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ZF Active Safety US Inc.

PROGRESS REPORT NO. 1

Former Kelsey-Hayes Company Site, Milford, Michigan

Administrative Order for Response Activity, EGLE Docket No. AO-RRD-22-001

May 15, 2022

PROGRESS REPORT NO. 1
FORMER KELSEY-HAYES COMPANY
MILFORD, MICHIGAN
ADMINISTRATIVE ORDER FOR RESPONSE ACTIVITY EGLE DOCKET NO. AO-RRD-22-001

This progress report has been prepared and is being submitted pursuant to Section XII of the Administrative Order for Response Activity, Docket No. AO-RRD-22-001 (AO) issued by the Department of Environment, Great Lakes, and Energy (EGLE) to ZF Active Safety US Inc. (ZF or Respondent) on March 16, 2022 (effective date), with respect to the former Kelsey-Hayes site in Milford, Michigan (the “Site”). This progress report provides information regarding response activities and other matters related to the AO, that have occurred since the AO effective date (March 16, 2022, through May 10, 2022).

Chronological Description of Activities Conducted during the Specified Reporting Period:

- Observation Well OW-16D2 was sampled on March 21, 2022, and April 4, 8, and 18, 2022. Samples were submitted to Eurofins Canton, Ohio (Eurofins) for analysis of chlorinated volatile organic compounds (VOCs) using United States Environmental Protection Agency (USEPA) Test Method 8260D. In addition, samples collected on April 4, 8, and 18, 2022 were also submitted to Fibertec Environmental Services of Holt, Michigan (Fibertec) for expedited analysis (48-hour turnaround time) of VOCs using USEPA Test Method 8260D. All results have been submitted to EGLE and the Village of Milford (VOM) and are attached. No vinyl chloride was detected in any of the April samples.

- Pursuant to Section XVIII of the AO, a conference with EGLE was conducted on March 31, 2022, to discuss the AO. ZF presented a summary of the extensive data collected with respect to the Site including a timeline of response actions and ZF’s conceptual site model.

- On April 1, 2022, initial redevelopment activities were conducted on OW-16D2 due to prior observations which indicated that the condition of the well may have been compromised and previous water samples from OW-16D2 were likely not representative of groundwater conditions in the aquifer. Following the redevelopment activities, information collected from OW-16D2 indicated that the well screen, sand pack, and/or formation around the screen was not functioning as designed. Even after this initial redevelopment work and removal of all of the water from the well, the water level in the well recovered very slowly.

- Detailed information about the initial redevelopment work on OW-16D2 was presented to EGLE in a letter dated April 8, 2022 and is included in Attachment 1 (the “April 8th Letter”). The April 8th Letter includes laboratory results from a post well redevelopment sample collected on Monday, April 4, 2022. Vinyl chloride was not detected in the sample. In addition, ZF also provided additional groundwater field parameters for low-flow groundwater sampling of OW-16D2 since 2010, as requested by EGLE during the March 31st meeting. The findings from the initial well redevelopment activities on OW-16D2 provided compelling evidence of well integrity and performance and data quality concerns at OW-16D2 that indicated further evaluation and corrective actions on the well were appropriate.

- On April 13, 2022, ZF submitted another letter to EGLE presenting laboratory analytical results of a second post-redevelopment sample collected from OW-16D2 on April 8, 2022 (the "April 13th Letter"). No vinyl chloride was detected in the sample. Based on the observations from the initial well redevelopment work on OW-16D2 and no vinyl chloride detected in the April 8, 2022 sample, it appears that the vinyl chloride that had been detected in OW-16D2 prior to the recent well redevelopment work was the result of stagnant water within the well and not representative of true groundwater conditions. In the April 13th Letter, ZF indicated that a detailed work plan would be submitted to EGLE by April 22, 2022, describing further work to rehabilitate OW-16D2 (or replace it) and additional sampling of OW-16D2 to fully understand the condition of the well and the presence of vinyl chloride in samples collected prior to well rehabilitation activities. ZF also requested a 60-day extension of the AO response deadline to complete the anticipated work plan and well rehabilitation activities. A copy of the April 13th Letter is included as Attachment 2.
- On April 14, 2022, EGLE responded to ZF's April 8th Letter and April 13th Letter and agreed that the information presented by ZF warrants additional investigation by ZF. However, EGLE would not grant ZF an extension of the AO deadline (the "EGLE April 14th Letter"). Nonetheless, EGLE acknowledged that ZF should submit a work plan to further investigate the condition of OW-16D2. EGLE encouraged the review and rehabilitation of OW-16D2, requested vertical aquifer profiling (VAP) near OW-16D2 to verify the zone of highest contamination, and suggested installing a new well if the depth of VOC impacts differs from the screened interval of OW-16D2. A copy of the EGLE April 14th Letter is included as Attachment 3.
- On April 15, 2022, pursuant to Section XVII of the AO, ZF submitted its response to the AO confirming that ZF intends to comply with the AO and the subsequent ELGE April 14th Letter. The April 15, 2022 response to the AO is included an Attachment 4.
- Pursuant to Section V of the AO, ZF and Arcadis conducted the initial design meeting/call on April 20, 2022, with representatives from EGLE Drinking Water and Environmental Health Division (DWEHD) - Warren District Office, the VOM, and Wood (consultants for the VOM). A copy of the initial design meeting minutes is included in Attachment 5.
- On April 27, 2022, a follow-up conference call was conducted with ZF, Arcadis, EGLE DWEHD-WDO, VOM, and Wood. During that call, ZF verified that it will take the lead role in designing the treatment solution to prevent vinyl chloride from entering the VOM municipal drinking water system that is required by the AO.
- On April 27, 2022, EGLE held a virtual public meeting regarding the AO.
- As a follow-up to the initial design meeting, the Arcadis design team met at the VOM water plant on April 28, 2022, to review the existing treatment equipment at the iron removal plant and the well pump house. Information on the current operation and existing layout was noted. The VOM, Wood, and EGLE appeared open to other options on the type of air stripping system (alternate to the Packed Tower Air Stripper indicated in the AO) and where it's placed into service (before versus after the iron removal process). As a follow-up to this meeting, it was decided that design status update meetings would be scheduled with ZF, Arcadis, VOM, EGLE, and Wood (the "Design Group") two times a week. Design status update meetings have occurred on May 3, 6, and 10, 2022, with the Design Group. Based on these calls, the Design Group agreed that the design/construction would be much more complicated to install downstream of the iron removal process and that two air stripper units installed in place of the two existing aerators is acceptable. Although the potential for iron fouling is a consideration, the current aeration units don't appear to have an iron issue and the water chemistry

data provided by Wood does not suggest a significant iron fouling issue. A draft copy of the process flow diagram (prepared by Arcadis) and a summary of the basis of design and air stripping unit information provided by DeLoach Industries, Inc. (potential supplier of the air stripper units) are included as Attachment 6. Meeting minutes from the May 3, 6, and 10, 2022 Design Group meetings are included in Attachment 5.

- ZF submitted a Monitoring Well Rehabilitation and Vertical Aquifer Profiling Work Plan to EGLE on April 22, 2022 (the "Work Plan"). Pursuant to the Work Plan, ZF will perform the work listed in EGLE's April 14 Letter (Attachment 3) and will also conduct additional activities to further investigate, redevelop and possibly replace OW-16D2, and gather information to further assess the aquifer. The Work Plan is included as Attachment 7.
- On May 4, 2022, EGLE responded to ZF's Work Plan submittal and provided recommendations, questions, and comments regarding the Work Plan (the "EGLE May 4th Letter"). The EGLE May 4th Letter is included as Attachment 8.
- In response to EGLE's May 4th Letter regarding the Work Plan, ZF submitted a letter on May 15, 2022 to EGLE addressing each of EGLE's comments concerning the Work Plan (the "May 15th Letter"). The May 15th Letter is included as Attachment 9.

Results of Sampling and Tests and other Data

- As indicated above, OW-16D2 was sampled on March 21, 2022, and April 4, 8, and 18, 2022. Samples were submitted to Eurofins for analysis of VOCs using USEPA Test Method 8260D. In addition, samples collected on April 4, 8, and 18, 2022 were also submitted to Fibertec for expedited analysis (48-hour turnaround time) of VOCs using USEPA Test Method 8260D. A copy of the laboratory analytical reports is included in Attachment 10. No vinyl chloride was detected in any of the April samples.

