected concentration is greater than MTCA Method B Cancer screening level

Detected concentration is greater than MTCA Method B Non Cancer screening level

Bold: Detected result

U: Compound analyzed for, but not detected above the reporting limit

UJ: Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated

Attachment 1
Laboratory Analytical Reports

Attachment 2
Data Validation Reports

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor
1201 3rd Ave Suite 2600
Seattle, WA 98101
ATTN: Ms. Delaney Peterson

April 10, 2023

SUBJECT: Carson Cleaners - Data Validation

Dear Ms. Peterson,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on January 18, 2023. Attachment 1 is a summary of the samples that were reviewed for each analysis.

Revision:
212083 – Added qualifier to sample MW-22-GW-20221606 due to no method blank and LCS.

212113 - Removed qualifier for sample BP-MW-28-GW-20221207 due to no method blank and LCS.

LDC Project #55954_RV1:

SDG #	Fraction
211162, 211213, 211237, 211239, 211274, 212059, 212083, 212113, 212114, 212177	Volatiles

The data validation was performed under Stage 2B guidelines. The analysis was validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021)
- USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020)
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014; update VI, July 2018

Please feel free to contact us if you have any questions.

Sincerely,

Stella Cuenco
scuenco@lab-data.com
Project Manager/Senior Chemist

182 pages-ADV

Attachment 1

Stage 2B EDD

LDC# 55954 (Anchor Environmental - Seattle, WA / Carson Cleaners)

LDC	SDG#	DATE REC'D	(3) DATE DUE	(5) VOA (TO-15)		(5) VOA (8260D)																															
Matrix:	Air/Water/Soil			A	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	211162	01/18/23	02/08/23	-	-	2	11																														
B	211213	01/18/23	02/08/23	-	-	1	11																														
C	211237	01/18/23	02/08/23	-	-	1	7																														
D	211239	01/18/23	02/08/23	-	-	0	10																														
E	211274	01/18/23	02/08/23	-	-	1	13																														
F	212059	01/18/23	02/08/23	-	-	8	0																														
G	212083	01/18/23	02/08/23	-	-	7	0																														
H	212113	01/18/23	02/08/23	-	-	5	0																														
I	212114	01/18/23	02/08/23	1	0	-	-																														
J	212177	01/18/23	02/08/23	7	0	-	-																														
Total	TR/SC			8	0	25	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

L:\Anchor\Carson Cleaners\55954ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: March 28, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 211162

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
CC-SB-02-SO-2.5-20221110	211162-01	Soil	11/10/22
CC-SB-02-SO-7.5-20221110	211162-02	Soil	11/10/22
CC-SB-02-SO-14-20221110	211162-03	Soil	11/10/22
CC-SB-02-SO-16-20221110	211162-04	Soil	11/10/22
CC-SB-02-SO-22-20221110	211162-05	Soil	11/10/22
CC-SB-01-SO-2.5-20221110	211162-06	Soil	11/10/22
CC-MW-2S-SO-2.5-20221110	211162-07	Soil	11/10/22
CC-SB01-SO-8-20221110	211162-08	Soil	11/10/22
CC-SB01-SO-12.5-20221110	211162-09	Soil	11/10/22
CC-SB01-SO-17.5-20221110	211162-10	Soil	11/10/22
CC-SB01-SO-22-20221110	211162-11	Soil	11/10/22
TB-20221110	211162-12	Water	11/10/22
TB-20221110RE	211162-12RE	Water	11/10/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
TB-20221110RE	All analytes	A headspace was apparent in the sample containers.	There should be no headspace in the sample containers.	UJ (all non-detects)	A

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes.

Average relative response factors (RRF) for all analytes were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

For samples TB-20221110 and TB-20221110RE, although method blank and instrument blank data were not provided, results were not qualified as the analytes were not detected in the samples.

VI. Field Blanks

Samples TB-20221110 and TB-20221110RE were identified as trip blanks. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
TB-20221110 TB-20221110RE	All analytes	No LCS analysis associated with these samples.	LCS analysis required.	UJ (all non-detects)	P

For all other samples, LCS and LCSD percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Affected Analyte	Flag	A or P
TB-20221110	Fluorobenzene Chlorobenzene-d5	37123 (45287-181146) 34047 (44435-177738)	All analytes	UJ (all non-detects)	A

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed not reportable as follows:

Sample	Analyte	Reason	Flag	A or P
TB-20221110RE	All analytes	Headspace in sample container.	Not reportable	-

Due to no LCS/LCSD and internal standard area, data were qualified as estimated in one sample.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 211162

Sample	Analyte	Flag	A or P	Reason
TB-20221110	All analytes	UJ (all non-detects)	P	Laboratory control samples (no LCS/LCSD)
TB-20221110	All analytes	UJ (all non-detects)	A	Internal standards (area)
TB-20221110RE	All analytes	Not reportable	-	Overall assessment of data

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 211162

No Sample Data Qualified in this SDG

LDC #: 55954A1a

SDG #: 211162

Laboratory: Friedman & Bruya, Inc., Seattle, WA

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 02/16/23

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: A

METHOD: GC/MS Volatiles (EPA SW-846 Method 8260D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	SW/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 20% IC ≤ 30%
IV.	Continuing calibration	A	%D ≤ 20%
V.	Laboratory Blanks	SW	
VI.	Field blanks	ND	TB = 12, 13
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	SW	LCS 1X
X.	Field duplicates	N	
XI.	Internal standards	SW	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	Overall assessment of data	SW	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER: -