Status of Access Issues

- There have been no issues with access during the reporting period.

Scheduled for the Next Reporting Period

- Conduct sampling at OW-16D2 on May 18, 2022, with analysis conducted by Eurofins within 10 days.
- Continue to conduct design status update meetings with the Design Group two times per week.
- Conduct the 80% Design Meeting on May 20, 2022.
- Perform vertical aquifer profiling during the period of May 16 through May 27, 2022.
- Perform rehabilitation activities of OW-16D2 during the month of June 2022.

Other Relevant Information

No other relevant information was identified during this reporting period.

Attachments

1. April 8, 2022 Letter from ZF
2. April 13, 2022 Letter from ZF
3. April 14, 2022 Letter from EGLE
4. April 15, 2022 Letter From ZF
5. Initial and Follow-up Design Meeting Minutes (April 20, May 3, 6, and 10, 2022)
6. Draft Process Flow Diagram and Summary of the Basis of Design and Air Stripping Unit Information
7. April 22, 2022 ZF Work Plan
8. May 4, 2022 letter from EGLE15
9. May 15, 2022 Letter from ZF
10. Laboratory Analytical Reports (Observation Well OW-16D2)

ATTACHMENT 1

April 8, 2022 Letter from ZF

ZF Active Safety US Inc.
12001 Tech Center Drive, Livonia, Michigan 48150-2122

Department Health Safety andEnvironmental
From Robert Bleazard
Phone +1 480 722-4866
Email Robert.Bleazard@zf.com
Date April 8, 2022

VIA E-MAIL TO: WojchiechowskiK@Michigan.gov

Kevin Wojciechowski, Project Manager
Warren District Office Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
27700 Donald Court
Warren, Michigan 48092

RE: ZF Active Safety US Inc. Additional Information for Consideration by Michigan Department of Environment, Great Lakes, and Energy Related to Administrative Order for Response Activity; EGLE Docket No. AO-RRD-22-001.

Dear Mr. Wojciechowski,

ZF Active Safety US Inc. (ZF) appreciates the opportunity to meet with the Department of Environment, Great Lakes, and Energy (EGLE) last Thursday, March 31, 2022, to discuss the Administrative Order for Response Activity (AO) issued by EGLE to ZF, with respect to the former Kelsey-Hayes site in Milford, Michigan (the "Site").

As demonstrated by ZF's November 23, 2021 letter in response to EGLE's October 25, 2021 Compliance Communication and its presentation of information at the meeting, ZF and Arcadis have been reviewing the extensive data collected for the Kelsey-Hayes site, as well as any other available information, in order to understand the recent emergence of vinyl chloride in groundwater monitoring well OW-16D2 when that compound has not been detected at any time elsewhere in ZF's off-site monitoring well network in more than 25 years of monitoring. Furthermore, Arcadis recently noted an anomalous response in water level and certain groundwater parameters in the well during sampling, raising concerns regarding the possible integrity of the well screen and/or the sand pack surrounding the well screen. In addition, considering EGLE's concerns regarding the proximity of OW-16D2 to the Village of Milford municipal wells and the statement in the Administrative Order that "the presence of vinyl chloride in monitoring well OW-16D2, a known carcinogen, represents an imminent and substantial endangerment to the public health, safety, welfare, or the environment…," ZF and Arcadis carefully analyzed the current viability of OW-16D2 and began evaluating whether samples collected from this well are representative of the aquifer.

Arcadis initially questioned whether OW-16D2 may be compromised because there was significant drawdown in the well during most of the low-flow sampling events where vinyl chloride was detected and purge volumes were observed to be similar to the volume of standing water removed from the well. This indicated stagnant water conditions in the well. In addition, water samples with vinyl chloride detections had an oxidation reduction potential (ORP) in the range of -60 to -134 millivolts and low dissolved oxygen (DO) levels (see attached Table 1 – Attachment 1). These conditions within the well provide a reducing environment where anerobic microbes are active and reductive dichlorination of chlorinated volatile organic compounds (CVOCs) can occur (i.e., cis-1,2-dichloroethene to vinyl chloride). Furthermore, vinyl chloride has not been detected in the six observation wells, OW-9, OW-09ML-A/B/C/D, and MW-03-94, located upgradient of OW-16D2, in the Village of Milford drinking water wells, or in any of the other monitoring wells regularly sampled by Arcadis that have proven to be reliable in monitoring other CVOCs including trichloroethene (TCE). Collectively, these multiple lines of evidence are what caused Arcadis to take a closer look at the condition of OW-16D2 and also suggests that the recent detection of vinyl chloride in OW-16D2 is localized, anomalous, and warrants further evaluation. The inability of OW-16D2 to sustain EGLE's low-flow sampling and groundwater parameter stabilization requirements also indicates that groundwater samples collected from OW-16D2 are: 1) not representative of groundwater conditions; 2) not comparable to EGLE's Part 201 Cleanup Criteria for compliance purposes; and 3) therefore not a reliable basis for the conclusion by EGLE that OW-16D2 poses an imminent and substantial endangerment to the Village of Milford wells.

As Arcadis has previously discussed with you and as mentioned during the meeting, ZF's monitoring well OW-16D2 was further examined and redeveloped on Friday, April 1st with the objective of improving hydraulic communication between the well and formation to produce representative groundwater samples. During the examination and redevelopment of OW-16D2, Stearns, the well driller, used a surge block with a vacuum hose attachment to work up and down within the well screen and draw out sediments consistent with standard practice. Stearns moved this apparatus up and down within the well screen several times. During the process, there was initial discolored water and some fine sediment removed and then it cleared up. The plan was to then drop a pump down the well and purge water/groundwater as it re-entered the well, removing as much water as possible. However, after pulling the surge block apparatus out of the well, there was only about 2 feet of water remaining in the well (approximately 1/3 gallon). The amount of water in the well when Stearns started the redevelopment process was about 100 feet (approximately 16 gallons). This indicates that the well screen, sand pack, and/or formation around the screen is not functioning as designed. Arcadis measured the level of water in the well after this work and it recovered very slowly, at a rate of less than 1 foot per hour. Based on these observations, it appears that the water in the screened interval of the well was stagnant and therefore not fully representative of groundwater conditions in the aquifer. These well redevelopment findings, combined with the observations noted above regarding well behavior during sampling, indicate that OW-16D2 has become compromised and cannot be relied on for continued groundwater monitoring without further evaluation and potential corrective action on the well.

Following the redevelopment, Arcadis returned to sample OW-16D2 on Monday, April 4th and observed that the depth to groundwater was about 50 feet (so about 50 feet had recovered over the weekend). Arcadis used a low-flow bladder pump to purge the well (this took about 2 hours) and then sampled the well. The total drawdown of the well was approximately 7 feet during the sampling. Arcadis observed the water level in OW-16D2 to be relatively level for the last 10 minutes prior to sampling, indicating that the recharge was coming from the aquifer and not stagnant water within the well. One set of groundwater samples was collected on April 4th and was dropped off at Fibertec (Holt, Michigan) the same day, with a requested 48-hour turn-around-time and another set of samples was sent to Eurofins-TestAmerica for analysis under a standard turn-around-time. Analysis for volatile organic compounds using EPA Method 8260 was requested for both sets of samples.

The results from the Fibertec samples were returned on April 6th and as you know, were non-detect (less than 1.0 ug/L detection limit) for vinyl chloride. In contrast, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and 1,1-dichloroethane were detected and the concentrations of these other CVOCs were consistent with previous samples collected from OW-16D2, indicating that these compounds are stable in the formation water that entered OW-16D2 after development and are not degrading to vinyl chloride in the vicinity of OW-16D2. The laboratory analytical report (Attachment 2) was provided to you on April 6th. These findings, combined with the previous OW-16D2 sampling results and the well redevelopment observations described above show that the production of vinyl chloride appears to be a function of stagnant water within the well caused by the malfunctioning well itself. Additional samples from OW-16D2 will be collected on April 8th and April 18th. Arcadis will sample the well under as close to low-flow conditions as the well is able to sustain and will promptly report the results to EGLE.

Based on the observed conditions of OW-16D2 during the recent sampling and redevelopment of the well and the historical information provided above, there is an objectively reasonable and technical basis to conclude that the recent samples collected before the redevelopment of the well should not be relied upon as accurate representations of aquifer conditions in that location. Specifically, the following observations point to a lack of reliability for recent vinyl chloride results collected from OW-16D2:

- Inability of the OW-16D2 monitoring well to sustain low-flow purging/sampling consistent with EGLE guidelines;
- Recent consistent reducing conditions (i.e., negative ORP, low DO) with stagnant water conditions observed in OW-16D2, correlating with the observance of vinyl chloride detections that have improved after well redevelopment;
- The first occurrence of vinyl chloride in May 2021 after more than 25 years of monitoring, and its subsequent lack of detection following redevelopment of OW-16D2; while other CVOCs in OW-16D2 remained consistent with historical results;
- Continuing lack of vinyl chloride detections in any other monitoring wells, notably those that have unquestionably demonstrated the extent of TCE impacts, the presumed parent CVOC for dichlorination daughter products;
- Lack of vinyl chloride detections in Village of Milford municipal wells despite groundwater velocity calculations showing it would have arrived months ago if mobile.

Collectively, these findings provide compelling evidence of data quality concerns for OW-16D2 that must be further evaluated and corrected. It is imperative that any conclusions drawn from OW-16D2 sample results and determinations of potential additional response activities are based on accurate and reliable, representative data collected from a properly-performing monitoring well in accordance with EGLE requirements. Therefore, ZF intends to continue to evaluate OW-16D2 and collect additional data for this well which will be expedited and reported to EGLE as soon as available. We are planning to re-sample OW-16D2 on April 8th one week following redevelopment as previously discussed with you via email on April 1st. OW-16D2 will also be sampled again on April 18th.

In addition to the additional monitoring planned for OW-16D2, ZF is also evaluating potential corrective measures for the well including, further well rehabilitation using an approvable drinking water well additive as was communicated with EGLE via email on April 4th, and a downhole camera survey of the well. ZF is also evaluating potentially replacing OW-16D2 if the rehabilitation is not feasible or not successful, as you suggested. Such corrective measures would include a work plan that would be submitted to EGLE for review and approval, and careful coordination with the Village of Milford to ensure protection of the municipal wells.

In light of the recent findings regarding OW-16D2 detailed above and considering that the basis for the AO is EGLE's determination that the vinyl chloride reported in recent samples from OW-16D2 above the Part 201 Drinking Water Criterion, pose an imminent and substantial endangerment to the Village of Milford municipal wells due to their proximity to OW-16D2, it would be prudent for all parties to have reliable data and an objective basis for decisions moving forward. Allowing ZF more time to remedy OW-16D2 and collect accurate data from the well will allow the parties to make a proper technical determination of whether vinyl chloride is in the aquifer at the location of OW-16D2. This information would also provide a strong basis to determine if there is any reasonably objective and technical need to implement the response activity required by the AO and would further serve to inform future discussions and decisions by EGLE, the Village of Milford, and ZF. ZF will follow-up this correspondence with the sample results to be collected from OW-16D2 on April 8th, which we expect to receive from the lab by April 12th, and with our plans to implement the OW-16D2 rehabilitation and/or replacement as necessary. ZF will also provide a formal response to the AO, but wanted to provide you with this recently obtained additional information for your consideration at this time.

Thank you for your attention to these matters and please include this letter and its attachments in the administrative record for the AO and the Site.

If you have any questions, please feel free to contact me at the phone number listed in the header on the first page of this letter, Mr. Scott Detwiler – ZF Project Manager at 480-722-4139, or Mr. John McInnis of Arcadis at 248-994-2285.

Sincerely,

Robert A Bleazard

Robert Bleazard
Sr. EHS Manager – Environmental Remediation
ZF Health, Safety, and Environment

Enclosure
cc by email only:
- Mr. Scott Detwiler, ZF
- Mr. Robert Bleazard, ZF
- Ms. Kelly Martorano, ZF
- Mr. John McInnis, Arcadis
- Mr. Troy Sclafani, Arcadis
- Mr. Grant Gilezan, Dykema
- Mr. Paul Stewart, Dykema
- Mr. Christian Wuerth, Village Manager, Village of Milford
- Ms. Polly Synk, Michigan Department of Attorney General
- Ms. Danielle Allison-Yokom, Michigan Department of Attorney General
- Mr. Aaron B. Keatley, EGLE - Chief Deputy Director, EGLE
- Mr. Mike Neller, EGLE - Remediation and Redevelopment Director

Mr. Josh Mosher, EGLE – Remediation and Redevelopment Assistant Director
Mr. Dan Yordanich, EGLE
Ms. Mary Miller, EGLE
Mr. Darren Bowling, EGLE
Mr. Paul Owens, EGLE
Ms. Cheryl Wilson, EGLE
Ms. Lyndsey Hagy, EGLE
Ms. Katie Noetzel, EGLE

ATTACHMENT 1

Table 1
OW16D2 Groundwater Analytical Results and Field Parameters
Former Kelsey-Hayes Milford Plant

Sample Identification:	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Observation Well OW-16D2																		
Sample Collection Date:			6/15/2010	12/17/2010	6/15/2011	12/14/2011	6/29/2012	12/12/2012	6/12/2013	12/11/2013	6/15/2014	11/24/2014	6/24/2015	12/9/2015[1]	6/14/2016[1]	12/13/2016	12/6/2017	6/12/2018	12/4/2018	6/10/2019	12/3/2019
Tetrachloroethene	5.0 (A)	60 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	5.0 (A)	200 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	70 (A)	620	2.4	3.2	2.1	<1.0	1.4	12	<1.0	3.4	<1.0	22	<1.0	19	<1.0	1.7	18	<1.0	4.1	1.2	1.1
trans-1,2-Dichloroethene	100 (A)	1,500 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	880	740	<1.0	<1.0	1.1	<1.0	<1.0	2.1	<1.0	<1.0	<1.0	3.0	<1.0	2.3	<1.0	<1.0	1.9	<1.0	2.1	1.6	1.4
Vinyl chloride	2.0 (A)	13 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Field Parameters																					
Drawdown (feet)			-0.3	2.8	0.0	1.5	0.0	0.0	0.0	0.0	0.0	1.3	0.4	5.1	4.7	12.2	8.4	4.6	5.5	8.5	3.5
pH (standard units)			7.36	7.74	7.82	7.44	7.60	7.57	7.90	7.85	7.17	7.79	7.82	7.56	7.62	7.91	8.05	7.67	7.41	7.87	7.82
Conductivity (milliSiemens per centimenter)			0.59	0.56	0.64	0.54	0.64	0.60	0.64	0.59	0.60	0.80	0.634	0.952 [1]	0.827 [1]	0.604	0.63	0.64	0.62	0.64	0.82
Turbidity (Nephelometric Turbidity Unit)			1.09	4.22	3.67	0.76	3.68	2.24	0.60	2.43	2.19	102	2.27	52.1	0.61	1.36	11.7	0.80	2.2	3.06	0.79
Dissolved Oxygen (milligrams per liter)			1.33	0.47	0.11	1.44	0.56	0.8	1.19	3.45	4.99	3.8	4.08	0.19	3.22	0.38	0.3	3.04	1.21	0.25	11.74
Temperature (degrees Celsius)			14.66	9.23	15.71	10.33	17.45	9.90	15.19	10.39	14.72	10.83	14.1	11.75	13.89	11.33	10.6	14.60	10.96	12.7	8.6
Oxidation Reduction Potential (millivolt)			75	-12.5	78.3	12.7	125.1	110.6	115.1	115	82.4	-17.4	-39.1	-155.3	27.7	101.4	-121.6	203.7	159.9	231.9	122