	Client ID	Lab ID	Matrix	Date
1	CC-SB-02-SO-2.5-20221110	211162-01	Soil	11/10/22
2	CC-SB-02-SO-7.5-20221110	211162-02	Soil	11/10/22
3	CC-SB-02-SO-14-20221110	211162-03	Soil	11/10/22
4	CC-SB-02-SO-16-20221110	211162-04	Soil	11/10/22
5	CC-SB-02-SO-22-20221110	211162-05	Soil	11/10/22
6	CC-SB-01-SO-2.5-20221110	211162-06	Soil	11/10/22
7	CC-MW-2S-SO-2.5-20221110	211162-07	Soil	11/10/22
8	CC-SB01-SO-8-20221110	211162-08	Soil	11/10/22
9	CC-SB01-SO-12.5-20221110	211162-09	Soil	11/10/22
10	CC-SB01-SO-17.5-20221110	211162-10	Soil	11/10/22
11	CC-SB01-SO-22-20221110	211162-11	Soil	11/10/22
12	TB-20221110	211162-12	Water	11/10/22
13	TB-20221110RE	211162-12RE	Water	11/10/22
14				
15	1. 02-2750 MB 2. 02-2819 MB (MS II)			

MS13 ↓

C, PPP, QQQ, S, AA only

LDC #: 55954A1a

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: JVG

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?
(Y) N N/A Were air bubbles > 1/4 inch or was headspace present in the vials?

METHOD : GC/MS VOA (EPA SW 846 Method 8260(D))

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
13 (ND)	Analyzed with	headspace					J/UJ/A

TECHNICAL HOLDING TIME CRITERIA

Water unpreserved:	Within 7 days of sample collection.
Water preserved:	Within 14 days of sample collection.
Soil:	Within 14 days of sample collection.
Encores/Terracores unpreserved:	Analyzed within 48 hours
Encores/Terracores preserved:	Analyzed within 14 days

LDC #: 55954 A1a

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260b)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a method blank associated with every sample in this SDG?
Y (N) N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
Y N (N/A) Was there contamination in the method blanks? If yes, please see the qualifications below.

Text: (see H1a)

Blank analysis date: _____
Conc. units: _____ Associated Samples: 12, 13 (ND) (NQ - results ND)

Compound	Blank ID	Sample Identification								
All	No MB/LB provided									

Blank analysis date: _____
Conc. units: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification								

Note: MB provided analyzed on a different instrument.

LDC #: 55954 H1a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a LCS required?

Y N (N/A) Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	LCS/LCSD ID	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Associated Samples	Qualifications
	No LCS provided	All analytes				( )	12, 13 (ND)	J/UJ/P
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
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						( )		
						( )		
						( )		
						( )		

LDC #: 55954 A1a

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within -50 to +100% of the associated calibration standard?

Y (N) N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		12 (MD)	FBZ	37123 (45287- 181146)		J/UJ (all)
			CBZ	34647 (44435- 177738)		

(BCM) = Bromochloromethane
(DFB) = 1,4-Difluorobenzene
(CBZ) = Chlorobenzene-d5
(PFB) = Pentafluorobenzene
(4DCB) = 1,4-Dichlorobenzene-d4
(2DCB) = 1,2-Dichlorobenzene-d4
(FBZ) = Fluorobenzene
(TBA) = Tert butyl alcohol-d9
(BUT) = 2-Butanone-d5

LDC #: 55954 A1Q

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.
Y N N/A Was the overall quality and usability of the data acceptable?

#	Date	Sample ID	Compound	Finding	Qualifications
		13	All	Analyzed with headspace. (Confirmation for IS failure)	NR

Comments: _____

LDC Report# 55954B1a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: February 17, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 211213

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
CC-MW-4D-SO-3.9-20221114	211213-01	Soil	11/14/22
CC-MW-4D-SO-9-20221114	211213-02	Soil	11/14/22
CC-MW-4D-SO-12-20221114	211213-03	Soil	11/14/22
CC-MW-4D-SO-20-20221114	211213-04	Soil	11/14/22
CC-MW-4D-SO-23-20221114	211213-05	Soil	11/14/22
CC-MW-4D-SO-26-20221114	211213-06	Soil	11/14/22
TB-20221114	211213-07	Water	11/14/22
CC-MW-4D-SO-33-20221114	211213-08	Soil	11/14/22
CC-MW-4D-SO-62-20221114	211213-09	Soil	11/14/22
CC-MW-4D-SO-68-20221114	211213-10	Soil	11/14/22
CC-MW-4D-SO-74-20221114	211213-11	Soil	11/14/22
CC-MW-4D-SO-77-20221114	211213-12	Soil	11/14/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For analytes where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the analytes, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all analytes were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-20221114 was identified as a trip blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 211213

No Sample Data Qualified in this SDG

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 211213

No Sample Data Qualified in this SDG

LDC #: 55954B1a **VALIDATION COMPLETENESS WORKSHEET** Date: 07/16/23
SDG #: 211213 Stage 2B Page: 1 of 1
Laboratory: Friedman & Bruya, Inc., Seattle, WA Reviewer: JV
2nd Reviewer: AC

METHOD: GC/MS Volatiles (EPA SW-846 Method 8260D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20 % r² ICV ≤ 30 %
IV.	Continuing calibration	A	%D ≤ 20 %
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 7
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCS 5
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	CC-MW-4D-SO-3.9-20221114	211213-01	Soil	11/14/22
2	CC-MW-4D-SO-9-20221114	211213-02	Soil	11/14/22
3	CC-MW-4D-SO-12-20221114	211213-03	Soil	11/14/22
4	CC-MW-4D-SO-20-20221114	211213-04	Soil	11/14/22
5	CC-MW-4D-SO-23-20221114	211213-05	Soil	11/14/22
6	CC-MW-4D-SO-26-20221114	211213-06	Soil	11/14/22
7	TB-20221114	211213-07	Water	11/14/22
8	CC-MW-4D-SO-33-20221114	211213-08	Soil	11/14/22
9	CC-MW-4D-SO-62-20221114	211213-09	Soil	11/14/22
10	CC-MW-4D-SO-68-20221114	211213-10	Soil	11/14/22
11	CC-MW-4D-SO-74-20221114	211213-11	Soil	11/14/22
12	CC-MW-4D-SO-77-20221114	211213-12	Soil	11/14/22
13				
14	02-2768 MB* n/18	-3. 02-2769 MB (MS13)		
15	02-2765 MB n/19 (MS11)			

c, PPP, QQQ, S, AA only

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: February 17, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 211237

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
CC-MW-2D-SO-60-20221116	211237-01	Soil	11/16/22
CC-MW-6-SO-2.5-20221116	211237-02	Soil	11/16/22
CC-MW-2D-SO-63-20221116	211237-03	Soil	11/16/22
CC-MW-2D-SO-69-20221116	211237-04	Soil	11/16/22
CC-MW-3-SO-2.5-20221116	211237-05	Soil	11/16/22
CC-MW-TB-20221116	211237-06	Water	11/16/22
CC-MW-2D-SO-71-20221116	211237-07	Soil	11/16/22
CC-MW-2D-SO-78-20221116	211237-08	Soil	11/16/22
CC-MW-2D-SO-60-20221116MS	211237-01MS	Soil	11/16/22
CC-MW-2D-SO-60-20221116MSD	211237-01MSD	Soil	11/16/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes.

Average relative response factors (RRF) for all analytes were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample CC-MW-TB-20221116 was identified as a trip blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 211237

No Sample Data Qualified in this SDG

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 211237

No Sample Data Qualified in this SDG

LDC #: 55954C1a **VALIDATION COMPLETENESS WORKSHEET** Date: 02/16/23
SDG #: 211237 Stage 2B Page: 1 of 1
Laboratory: Friedman & Bruya, Inc., Seattle, WA Reviewer: JVG
2nd Reviewer: A

METHOD: GC/MS Volatiles (EPA SW-846 Method 8260D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20 ? ICV ≤ 30 %
IV.	Continuing calibration	A	%D ≤ 20 %
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 6
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	CC-MW-2D-SO-60-20221116	211237-01	Soil	11/16/22
2	CC-MW-6-SO-2.5-20221116	211237-02	Soil	11/16/22
3	CC-MW-2D-SO-63-20221116	211237-03	Soil	11/16/22
4	CC-MW-2D-SO-69-20221116	211237-04	Soil	11/16/22
5	CC-MW-3-SO-2.5-20221116	211237-05	Soil	11/16/22
6	CC-MW-TB-20221116	211237-06	Water	11/16/22
7	CC-MW-2D-SO-71-20221116	211237-07	Soil	11/16/22
8	CC-MW-2D-SO-78-20221116	211237-08	Soil	11/16/22
9	CC-MW-2D-SO-60-20221116MS	211237-01MS	Soil	11/16/22
10	CC-MW-2D-SO-60-20221116MSD	211237-01MSD	Soil	11/16/22
11				

Notes:

-1	02-2753 MB	11/18					
-7	02-2769 ↓	11/18					

C, PPP, QQQ, S, AA only

LDC Report# 55954D1a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: February 17, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 211239

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
CC-MW-2D-SO-7-20221115	211239-01	Soil	11/15/22
CC-MW-2D-SO-15-20221115	211239-02	Soil	11/15/22
CC-MW-FD1-SO-7-20221115	211239-03	Soil	11/15/22
CC-MW-2D-SO-18-20221115	211239-04	Soil	11/15/22
CC-MW-2D-SO-20-20221115	211239-05	Soil	11/15/22
CC-MW-FD2-SO-20-20221115	211239-06	Soil	11/15/22
CC-MW-2D-SO-27-20221115	211239-07	Soil	11/15/22
CC-MW-2D-SO-33-20221115	211239-08	Soil	11/15/22
CC-MW-2D-SO-39-20221115	211239-09	Soil	11/15/22
CC-MW-2D-SO-41-20221115	211239-10	Soil	11/15/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes.