Sample Identification:	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Observation Well OW-16D2																	
Sample Collection Date:			5/13/2020	11/17/2020	5/13/2021	6/8/2021	8/3/2021	8/16/2021	9/1/2021	9/13/2021	9/27/2021	10/11/2021	10/25/2021	11/8/2021	12/6/2021	1/4/2022	1/25/2022	2/17/2022	3/21/2022	4/4/2022
Tetrachloroethene	5.0 (A)	60 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	5.0 (A)	200 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	70 (A)	620	<1.0	<1.0	17	10	16	13	16	20	18	12	17	17	8.2	15	15	12	18	19
trans-1,2-Dichloroethene	100 (A)	1,500 (X)	<1.0	<1.0	1.3	<1.0	1.6	1.1	1.3	1.7	1.7	1.1	1.6	1.5	<1.0	1.6	1.4	1.1	1.6	1.7
1,1-Dichloroethane	880	740	<1.0	<1.0	3.8	2.4	3.8	3.0	3.2	3.9	3.7	2.8	3.8	4.2	2.0	3.0	3.4	3.1	3.7	3.5
Vinyl chloride	2.0 (A)	13 (X)	<1.0	<1.0	3.5	1.2	3.0	1.8	1.7	1.6	1.8	1.4	1.5	1.5	<1.0	2.5	3.2	2.0	2.3	<1.0
First Depth to Water																				
Field Parameters																				
Drawdown (feet)			4.2	10.2	0.0	0.0	12.7	14.2	15.0	10.6	13.7	15.2	8.1	10.9	7.5	8.1	17.4	17.4	7.1	6.9
pH (standard units)			8.51	8.44	7.89	7.6	7.5	7.68	7.64	7.28	7.38	7.81	7.49	7.43	8.02	7.56	7.54	7.77	7.54	7.43
Conductivity (milliSiemens per centimenter)			0.78	0.71	0.93	0.85	0.93	0.718	1.011	1.03	1.07	0.97	1.09	1.07	0.84	1.1	1.11	0.985	1.082	1.1
Turbidity (Nephelometric Turbidity Unit)			2.29	1.08	59.6	5.29	33.8	6.82	3.86	3.9	9.44	9.05	10.7	10.1	4.74	28.4	13.7	4.9	3.04	96.3
Dissolved Oxygen (milligrams per liter)			4.9	9.67	0.45	0.41	1.32	0.25	0.38	0.86	0.22	0.58	0.15	0.17	0.27	0.2	0.1	0.57	0.51	5.81
Temperature (degrees Celsius)			11.6	12.3	12.2	17.4	15.6	14.1	15	14.1	15	15.5	12.4	14	10.8	10.8	9.8	9.9	10.4	7.1
Oxidation Reduction Potential (millivolt)			155.1	12.1	-134	-104.1	-99	-139.1	-74.7	-64.8	-89.9	-99.2	-88.2	-66.4	-14	-93.1	-96.7	-61.3	-72.3	3.0

Notes:
All volatile organic compound concentrations are in micrograms per liter (µg/L).
(A) Criterion is the State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act No. 399 of the Public Acts of 1976.
(X) The Groundwater Surface Water Interface (GSI) criterion shown is not protective for surface water that is used as a drinking water source.

[1] Specific Conductivity

ATTACHMENT 2

Fibertec
environmental
services

Wednesday, April 06, 2022

Fibertec Project Number: A07755
Project Identification: TRW Milford ZF Active Safety (30046730) /30046730
Submittal Date: 04/04/2022

Mrs. Marina Samp
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Mrs. Samp,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Sue Ricketts

By Sue Ricketts at 12:26 PM, Apr 06, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-001

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**FIELDBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**11:45**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-001** **Matrix: Blank: Field**
Method: EPA 5030C/EPA 8260D **Description: FIELDBLANK_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-001

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**FIELDBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**11:45**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID:** A07755-001 **Matrix: Blank: Field**
Method: EPA 5030C/EPA 8260D **Description:** FIELDBLANK_040422

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-002

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:55**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-002** **Matrix: Ground Water**
Method: EPA 5030C/EPA 8260D **Description: OW-16D2_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
27. 1,1-Dichloroethane	**3.5**		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
30. cis-1,2-Dichloroethene	**19**		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
31. trans-1,2-Dichloroethene	**1.7**		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-002

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:55**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-002** **Matrix: Ground Water**

Method: EPA 5030C/EPA 8260D **Description: OW-16D2_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**EQUIPMENTBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Equipment**	Collect Time:	**12:10**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID:** **A07755-003** **Matrix: Blank: Equipment**
Method: EPA 5030C/EPA 8260D **Description:** **EQUIPMENTBLANK_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**EQUIPMENTBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Equipment**	Collect Time:	**12:10**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-003** **Matrix: Blank: Equipment**
Method: EPA 5030C/EPA 8260D **Description: EQUIPMENTBLANK_040422**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	P. Batch	Analysis A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-004

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**TRIP BLANK**	Chain of Custody:	**N/A**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-004** **Matrix: Blank: Trip**
Method: EPA 5030C/EPA 8260D **Description: TRIP BLANK**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-004

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**TRIP BLANK**	Chain of Custody:	**N/A**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-004** **Matrix: Blank: Trip**
Method: EPA 5030C/EPA 8260D **Description: TRIP BLANK**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

L- : Recovery in the associated laboratory sample (LCS) exceeds the lower control limit. Results may be biased low.
V- : Recovery in the associated continuing calibration verification sample (CCV) exceeds the lower control limit. Results may be biased low.

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

VI22D05B: Method Blank (MB)

EPA 8260D

Run Time: VI22D05B.MB 04/05/2022 23:54 [VI22D05B]

Analyte	MB Result µg/L	MB Qualifier	MB RDL µg/L
Acetone	U		50
Acrylonitrile	U		2.0
Benzene	U		1.0
Bromobenzene	U		1.0
Bromochloromethane	U		1.0
Bromodichloromethane	U		1.0
Bromoform	U		1.0
Bromomethane	U		5.0
2-Butanone	U		25
n-Butylbenzene	U		1.0
sec-Butylbenzene	U		1.0
tert-Butylbenzene	U		1.0
Carbon Disulfide	U		5.0
Carbon Tetrachloride	U		1.0
Chlorobenzene	U		1.0
Chloroethane	U		5.0
Chloroform	U		1.0
Chloromethane	U		5.0
2-Chlorotoluene	U		5.0
1,2-Dibromo-3-chloropropane (SIM)	U		1.0
Dibromochloromethane	U		5.0
Dibromomethane	U		5.0
1,2-Dichlorobenzene	U		1.0
1,3-Dichlorobenzene	U		1.0
1,4-Dichlorobenzene	U		1.0
Dichlorodifluoromethane	U		5.0
1,1-Dichloroethane	U		1.0
1,2-Dichloroethane	U		1.0
1,1-Dichloroethene	U		1.0
cis-1,2-Dichloroethene	U		1.0
trans-1,2-Dichloroethene	U		1.0
1,2-Dichloropropane	U		1.0
cis-1,3-Dichloropropene	U		0.50

VI22D05B: Method Blank (MB)

EPA 8260D

Run Time: VI22D05B.MB 04/06/2022 23:54 [VI22D05B]

Analyte	MB Result µg/L	MB Qualifier	MB RDL µg/L
trans-1,3-Dichloropropene	U		0.50
Ethylbenzene	U		1.0
Ethylene Dibromide	U		1.0
2-Hexanone	U		50
Isopropylbenzene	U		5.0
4-Methyl-2-pentanone	U		50
Methylene Chloride	U		5.0
2-Methylnaphthalene	U		5.0
MTBE	U		5.0
Naphthalene	U		5.0
n-Propylbenzene	U		1.0
Styrene	U		1.0
1,1,1,2-Tetrachloroethane	U		1.0
1,1,2,2-Tetrachloroethane	U		1.0
Tetrachloroethene	U		1.0
Toluene	U		1.0
1,2,4-Trichlorobenzene	U		5.0
1,1,1-Trichloroethane	U		1.0
1,1,2-Trichloroethane	U		1.0
Trichloroethene	U		1.0
Trichlorofluoromethane	U		1.0
1,2,3-Trichloropropane	U		1.0
1,2,3-Trimethylbenzene	U		1.0
1,2,4-Trimethylbenzene	U		1.0
1,3,5-Trimethylbenzene	U		1.0
Vinyl Chloride	U		1.0
m&p-Xylene	U		2.0
o-Xylene	U		1.0
4-Bromofluorobenzene(S)	*100*		*80-120*
Dibromofluoromethane(S)	*101*		*80-120*
1,2-Dichloroethane-d4(S)	*94*		*80-120*
Toluene-d8(S)	*99*		*80-120*