Average relative response factors (RRF) for all analytes were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples CC-MW-2D-SO-7-20221115 and CC-MW-FD1-SO-7-20221115 and samples CC-MW-2D-SO-20-20221115 and CC-MW-FD2-SO-20-20221115 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	CC-MW-2D-SO-7-20221115	CC-MW-FD1-SO-7-20221115	
Tetrachloroethene	0.0068	0.0078	14

Analyte	Concentration (mg/Kg)		RPD
	CC-MW-2D-SO-20-20221115	CC-MW-FD2-SO-20-20221115	
Tetrachloroethene	0.018	0.028	43

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 211239

No Sample Data Qualified in this SDG

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 211239

No Sample Data Qualified in this SDG

LDC #: 55954D1a **VALIDATION COMPLETENESS WORKSHEET** Date: 02/16/23
SDG #: 211239 Stage 2B Page: 1 of 1
Laboratory: Friedman & Bruya, Inc., Seattle, WA Reviewer: JVG
2nd Reviewer: AS

METHOD: GC/MS Volatiles (EPA SW-846 Method 8260D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20?, ICV ≤ 30%
IV.	Continuing calibration	A	%D ≤ 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	211237-01
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D = 1/3, 5/6
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1	CC-MW-2D-SO-7-20221115	D1	211239-01	Soil	11/15/22
2	CC-MW-2D-SO-15-20221115		211239-02	Soil	11/15/22
3	CC-MW-FD1-SO-7-20221115	D1	211239-03	Soil	11/15/22
4	CC-MW-2D-SO-18-20221115		211239-04	Soil	11/15/22
5	CC-MW-2D-SO-20-20221115	D2	211239-05	Soil	11/15/22
6	CC-MW-FD2-SO-20-20221115	D2	211239-06	Soil	11/15/22
7	CC-MW-2D-SO-27-20221115		211239-07	Soil	11/15/22
8	CC-MW-2D-SO-33-20221115		211239-08	Soil	11/15/22
9	CC-MW-2D-SO-39-20221115		211239-09	Soil	11/15/22
10	CC-MW-2D-SO-41-20221115		211239-10	Soil	11/15/22
11					

Notes:

-	02-2753 MB	(11/18)					

C, PPP, QQQ, S, AA only

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2. 1,2,4,5-Tetramethylbenzene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2. Octane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1. 2-Propanol	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1. p-Diethylbenzene	Z2.

LDC#: 55954D1a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG

METHOD: GCMS VOA (EPA SW 846 Method 8260D)

Compound	Concentration (mg/Kg)		RPD
	1	3	
AA	0.0068	0.0078	14

Compound	Concentration (mg/Kg)		RPD
	5	6	
AA	0.018	0.028	43

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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: March 28, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 211274

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
CC-MW-3-SO-5-20221117	211274-01	Soil	11/17/22
CC-MW-3-SO-15-20221117	211274-02	Soil	11/17/22
CC-MW-3-SO-18-20221117	211274-03	Soil	11/17/22
CC-MW-3-SO-23-20221117	211274-04	Soil	11/17/22
CC-MW-3-SO-29-20221117	211274-05	Soil	11/17/22
CC-MW-3-SO-34-20221117	211274-06	Soil	11/17/22
CC-MW-3-SO-7-20221117	211274-07	Soil	11/17/22
CC-MW-FD3-SO-7-20221117	211274-08	Soil	11/17/22
CC-MW-6-SO-13-20221117	211274-09	Soil	11/17/22
CC-MW-6-SO-16-20221117	211274-10	Soil	11/17/22
CC-MW-6-SO-22-20221117	211274-11	Soil	11/17/22
CC-MW-6-SO-27-20221117	211274-12	Soil	11/17/22
CC-MW-6-SO-34-20221117	211274-13	Soil	11/17/22
TB-20221117	211274-14	Water	11/17/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes.

Average relative response factors (RRF) for all analytes were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-20221117 was identified as a trip blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples CC-MW-3-SO-7-20221117 and CC-MW-FD3-SO-7-20221117 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 211274

No Sample Data Qualified in this SDG

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 211274

No Sample Data Qualified in this SDG

LDC #: 55954E1a **VALIDATION COMPLETENESS WORKSHEET** Date: 02/16/23
SDG #: 211274 Stage 2B Page: 1 of 1
Laboratory: Friedman & Bruya, Inc., Seattle, WA Reviewer: JVG
2nd Reviewer: A

METHOD: GC/MS Volatiles (EPA SW-846 Method 8260D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20%. ICV ≤ 30%.
IV.	Continuing calibration	A	%D ≤ 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 14
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	ND	D = 7/8
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1	CC-MW-3-SO-5-20221117		211274-01	Soil	11/17/22
2	CC-MW-3-SO-15-20221117		211274-02	Soil	11/17/22
3	CC-MW-3-SO-18-20221117		211274-03	Soil	11/17/22
4	CC-MW-3-SO-23-20221117		211274-04	Soil	11/17/22
5	CC-MW-3-SO-29-20221117		211274-05	Soil	11/17/22
6	CC-MW-3-SO-34-20221117		211274-06	Soil	11/17/22
7	CC-MW-3-SO-7-20221117	D	211274-07	Soil	11/17/22
8	CC-MW-FD3-SO-7-20221117	D	211274-08	Soil	11/17/22
9	CC-MW-6-SO-13-20221117		211274-09	Soil	11/17/22
10	CC-MW-6-SO-16-20221117		211274-10	Soil	11/17/22
11	CC-MW-6-SO-22-20221117		211274-11	Soil	11/17/22
12	CC-MW-6-SO-27-20221117		211274-12	Soil	11/17/22
13	CC-MW-6-SO-34-20221117		211274-13	Soil	11/17/22
14	TB-20221117		211274-14	Water	11/17/22
15	1. 02-2765 MB	2. 02-2647 MB			

C, PPP, QQQ, S, AA only

LDC Report# 55954F1a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: February 17, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 212059