VI22D05B: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA 8260D

Run Time: VI22D05B.LCS: 04/05/2022 22:09 [VI22D05B]   VI22D05B.LCSD: 04/05/2022 22:35 [VI22D05B]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
Acetone	50.0	30.6	61	64-140		50.0	31.1	62		2	20	
Acrylonitrile	50.0	52.7	105	70-130		50.0	53.7	107		2	20	
Benzene	50.0	45.5	93	80-120		50.0	45.1	90		3	20	
Bromobenzene	50.0	44.7	89	75-125		50.0	44.2	88		1	20	
Bromochloromethane	50.0	40.7	81	70-130		50.0	40.1	80		1	20	
Bromodichloromethane	50.0	44.5	89	75-120		50.0	43.5	87		2	20	
Bromoform	50.0	45.8	92	70-130		50.0	45.4	91		1	20	
Bromomethane	50.0	27.5	55	69-136	*	50.0	29.1	58	*	5	20	
2-Butanone	50.0	40.1	80	70-149		50.0	40.5	81		1	20	
n-Butylbenzene	50.0	52.8	106	70-133		50.0	51.9	104		2	20	
sec-Butylbenzene	50.0	50.2	100	70-125		50.0	49.4	99		1	20	
tert-Butylbenzene	50.0	49.5	99	70-130		50.0	48.6	97		2	20	
Carbon Disulfide	50.0	44.6	89	70-130		50.0	42.8	86		3	20	
Carbon Tetrachloride	50.0	44.5	89	70-130		50.0	43.3	87		2	20	
Chlorobenzene	50.0	45.9	92	80-120		50.0	44.8	90		2	20	
Chloroethane	50.0	40.5	81	61-130		50.0	39.1	78		4	20	
Chloroform	50.0	44.2	88	80-120		50.0	43.4	87		1	20	
Chloromethane	50.0	38.4	77	67-125		50.0	38.9	78		1	20	
2-Chlorotoluene	50.0	47.3	95	75-125		50.0	46.6	93		2	20	
1,2-Dibromo-3-chloropropene (SIM)	50.0	48.5	97	70-130		50.0	49.6	99		2	20	
Dibromochloromethane	50.0	44.6	89	70-130		50.0	43.3	87		2	20	
Dibromomethane	50.0	41.6	83	75-125		50.0	40.4	81		2	20	
1,2-Dichlorobenzene	50.0	46.9	94	70-120		50.0	46.2	92		2	20	
1,3-Dichlorobenzene	50.0	45.8	92	75-125		50.0	45.0	90		2	20	
1,4-Dichlorobenzene	50.0	43.3	87	75-125		50.0	42.5	85		2	20	
Dichlorodifluoromethane	50.0	53.5	107	70-136		50.0	51.0	102		5	20	
1,1-Dichloroethane	50.0	45.9	92	70-130		50.0	44.5	89		3	20	
1,2-Dichloroethane	50.0	40.9	82	70-130		50.0	39.7	79		4	20	
1,1-Dichloroethene	50.0	43.8	88	78-120		50.0	42.1	84		5	20	
cis-1,2-Dichloroethene	50.0	44.8	90	70-125		50.0	43.2	86		5	20	
trans-1,2-Dichloroethene	50.0	44.5	89	70-130		50.0	43.5	87		2	20	
1,2-Dichloropropane	50.0	49.1	98	80-121		50.0	47.4	95		3	20	
cis-1,3-Dichloropropene	50.0	43.4	87	70-130		50.0	42.2	84		4	20	

Quality Control Report
Laboratory Project Number: A07755

VI22D05B: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) EPA 8260D

Run Time: VI22D05B.LCS: 04/05/2022 22:09 [VI22D05B] VI22D05B.LCSD: 04/05/2022 22:35 [VI22D05B]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
trans-1,3-Dichloropropene	50.0	48.2	96	70-132		50.0	46.7	93		3	20	
Ethylbenzene	50.0	48.4	97	80-120		50.0	47.0	94		3	20	
Ethylene Dibromide	50.0	45.2	90	80-120		50.0	44.4	89		1	20	
2-Hexanone	50.0	39.4	79	70-130		50.0	40.5	81		3	20	
Isopropylbenzene	50.0	48.7	97	75-125		50.0	47.5	95		2	20	
4-Methyl-2-pentanone	50.0	55.2	110	70-130		50.0	54.7	109		1	20	
Methylene Chloride	50.0	43.8	88	70-130		50.0	42.7	85		3	20	
2-Methylnaphthalene	50.0	46.0	92	70-130		50.0	46.5	93		1	20	
MTBE	50.0	48.3	97	70-125		50.0	47.3	95		2	20	
Naphthalene	50.0	46.7	93	70-130		50.0	47.5	95		2	20	
n-Propylbenzene	50.0	49.4	99	70-130		50.0	48.8	98		1	20	
Styrene	50.0	41.0	82	70-130		50.0	39.7	79		4	20	
1,1,1,2-Tetrachloroethane	50.0	46.7	93	80-130		50.0	45.2	90		3	20	
1,1,2,2-Tetrachloroethane	50.0	59.4	119	70-130		50.0	60.5	121		2	20	
Tetrachloroethene	50.0	48.5	97	70-130		50.0	46.9	94		3	20	
Toluene	50.0	47.9	96	80-120		50.0	46.4	93		3	20	
1,2,4-Trichlorobenzene	50.0	45.9	92	70-130		50.0	46.0	92		0	20	
1,1,1-Trichloroethane	50.0	45.5	91	70-130		50.0	44.3	89		2	20	
1,1,2-Trichloroethane	50.0	47.6	95	75-125		50.0	47.1	94		1	20	
Trichloroethene	50.0	41.6	83	71-125		50.0	39.9	80		4	20	
Trichlorofluoromethane	50.0	48.2	96	70-133		50.0	46.6	93		3	20	
1,2,3-Trichloropropane	50.0	49.9	100	75-125		50.0	49.3	99		1	20	
1,2,3-Trimethylbenzene	50.0	47.0	94	70-130		50.0	46.2	92		2	20	
1,2,4-Trimethylbenzene	50.0	49.1	98	75-130		50.0	48.7	97		1	20	
1,3,5-Trimethylbenzene	50.0	49.1	98	75-130		50.0	48.1	96		2	20	
Vinyl Chloride	50.0	43.9	88	74-125		50.0	42.2	84		5	20	
m&p-Xylene	100	95.1	95	75-130		100	92.8	93		2	20	
o-Xylene	50.0	47.9	96	80-120		50.0	46.3	93		3	20	
4-Bromofluorobenzene(S)			*100*	*80-120*				*101*				
Dibromofluoromethane(S)			*99*	*80-120*				*98*				
1,2-Dichloroethane-d4(S)			*91*	*80-120*				*90*				
Toluene-d8(S)			*100*	*80-120*				*100*				

Definitions/ Qualifiers:

U: The analyte was not detected at or above the Reporting Limit (RL).
*: Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:

Sue Ricketts

By Sue Ricketts at 12:32 PM, Apr 06, 2022

Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 201041
PAGE 1 of 1

Client Name: Arcadis
Contact Person: Marina Samp
Project Name/ Number: TRW Milford 30046730
Email distribution list: marina.samp@arcadis.com john.mcinnis@arcadis.com
Quote#
Purchase Order# 30046730.000IZ

Matrix Code: S Soil; A Air; O Oil; P Wipe; [✓ GW] Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: ☒ Level 2 ☐ Level 3 ☐ Level 4 ☒ EDD

PARAMETERS

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	VOCs 8260B	HOLD SAMPLE	Remarks:
4.4.22	1145		FIELDBLANK_040422	GW	3	3		
4.4.22	1155		OW-16D2-040422	GW	3	3		
4.4.22	1210		EQUIPMENTBLANK_040422	GW	3	3		

Received By Lab
APR 04 2022
initials EA

Received On Ice

Comments:

Sampled/Relinquished By: Stacey Hannula	Date/ Time 4.4.22 1230	Received By: Anyssa Mandich/Arcadis
Relinquished By: Anyssa Mandich/Arcadis	Date/ Time 4/4/22 1415	Received By: Fibertec EA
Relinquished By:	Date/ Time	Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

___ 1 bus. day X 2 bus. day (48 HRS) ___ 3 bus. days ___ 4 bus. days
___ 5-7 bus. days (standard) Other (specify time/date requirement): ___

LAB USE ONLY

Fibertec project number: A07755
Temperature upon receipt at Lab: 2.0°C

Please see back for terms and conditions

ATTACHMENT 2

April 13, 2022 Letter from ZF

ZF Active Safety US Inc.
12001 Tech Center Drive, Livonia, Michigan 48150-2122

Department Health Safety andEnvironmental
From Robert Bleazard
Phone +1 480 722-4866
Email Robert.Bleazard@zf.com
Date April 13, 2022

VIA E-MAIL TO: WojchiechowskiK@Michigan.gov

Kevin Wojciechowski, Project Manager
Warren District Office Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
27700 Donald Court
Warren, Michigan 48092

RE: ZF Active Safety US Inc. Additional Information for Consideration by Michigan Department of Environment, Great Lakes, and Energy Related to Administrative Order for Response Activity; EGLE Docket No. AO-RRD-22-001.

Dear Mr. Wojciechowski,

ZF Active Safety US Inc. (ZF) is submitting the following information and attachment to the Department of Environment, Great Lakes, and Energy (EGLE) with respect to the Administrative Order for Response Activity (AO) issued by EGLE to ZF, with respect to the former Kelsey-Hayes site in Milford, Michigan (the "Site").

As noted in the letter that ZF sent to EGLE on April 8, 2022, Arcadis recently began redevelopment activities on monitoring well OW-16D2 on April 1st and subsequently collected samples from the well on April 4th and April 8th. The sample collected on April 8th was submitted to Fibertec and 48-hour turn-around-time was again requested. The groundwater sample result from OW-16D2 is again non-detect (less than 1 microgram per liter) for vinyl chloride. See attached Laboratory Report.

Our April 8th letter details the reasons why ZF and Arcadis suspected OW-16D2 may be compromised and describes the measures we took to further examine and redevelop the well on April 1st. The April 8th sample results collected one week following the redevelopment of OW-16D2 are consistent with, and further support our understanding that, OW-16D2 had become compromised and sample results obtained from the well prior to the redevelopment are not reliable because they were not representative of groundwater conditions. Specifically, the non-detect vinyl chloride results for now two consecutive post-redevelopment sampling events, coupled with the other chlorinated volatile organic compounds (CVOCs) that were detected in OW-16D2 below drinking water criteria at concentrations consistent with previous results, confirms that dissolved CVOCs present in groundwater in the vicinity of OW-16D2 are stable and not degrading to vinyl chloride, which is consistent with the sampling results throughout ZF's monitoring well network over the past 25 years.

The hydraulic observations presented in our April 8th letter clearly show that the well was unable to sustain low-flow purging. Stagnant water was removed during the redevelopment work and the resultant recharge into the well was inflow from the surrounding formation. In addition to the CVOC analytical results and hydraulic observations, it was noted during the April 8th sampling that drawdown was improved versus pre-redevelopment conditions and other parameters (i.e., dissolved oxygen, oxidation-reduction potential) were stable. Collectively, these multiple lines of evidence are indicating the well is now producing more representative groundwater samples than it was prior to the redevelopment. ZF and Arcadis believe that the initial redevelopment work completed on OW-16D2 meets the objective of improving hydraulic communication between the well and the formation and the well conditions are currently producing more accurate groundwater samples.

Based on these observations and the April 8th sample that detected no vinyl chloride, it appears that the vinyl chloride that had been detected in OW-16D2 prior to the recent well redevelopment action was the result of stagnant water within the well and not representative of true groundwater conditions. At this point, there is an objectively reasonable basis and enough technical evidence to say that EGLE should not rely on the samples collected from OW-16D2 prior to redevelopment of the well to make a determination that this well poses an imminent and substantial endangerment to the Village of Milford municipal wells. More work is necessary to further evaluate OW-16D2, including additional redevelopment activities, and this work will require additional time beyond the current April 15th compliance date in the AO.

Given that the sole basis for the corrective action work set forth in the AO is the detection of vinyl chloride in recent samples now understood to be consisting of stagnant water collected from OW-16D2 in a compromised condition, it would be reasonable and consistent with applicable laws and regulations for EGLE to provide ZF an extension of the compliance date in the AO in order to submit a work plan for additional well redevelopment activities, allow ZF time to implement the work plan, and further evaluate and discuss the work plan results and any necessary corrective actions with EGLE. Therefore, ZF will submit a detailed work plan to EGLE by **no later than April 22nd**, which will include plans for routine additional sampling of OW-16D2, and information regarding further mechanical and additive techniques to rehabilitate OW-16D2 or replace it.

Furthermore, a **60-day extension of the AO response deadline** will allow ZF time to implement the work plan and provide the parties time to review and discuss the work plan results. This additional information will enable the parties to reasonably act on an understanding based on representative data and objectively developed technical information about the integrity of OW-16D2, rather than presumptions about the recent appearance of vinyl chloride in only one well that has been determined to be compromised and was not yielding samples representative of the groundwater in that location before redevelopment. Furthermore, if EGLE is concerned about vinyl chloride appearing in the Village of Milford municipal well during the extension of the AO notice deadline, ZF's understanding based on the Focused Feasibility Study Report prepared by Wood for the Village of Milford is that the current Iron Removal System provides a feasible temporary response measure that could be utilized to remove vinyl chloride at the levels consistent with those previously reported in OW-16D2, if it were to be needed.

In light of the tight timing circumstances, we ask that EGLE please communicate to ZF prior to April 15th whether or not EGLE agrees with ZF's proposed submission of a work plan by no later than April 22nd and with a 60-day extension of the AO response deadline.

Thank you for your attention to these matters and please include this letter and its attachment in the administrative record for the AO and the Site.

If you have any questions, please feel free to contact me at the phone number listed in the header on the first page of this letter, Mr. Scott Detwiler – ZF Project Manager at 480-722-4139, or Mr. John McInnis of Arcadis at 248-994-2285.

Sincerely,

Robert A Bleazard

Robert Bleazard
Sr. EHS Manager – Environmental Remediation
ZF Health, Safety, and Environment

Enclosure
cc by email only:

- Mr. Scott Detwiler, ZF
- Ms. Kelly Martorano, ZF
- Mr. John McInnis, Arcadis
- Mr. Troy Sclafani, Arcadis
- Mr. Grant Gilezan, Dykema
- Mr. Paul Stewart, Dykema
- Mr. Christian Wuerth, Village Manager, Village of Milford
- Ms. Polly Synk, Michigan Department of Attorney General
- Ms. Danielle Allison-Yokom, Michigan Department of Attorney General
- Mr. Aaron B. Keatley, EGLE - Chief Deputy Director, EGLE
- Mr. Mike Neller, EGLE - Remediation and Redevelopment Director
- Mr. Josh Mosher, EGLE – Remediation and Redevelopment Assistant Director
- Mr. Dan Yordanich, EGLE
- Ms. Mary Miller, EGLE
- Mr. Darren Bowling, EGLE
- Mr. Paul Owens, EGLE
- Ms. Cheryl Wilson, EGLE
- Ms. Lyndsey Hagy, EGLE
- Ms. Katie Noetzel, EGLE

ATTACHMENT

Fibertec
environmental
services

Tuesday, April 12, 2022

Fibertec Project Number:	A07873
Project Identification:	TRW Milford ZF Active Safety (30046730) /30046730
Submittal Date:	04/08/2022

Mrs. Marina Samp
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Mrs. Samp,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Sue Ricketts

By Sue Ricketts at 1:11 PM, Apr 12, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-001

Order: A07873
Date: 04/12/22

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Field Blank-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**10:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID:** A07873-001 **Matrix: Blank: Field**
Method: EPA 5030C/EPA 8260D **Description:** Field Blank-040822

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
3. Benzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
4. Bromobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
5. Bromochloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
7. Bromoform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
8. Bromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
9. 2-Butanone	U		µg/L	25	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
15. Chlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
16. Chloroethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
17. Chloroform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
18. Chloromethane	U	V+ L+	µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
22. Dibromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
35. Ethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM

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Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-001

Order: A07873
Date: 04/12/22

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Field Blank-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**10:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-001** **Matrix: Blank: Field**
Method: EPA 5030C/EPA 8260D **Description: Field Blank-040822**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
40. Methylene Chloride	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
42. MTBE	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
43. Naphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
45. Styrene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
49. Toluene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
53. Trichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
60. m&p-Xylene	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
61. o-Xylene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM

Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-002

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID:** A07873-002 **Matrix: Ground Water**
Method: EPA 5030C/EPA 8260D **Description:** OW-16D2-040822