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-20221205	212059-01	Water	12/05/22
CC-MW-4D-GW-20221205	212059-02	Water	12/05/22
CC-MW-2S-GW-20221205	212059-03	Water	12/05/22
CC-MW-2D-GW-20221205	212059-04	Water	12/05/22
CC-MW-03-GW-20221205	212059-05	Water	12/05/22
CC-MW-06-GW-20221205	212059-06	Water	12/05/22
CC-MW-01-GW-20221205	212059-07	Water	12/05/22
BP-MW-8-GW-20221205	212059-08	Water	12/05/22
CC-MW-4D-GW-20221205MS	212059-02MS	Water	12/05/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For analytes where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the analytes, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all analytes were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
12/09/22	Vinyl chloride	27.6	TB-20221205 CC-MW-03-GW-20221205 CC-MW-06-GW-20221205	NA	-

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method with the following exceptions:

Sample	Analyte	Finding	Flag	A or P
CC-MW-4D-GW-20221205 CC-MW-2S-GW-20221205 CC-MW-2D-GW-20221205 CC-MW-01-GW-20221205 BP-MW-8-GW-20221205	All analytes	Method blank and instrument blank data were not provided.	J (all detects)	P

VI. Field Blanks

Sample TB-20221205 was identified as a trip blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
CC-MW-4D-GW-20221205 CC-MW-2S-GW-20221205 CC-MW-2D-GW-20221205 CC-MW-01-GW-20221205 BP-MW-8-GW-20221205	All analytes	No LCS analysis associated with these samples.	LCS analysis required.	J (all detects) UJ (all non-detects)	P

For all other samples, percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to no blanks and no LCS/LCSD, data were qualified as estimated in five samples.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 212059

Sample	Analyte	Flag	A or P	Reason
CC-MW-4D-GW-20221205 CC-MW-2S-GW-20221205 CC-MW-2D-GW-20221205 CC-MW-01-GW-20221205 BP-MW-8-GW-20221205	All analytes	J (all detects)	P	Laboratory blanks (no blanks)
CC-MW-4D-GW-20221205 CC-MW-2S-GW-20221205 CC-MW-2D-GW-20221205 CC-MW-01-GW-20221205 BP-MW-8-GW-20221205	All analytes	J (all detects) UJ (all non-detects)	P	Laboratory control samples (no LCS/LCSD)

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 212059

No Sample Data Qualified in this SDG

LDC #: 55954F1a **VALIDATION COMPLETENESS WORKSHEET** Date: 02/16/23
SDG #: 212059 Stage 2B Page: 1 of 1
Laboratory: Friedman & Bruya, Inc., Seattle, WA Reviewer: JVC
2nd Reviewer: AC

METHOD: GC/MS Volatiles (EPA SW-846 Method 8260D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20% or ICV ≤ 30%
IV.	Continuing calibration	SW	%D ≤ 20%
V.	Laboratory Blanks	SW	
VI.	Field blanks	ND	TB = 1
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	MS only
IX.	Laboratory control samples	SW	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
12/a 1	TB-20221205	212059-01	Water	12/05/22
2/a 2	CC-MW-4D-GW-20221205	212059-02	Water	12/05/22
2/a 3	CC-MW-2S-GW-20221205	212059-03	Water	12/05/22
1/a 4	CC-MW-2D-GW-20221205	212059-04	Water	12/05/22
2/a 5	CC-MW-03-GW-20221205	212059-05	Water	12/05/22
2/a 6	CC-MW-06-GW-20221205	212059-06	Water	12/05/22
1/a 7	CC-MW-01-GW-20221205	212059-07	Water	12/05/22
1/a 8	BP-MW-8-GW-20221205	212059-08	Water	12/05/22
9	CC-MW-4D-GW-20221205MS	212059-02MS	Water	12/05/22
10	~~CC-MW-4D-GW-20221205MSD~~	~~212059-02MSD~~	~~Water~~	~~12/05/22~~
11				

Notes:

—	02-2656 MB	(12/a)					

C, PPP, QQQ, S, AA only

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2. 1,2,4,5-Tetramethylbenzene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2. Octane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1. 2-Propanol	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1. p-Diethylbenzene	Z2.

LDC #: 55954 F1a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y (N) N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: <20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	12/09/22	120903	C (+)	27.6		1, 5, 6, (MD)	J dets/A

Note: * = Ave RRF failed method criteria but within validation criteria

LDC #: 55954 F1a

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260b)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a method blank associated with every sample in this SDG?

Y (N) N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

Y N (N/A) Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: _____

Conc. units: _____ Associated Samples: 2-4, 7, 8 (ND+Det) qual: J dets (p

Compound	Blank ID	Sample Identification								
All analytes	No MB/IB provided									

Blank analysis date: _____

Conc. units: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification								

(MB provided analyzed before samples)

LDC #: 55994F1a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y N (N/A) Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	LCS/LCSD ID	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Associated Samples	Qualifications
	No LCS provided	All analytes				( )	2-4, 7, 8 (ND + Det)	J/UJ/P
						( )		
						( )		
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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: April 10, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 212083

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-20221606	212083-01	Water	12/06/22
MW-18-GW-20221606	212083-02	Water	12/06/22
MW-20-GW-20221606	212083-03	Water	12/06/22
MW-22-GW-20221606	212083-04	Water	12/06/22
MW-23-GW-20221606	212083-05	Water	12/06/22
MW-27-GW-20221606	212083-06	Water	12/06/22
MW-28-GW-20221606	212083-07	Water	12/06/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For analytes where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the analytes, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all analytes were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
12/09/22	Vinyl chloride	27.6	TB-20221606 MW-18-GW-20221606 MW-20-GW-20221606	NA	-

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method with the following exceptions:

Sample	Analyte	Finding	Flag	A or P
MW-22-GW-20221606 MW-23-GW-20221606 MW-27-GW-20221606 MW-28-GW-20221606	Vinyl chloride	Method blank and instrument blank data were not provided.	J (all detects)	P

VI. Field Blanks

Sample TB-20221606 was identified as a trip blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-22-GW-20221606 MW-23-GW-20221606 MW-27-GW-20221606 MW-28-GW-20221606	Vinyl chloride	No LCS analysis associated with these samples.	LCS analysis required.	J (all detects)	P

For all other samples, LCS/LCSD percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to no blanks and no LCS/LCSD, data were qualified as estimated in four samples.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 212083

Sample	Analyte	Flag	A or P	Reason
MW-22-GW-20221606 MW-23-GW-20221606 MW-27-GW-20221606 MW-28-GW-20221606	Vinyl chloride	J (all detects)	P	Laboratory blanks (no blanks)
MW-22-GW-20221606 MW-23-GW-20221606 MW-27-GW-20221606 MW-28-GW-20221606	Vinyl chloride	J (all detects)	P	Laboratory control samples (no LCS/LCSD)

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 212083

No Sample Data Qualified in this SDG

LDC #: 55954G1a **VALIDATION COMPLETENESS WORKSHEET** Date: 02/15/23
SDG #: 212083 Stage 2B Page: 1 of 1
Laboratory: Friedman & Bruya, Inc., Seattle, WA Reviewer: JVG
2nd Reviewer: AE

METHOD: GC/MS Volatiles (EPA SW-846 Method 8260D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20% r ICV ≤ 30%
IV.	Continuing calibration	SW	%D ≤ 20%
V.	Laboratory Blanks	SW	
VI.	Field blanks	ND	TB = 1
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	SW	LCS D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER: —

	Client ID	Lab ID	Matrix	Date
1	TB-20221606	212083-01	Water	12/06/22
2	MW-18-GW-20221606	212083-02	Water	12/06/22
3	MW-20-GW-20221606	212083-03	Water	12/06/22
4	MW-22-GW-20221606	212083-04	Water	12/06/22
5	MW-23-GW-20221606	212083-05	Water	12/06/22
6	MW-27-GW-20221606	212083-06	Water	12/06/22
7	MW-28-GW-20221606	212083-07	Water	12/06/22
8				
9				
10				

2/4-C

Notes:

1	02-2859 MB2	(12/9)					

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2. 1,2,4,5-Tetramethylbenzene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2. Octane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1. 2-Propanol	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1. p-Diethylbenzene	Z2.

LDC #: 55954Gia

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y (N) N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	12/09/22	120903	C (+)	27.6		1-3, MB1 (ND)	J dets / A

Note: * = Ave RRF failed method criteria but within validation criteria

LDC #: 55954 G1a

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a method blank associated with every sample in this SDG?
Y (N) N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
Y N (N/A) Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date:
Conc. units: Associated Samples: 4,5-7 (Det) qual: J dets/P

Compound	Blank ID	Sample Identification								
C	No MB or instrument blank provided									

Blank analysis date:
Conc. units: Associated Samples:

Compound	Blank ID	Sample Identification								

LDC #: 55954G1a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	LCS/LCSD ID	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Associated Samples	Qualifications
	No LCS provided	C				( )	4,5-7 (Det)	J/UJ/P
						( )		
						( )		
						( )		
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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: April 10, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 212113

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-20221207	212113-01	Water	12/07/22
BP-MW-27-GW-20221207	212113-02	Water	12/07/22
BP-MW-28-GW-20221207	212113-03	Water	12/07/22
MW-25-GW-20221207	212113-04	Water	12/07/22
BP-FD-27-GW-20221207	212113-05	Water	12/07/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For analytes where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the analytes, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all analytes were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method with the following exceptions:

Sample	Analyte	Finding	Flag	A or P
BP-MW-27-GW-20221207 MW-25-GW-20221207 BP-FD-27-GW-20221207	Vinyl chloride	Method blank and instrument blank data were not provided.	J (all detects)	P

For sample BP-FD-27-GW-20221207, although method blank and instrument blank data were not provided, results were not qualified for cis-1,2-Dichloroethene, as the analyte was not detected in the sample.

VI. Field Blanks

Sample TB-20221207 was identified as a trip blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
BP-MW-27-GW-20221207 MW-25-GW-20221207 BP-FD-27-GW-20221207	Vinyl chloride	No LCS analysis associated with these samples.	LCS analysis required.	J (all detects) UJ (all non-detects)	P
BP-FD-27-GW-20221207	cis-1,2-Dichloroethene	No LCS analysis associated with these samples.	LCS analysis required.	UJ (all non-detects)	P

For all other samples, LCS/LCSD percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples BP-MW-27-GW-20221207 and BP-FD-27-GW-20221207 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	BP-MW-27-GW-20221207	BP-FD-27-GW-20221207	
Trichloroethene	0.2	0.21	5

Analyte	Concentration (ug/L)		RPD
	BP-MW-27-GW-20221207	BP-FD-27-GW-20221207	
Tetrachloroethene	18	19	5
Vinyl chloride	0.024	0.029	19