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
3. Benzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
4. Bromobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
5. Bromochloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
7. Bromoform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
8. Bromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
9. 2-Butanone	U		µg/L	25	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
15. Chlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
16. Chloroethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
17. Chloroform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
18. Chloromethane	U	V- L+	µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
22. Dibromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
27. 1,1-Dichloroethane	**3.5**		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
30. cis-1,2-Dichloroethene	**20**		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
31. trans-1,2-Dichloroethene	**1.5**		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
35. Ethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS
Method: EPA 5030C/EPA 8260D

Aliquot ID: A07873-002 **Matrix: Ground Water**
Description: OW-16D2-040822

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
40. Methylene Chloride	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
42. MTBE	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
43. Naphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
45. Styrene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
49. Toluene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
53. Trichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
60. m&p-Xylene	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
61. o-Xylene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Trip Blank**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-003** **Matrix: Blank: Trip**
Method: EPA 5030C/EPA 8260D **Description: Trip Blank**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
3. Benzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
4. Bromobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
5. Bromochloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
7. Bromoform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
8. Bromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
9. 2-Butanone	U		µg/L	25	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
15. Chlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
16. Chloroethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
17. Chloroform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
18. Chloromethane	U	V+ L+	µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
22. Dibromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
35. Ethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Trip Blank**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-003** **Matrix: Blank: Trip**
Method: EPA 5030C/EPA 8260D **Description: Trip Blank**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
40. Methylene Chloride	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
42. MTBE	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
43. Naphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
45. Styrene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
49. Toluene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
53. Trichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
60. m&p-Xylene	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
61. o-Xylene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
*: Value reported is outside QC limits

Exception Summary:

L+ : Recovery in the associated laboratory sample (LCS) exceeds the upper control limit. Results may be biased high.
V+ : Recovery in the associated continuing calibration verification sample (CCV) exceeds the upper control limit. Results may be biased high.

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

ATTACHMENT 3

April 14, 2022 Letter from EGLE

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

April 14, 2022

VIA E-MAIL

Robert Bleazard
Sr. EHS Manager Environmental Remediation
ZF Health, Safety, and Environment
ZF Active Safety US Inc.
12001 Tech Center Drive
Livonia, Michigan 48150-2122

SUBJECT: Response to ZF Active Safety US Inc. Additional Information for Consideration Related to Administrative Order for Response Activity; EGLE Docket No. AO-RRD-22-001 (AO)

Dear Robert Bleazard:

The Department of Environment, Great Lakes, and Energy (EGLE) has received ZF Active Safety US Inc. (ZF) correspondence dated April 8, 2022, and April 13, 2022, containing technical information for EGLE's consideration pertaining to the potentially anomalous groundwater parameters in monitoring well OW-16D2 during sampling.

Although EGLE agrees that the information presented by ZF warrants additional investigation by ZF, EGLE does not believe the information presented thus far demonstrates that there is no imminent and substantial endangerment to the public drinking water supply for the Village of Milford. Therefore, EGLE cannot grant ZF's requested extension of the AO response deadline, and EGLE expects ZF's timely compliance with the AO.

If ZF intends to submit a work plan to undertake a parallel path to further investigate concerns regarding the integrity of OW-16D2, EGLE does not discourage those efforts, however the work plan should provide for the following:

- Continue to rehabilitate monitoring well OW-16D2 with mechanical and/or additive techniques. Collect post-rehabilitation groundwater samples for a sufficient period of time to demonstrate the samples are representative of aquifer conditions.
- Complete vertical aquifer profiling in close proximity to OW-16D2 to verify the screen is in the zone of highest contamination. Based on the completed vertical aquifer profile, if the depth of contamination differs from the screening interval of OW-16D2, install a new monitoring well to be screened at the depth of the highest level of contamination.

- Install a new monitoring well to replace OW-16D2 if it cannot be rehabilitated. The new monitoring well shall be screened based on the conclusions from the vertical aquifer profiling.

EGLE remains open to reconsider its position regarding the Administrative Order if additional data demonstrates that there is not an imminent and substantial risk to the Village of Milford’s drinking water wells.

If you have questions regarding this matter, please contact Kevin Wojciechowski, Project Manager, at 586-623-2948 or WojciechowskiK@Michigan.gov; or you may contact me.

Sincerely,

Mike Neller

Mike Neller, Director
Remediation & Redevelopment Division
517-512-5859

cc: Danielle Allison-Yokom, Michigan Department of Attorney General
Aaron B. Keatley, Chief Deputy Director, EGLE
Joshua Mosher, EGLE
Mary Miller, EGLE
Dan Yordanich, EGLE
Paul Owens, EGLE
Darren Bowling, EGLE
Cheryl Wilson, EGLE
Tiffany Yusko-Kotimko, EGLE
Kevin Wojciechowski, EGLE
Lyndsey Hagy, EGLE
Katie Noetzel, EGLE

ATTACHMENT 4

April 15, 2022 Letter From ZF

ZF Active Safety US Inc.
12001 Tech Center Drive, Livonia, Michigan 48150-2122

Department General Legal
From Kelly M. Martorano
Phone 248-807-7975
Email kelly.martorano@zf.com
Date April 15, 2022

VIA EMAIL: nellerm@michigan.gov
AND CERTIFIED MAIL

Mr. Mike Neller, Director
Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
Constitution Hall, 5th Floor, South Tower
525 West Allegan Street
Lansing, Michigan 48933-1502

RE: ZF Active Safety US Inc.'s (Respondent's) Intent to Comply with Administrative Order for Response Activity; EGLE Docket No. AO-RRD-22-001.

Dear Mr. Neller,

Pursuant to Section XVII of the Administrative Order for Response Activity (AO) issued by the Department of Environment, Great Lakes, and Energy (EGLE) to ZF Active Safety US Inc. (ZF or Respondent) on March 16, 2022, with respect to the former Kelsey-Hayes site in Milford, Michigan (the "Site"), this letter confirms that ZF intends to comply with the AO and EGLE's subsequent April 14, 2022 Response to ZF's letters dated April 8 and April 13, 2022, providing additional information for consideration related to the AO (the "April 14 EGLE Letter").

ZF is committed to protecting the environment and acting as a responsible corporation and member of the communities where we currently have facilities or have had facilities in the past. ZF actively assumes responsibility for its impact on the environment and strives to promote the environmental and social performance of its business and well-being of its employees.

In accordance with Section VII of the AO, ZF is designating Scott Detwiler as the Project Manager for the activities required by the AO and any communications and correspondence with EGLE regarding the AO. The ZF Project Manager contact information is included below:

Scott Detwiler
ZF Active Safety US Inc.
Sr. Regional Manager, Environmental, Health and Safety
11202 E. Germann Rd.
Mesa, Arizona 85212
(480) 722-4139 Work
(480) 600-7433 Mobile
Scott.detwiler@zf.com

For the reasons presented below and notwithstanding ZF's intent to comply with the AO, ZF admits no liability or responsibility with respect to the factual allegations or legal determinations made in the AO and reserves any and all rights and remedies it may have under the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). The administrative record for the Site, which spans over 25 years, and additional information obtained by ZF since the issuance of the AO, clearly demonstrates that there is no objectively reasonable basis to properly conclude under Part 201 of NREPA, MCL §324.20101 et seq. ("Part 201") that, as stated in Paragraphs 4.8 and 4.11 of the AO: (1) vinyl chloride is present in the groundwater at the location of monitoring well OW-16D2 and it alone presents an imminent and substantial endangerment to the public health, safety, welfare, or the environment due to the proximity of OW-16D2 to the Village of Milford's municipal drinking water wells; and (2) the groundwater impacts from the Site are the source of the vinyl chloride in OW-16D2.

As set forth in the two (2) letters submitted to EGLE on April 8 and 13, 2022 (Exhibit 1 and Exhibit 2), after observing anomalous water level response during low-flow sampling of OW-16D2, ZF completed initial well redevelopment activities on April 1st and has assembled compelling information to show that the vinyl chloride that had been detected in OW-16D2 prior to the recent well redevelopment work was the result of stagnant water within the well and not representative of actual groundwater conditions. Based on this information, ZF contends that there is an objectively reasonable basis and sufficient technical evidence to support a finding that additional well redevelopment work and sample collection should be completed before making a conclusive determination that the vinyl chloride sample results from OW-16D2 prior to well redevelopment are accurate representations of vinyl chloride being in groundwater at that location, demonstrate that vinyl chloride is sourced from the groundwater impacts from the Site, or creates an imminent and substantial endangerment to the Village of Milford municipal wells.