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to no blanks and no LCS/LCSD, data were qualified as estimated in three samples.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 212113

Sample	Analyte	Flag	A or P	Reason
BP-MW-27-GW-20221207 MW-25-GW-20221207 BP-FD-27-GW-20221207	Vinyl chloride	J (all detects)	P	Laboratory blanks (no blanks)
BP-MW-27-GW-20221207 MW-25-GW-20221207 BP-FD-27-GW-20221207	Vinyl chloride	J (all detects) UJ (all non-detects)	P	Laboratory control samples (no LCS/LCSD)
BP-FD-27-GW-20221207	cis-1,2-Dichloroethene	UJ (all non-detects)	P	Laboratory control samples (no LCS/LCSD)

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 212113

No Sample Data Qualified in this SDG

LDC #: 55954H1a **VALIDATION COMPLETENESS WORKSHEET** Date: 02/15/23
SDG #: 212113 Stage 2B Page: 1 of 1
Laboratory: Friedman & Bruya, Inc., Seattle, WA Reviewer: JV
2nd Reviewer: A

METHOD: GC/MS Volatiles (EPA SW-846 Method 8260D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20% r ICV ≤ 30%
IV.	Continuing calibration	A	%D ≤ 20%
V.	Laboratory Blanks	SW	
VI.	Field blanks	ND	TB = 1
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	SW	LCS/D
X.	Field duplicates	SW	D = 2/5
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER: —
SW = See worksheet FB = Field blank EB = Equipment blank

		Client ID		Lab ID	Matrix	Date
12/9	1	TB-20221207		212113-01	Water	12/07/22
12/16-C	2	BP-MW-27-GW-20221207	D	212113-02	Water	12/07/22
12/16-C	3	BP-MW-28-GW-20221207		212113-03	Water	12/07/22
12/14-C	4	MW-25-GW-20221207		212113-04	Water	12/07/22
12/15-C QQQ	5	BP-FD-27-GW-20221207	D	212113-05	Water	12/07/22
	6					
	7					
	8					
	9					
	10					

Notes:

—	02-2859 MBV	(12/9)					

C, PPP, QQQ, S, AA

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2. 1,2,4,5-Tetramethylbenzene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2. Octane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1. 2-Propanol	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1. p-Diethylbenzene	Z2.

LDC #: 55954H1a

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a method blank associated with every sample in this SDG?

Y (N) N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

Y N (N/A) Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date:_____

Conc. units:_____ Associated Samples: 2, 4, 5 ~~2-5~~ 2 (Det) qual = Jdet/p

Compound	Blank ID	Sample Identification								
C.	No MB or instrument blank provided									

Blank analysis date:_____

Conc. units:_____ Associated Samples: 5 (ND) Text = No MB/TB provided, result not qualified as analyte was not detected in the sample.

Compound	Blank ID	Sample Identification								
QQQ	No MB or instrument blank provided									

LDC #: 55954A1a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y N (N/A) Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	LCS/LCSD ID	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Associated Samples	Qualifications
	No LCS provided	C				( )	2A2-5 (Det)	J/UJ/P
		QQQ				( )	5 (ND)	↓
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
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						( )		
						( )		
						( )		
						( )		

LDC#: 55954H1a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG

METHOD: GCMS VOA (EPA SW 846 Method 8260D)

Compound	Concentration (ug/L)		RPD
	2	5	
S	0.2	0.21	5
AA	18	19	5
C	0.024	0.029	19

V:\Josephine\FIELD DUPLICATES\55954H1a anchor carson cleaners nq.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: February 17, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 212114

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
CC-IA-04-20221207	212114-01	Air	12/07/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method TO-15

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

The canisters were properly pressurized and handled.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 24 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 30.0% for all analytes.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all analytes.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

Canister blank analyses were performed for every sample canister. No contaminants were found in the canister blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Although surrogates were not required by the method, surrogate analysis was performed by the laboratory. Surrogate recoveries (%R) were within QC limits.

VIII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 212114

No Sample Data Qualified in this SDG

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 212114

No Sample Data Qualified in this SDG

LDC #: 55954I48 **VALIDATION COMPLETENESS WORKSHEET** Date: 02/15/23
SDG #: 212114 Stage 2B Page: 1 of 1
Laboratory: Friedman & Bruya, Inc., Seattle, WA Reviewer: MG
2nd Reviewer: A

METHOD: GC/MS Volatiles (EPA Method TO-15)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 30% ICV ≤ 30%
IV.	Continuing calibration	A	%D ≤ 30%
V.	Laboratory Blanks /canisters per sample	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	~~N~~ A	
VIII.	Duplicate sample analysis	N	
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	~~Leak Check Compounds~~	-	
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER: -
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	CC-IA-04-20221207	212114-01	Air	12/07/22
2				
3				
4				
5				
6				
7				
8				
9				

Notes:

-	02-2958 MB						

5 compounds only = C, PPP, QAQ, S, AA

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Carson Cleaners

LDC Report Date: February 17, 2023

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Friedman & Bruya, Inc., Seattle, WA

Sample Delivery Group (SDG): 212177

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
CC-SS-01-20221209	212177-01	Air	12/09/22
CC-SS-02-20221209	212177-02	Air	12/09/22
CC-SS-03-20221209	212177-03	Air	12/09/22
CC-IA-01-20221209	212177-04	Air	12/09/22
CC-IA-02-20221209	212177-05	Air	12/09/22
CC-IA-03-20221209	212177-06	Air	12/09/22
CC-AA-01-20221209	212177-07	Air	12/09/22

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Quality Assurance Project Plan for Carson Cleaners Site, Seattle, Washington (October 2021) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method TO-15

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

The canisters were properly pressurized and handled.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 24 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 30.0% for all analytes.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all analytes.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all analytes.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

Canister blank analyses were performed for every sample canister. No contaminants were found in the canister blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Although surrogates were not required by the method, surrogate analysis was performed by the laboratory. Surrogate recoveries (%R) were within QC limits.

VIII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Carson Cleaners
Volatiles - Data Qualification Summary - SDG 212177

No Sample Data Qualified in this SDG

Carson Cleaners
Volatiles - Laboratory Blank Data Qualification Summary - SDG 212177

No Sample Data Qualified in this SDG

LDC #: 55954J48 **VALIDATION COMPLETENESS WORKSHEET** Date: 02/08/23
SDG #: 212177 Stage 2B Page: 1 of 1
Laboratory: Friedman & Bruya, Inc., Seattle, WA Reviewer: SW
2nd Reviewer: A

METHOD: GC/MS Volatiles (EPA Method TO-15)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 30% ICV ≤ 30%
IV.	Continuing calibration	A	%D ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	~~N~~ A	
VIII.	Duplicate sample analysis	N	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	~~Leak Check Compounds~~	~~N~~	
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER: —
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	CC-SS-01-20221209	212177-01	Air	12/09/22
2	CC-SS-02-20221209	212177-02	Air	12/09/22
3	CC-SS-03-20221209	212177-03	Air	12/09/22
4	CC-IA-01-20221209	212177-04	Air	12/09/22
5	CC-IA-02-20221209	212177-05	Air	12/09/22
6	CC-IA-03-20221209	212177-06	Air	12/09/22
7	CC-AA-01-20221209	212177-07	Air	12/09/22
8				
9				

Notes:

—	02-2970 MB						

(5 cpds only) (C, PPP, QQQ, S, AA)

Attachment 3
Ecology Deviation Approval

From: Gavin Casson
To: Stephen Strehl
Subject: FW: Quarterly Progress Report: Fourth Quarter 2022 Carson Cleaners Site, Cleanup Site ID#14878
Date: Tuesday, April 4, 2023 12:58:32 PM

See below.

Thanks,

Gavin Casson, P.E. (he/him)
Managing Engineer

ANCHOR QEA, LLC
1201 3rd Avenue, Suite 2600
Seattle, WA 98101
C 970.309.4752

From: Myers, Dale - TCP (ECY) <DAMY461@ECY.WA.GOV>
Sent: Tuesday, January 17, 2023 7:19 AM
To: Halah Voges <hvoges@anchorqea.com>
Cc: Johnson, Scott D. <SJohnson@helsell.com>; Gavin Casson <gcasson@anchorqea.com>; Nathan Soccorsy <nsoccorsy@anchorqea.com>; Myers, Dale - TCP (ECY) <DAMY461@ECY.WA.GOV>; Wooten, Kim (ECY) <kiwo461@ECY.WA.GOV>
Subject: RE: Quarterly Progress Report: Fourth Quarter 2022 Carson Cleaners Site, Cleanup Site ID#14878

Halah

On December 28, 2022 you submitted the Carson Cleaners Q4 2022 Monitoring Update, Quarterly Report for the Carson Cleaners Cleanup site with a request for a deviation to the RI Work Plan stating:

- Based on feedback from the laboratory, we propose a deviation from the Work Plan moving forward. We propose collecting grab samples at the sub-slab locations during the next quarterly event. It is our understanding

that the chance of condensation buildup stopping the flow of gas during a grab sample is much less due to the higher flow rate on the Summa canisters. The laboratory stated they are accustomed to receiving grabs for sub-slab sampling due to this issue.

-

Ecology approves your request for the deviation.

Please provide an updated timeline for projected completion of RI Field Activities.

Additionally, Ecology request an update on your coordination with Chevron in determining the extent comingling of TPH and HVOC's in groundwater.

Please include this email response in your next quarterly Report

Respectfully

Dale Myers
Department of Ecology
Formal LUST Site Project Manager
Northwest Regional Office
Cell Phone No.: (425) 389-2521

Shoreline physical address: 15700 Dayton Ave N, Shoreline, WA
Shoreline Mailing address: PO Box 330316, Shoreline WA 98133-9716

From: Halah Voges <hvoges@anchorqea.com>
Sent: Friday, January 13, 2023 2:14 PM
To: Myers, Dale - TCP (ECY) <DAMY461@ECY.WA.GOV>
Cc: Johnson, Scott D. <SJohnson@helsell.com>; Gavin Casson <gcasson@anchorqea.com>; Nathan Soccorsy <nsoccorsy@anchorqea.com>
Subject: Quarterly Progress Report: Fourth Quarter 2022 Carson Cleaners Site, Cleanup Site ID#14878

Dale –

On behalf of Tahn Associates, LLC, attached please find the Q4 2022 Progress Report submitted in accordance with Agreed Order No. DE 19805 for the Carson Cleaners Site. Please let me know if you have any questions regarding the report. Thanks.

Halah M. Voges, P.E.
Principal Engineer

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