On April 14, 2022, EGLE responded to ZF's letters noted above and agreed that the information presented by ZF regarding anomalous conditions in groundwater well OW-16D2 warrants additional investigation by ZF. See Exhibit 3. The April 14th EGLE Letter further supports ZF's plans to prepare a work plan and undertake a parallel path to further redevelop and possibly replace OW-16D2 and offers specific recommendations for the work plan. ZF will incorporate EGLE's recommendations into its work plan for OW-16D2 and will submit the work plan to EGLE for review and comments. ZF will communicate with EGLE regarding our progress on the work plan. The additional redevelopment work and review of OW-16D2 pursuant to the work plan will ensure that any samples from OW-16D2, or its replacement, are based on accurate and reliable, representative data collected from a properly-performing monitoring well in accordance with EGLE requirements and can be appropriately used to determine applicable requirements under Part 201.

ZF refutes the allegation in Section 4.8 of the AO that the presence of vinyl chloride in OW-16D2, and cis-1,2-dichloroethene (DCE) in the Village of Milford municipal drinking water wells, is an indication that the groundwater impacts from the Site are migrating to OW-16D2 and the Village of Milford municipal wells. During the meeting to confer with EGLE on March 31, 2022, pursuant to Section XVIII of the AO, ZF presented information which showed that there is no technical basis for determining that the portion of the groundwater impacts from the Site, beyond the Site's groundwater treatment system extraction wells, is degrading to vinyl chloride and migrating in the direction of OW-16D2 and the Village of Milford municipal wells. The following evidence was presented:

- Vinyl chloride has never been detected in the Village of Milford municipal wells. In the 2009 Remedial Action Plan (RAP) submitted for the Site and during the March 31st meeting, Arcadis presented groundwater velocity calculations ranging from 1.4 feet/day (static) to 76 feet/day (pumping). Based on these calculations, if vinyl chloride was mobile in groundwater near OW-16D2 and moving toward the Village of Milford wells, then it would have been detected in the Village wells several months ago. However, vinyl chloride has not been detected.
- There have been no vinyl chloride detections in off-site monitoring wells; most notably the monitoring wells that have consistently demonstrated the extent of trichloroethene (TCE) in the groundwater from the Site (TCE being the presumed parent chlorinated volatile organic compound (CVOC) for dichlorination daughter products). This includes multi-level wells along Liberty Street

which EGLE believes are downgradient of the Site's groundwater treatment system extraction wells and upgradient of OW-16D2. The Liberty Street wells have shown no detections of vinyl chloride.

- Groundwater modeling showing: (1) the extent of the groundwater impacts from the Site outside of the Village of Milford municipal well capture zone; (2) forward particle tracking showing groundwater flow from the Site to the southwest, away from the Village of Milford wells and OW-16D2 and consistent with the spatial orientation of the groundwater impacts from the Site as defined by monitoring wells and vertical aquifer profiling (VAP) data. The groundwater model was run using the Village of Milford's current average pumping rate and a previously reported higher pumping rate provided by the Milford Department of Public Services and deemed appropriate to assess long-term influence on groundwater flow conditions. In addition, forward particle tracking simulations run with our model, indicate particles released at the former Spiral Industries Part 201 Facility encroach on the ZF monitoring well network on Liberty Street. Based on a review of a recent Baseline Environmental Assessment (BEA) completed at the Spiral Industries site, known CVOC contamination, including vinyl chloride, DCE, and TCE exists and has not been defined beyond the boundaries of the Spiral Industries property.
- The highest reported concentration of vinyl chloride at OW-16D2 was the first detection of 3.5 ug/L in May 2021, which did not subsequently result in a detection in the Village of Milford wells, despite the proximity and high groundwater velocity.
- The results of ongoing monitoring of the groundwater wells at Liberty Street and to the south of Liberty Street that are beyond the influence of the pumping wells, have been consistent with historical data showing no indication of changes over time that would affect contaminant fate and transport.

Beyond the extensive investigation, analysis and ongoing cleanup work being performed by ZF for the Site, there are confirmed sources of CVOC contamination near and upgradient of OW-16D2, which include vinyl chloride and/or other parent CVOCs as a contaminant and there are other known sources of CVOC groundwater contamination in the Village of Milford. The other known sources of CVOCs include the former Spiral Industries Part 201 Facility and the Coe's Cleaners Part 201 Facility. The Spiral Industries Facility in particular, is upgradient of OW-16D2 and the Village of Milford municipal wells and the extent of contamination related to the Spiral Industries Facility has not been defined beyond the property boundary.

The former Spiral Industries Facility is located north of the Village of Milford municipal wells. Based on a BEA submitted to EGLE in June 2014 that ZF has reviewed, concentrations of CVOCs detected at the former Spiral Industries Facility include, but are not limited to: vinyl chloride (soil: 709 ug/kg and groundwater: 280 ug/l), TCE (soil: 2,620,000 ug/kg and groundwater: 153 ug/l), and DCE (soil: 215,000 ug/kg and groundwater: 650 ug/l). Unlike the Site, the extent of groundwater contamination associated with the Spiral Industries Facility has not been defined beyond the property boundary. In our meeting on March 31st, EGLE explained that there are no additional data available to determine the extent of groundwater contamination from the Spiral Industries Facility because the current owner who is redeveloping the property is not required to define hazardous substances beyond what was required for the BEA and no other responsible party under Part 201 has offered or been demanded by EGLE to define the extent of contamination in light of the wellhead protection zone. Given the known information regarding CVOCs present at the Spiral Industries Facility, it seems that additional and complete CVOC delineation related to this site is warranted and would not only help answer some currently unanswered questions about the extent of potential off-site contamination, but is also necessary and appropriate to understand potential impacts on the Village of Milford's municipal wells.

In light of the long working relationship between EGLE and ZF at the Site, potential public health concerns, and the technical anomaly of vinyl chloride being detected recently and intermittently at only one of many monitoring wells in over 25 years, ZF does not understand why EGLE elected to issue this AO without first providing ZF an opportunity to meet with EGLE, and partner together on determining the reason for such a detection at that well, but nowhere else, and any measures to address it. As noted in Paragraph 4.9 of the AO, EGLE sent ZF a Compliance Communication regarding the Site on October 25, 2021 (the "Compliance Communication"). What the AO leaves out however, is that ZF responded to the Compliance Communication in a timely manner by submitting a detailed letter to EGLE on November 23, 2021, raising several technical questions and concerns regarding the Compliance Communication ("ZF's Response Letter"). ZF's letter concluded with the following request for a meeting with EGLE:

> "In light of the extensive response actions already undertaken by ZF, the complex history of CVOC contamination in the Village of Milford, and EGLE's request that ZF initiate plans to install treatment on the Milford municipal wells, ZF believes a technical meeting would be a productive next step. Arcadis and ZF have made multiple attempts to schedule such a meeting with EGLE, most recently by calling you on November 9th. ZF would appreciate hearing from you regarding some dates and times that EGLE would be available to schedule a technical meeting." See Exhibit 4, ZF Response to EGLE Compliance Communication.

After some additional attempts to reach EGLE about having a meeting, ZF was finally told that EGLE would be responding to ZF's Response Letter. Over the nearly four months since ZF submitted its Response Letter to EGLE, ZF received email acknowledgements that EGLE had received our sampling results for OW-16D2, but never received a response to ZF's Response Letter or any meaningful feedback from EGLE to address the questions raised by ZF. Instead, EGLE issued the AO to ZF on March 16, 2022. ZF takes all matters that involve threats to human health and the environment seriously and this matter is no exception and this is why ZF requested a meeting several times after receiving the Compliance Communication.

As was described in detail in ZF's Response Letter, and as EGLE is aware, ZF has been performing various investigation and response activities at the Site for over 25 years. See Exhibit 4. During that time, ZF has always responded in a timely manner to EGLE's requests and has willingly taken responsibility for the Site. ZF has actively engaged with EGLE regarding the most appropriate and feasible remediation techniques for the Site and has worked cooperatively with the Village of Milford with respect to the Site as well. Ultimately, ZF and the Village of Milford agreed on a transfer of the Site to the Village in 2014 to facilitate its eventual redevelopment and beneficial use in the community. ZF, EGLE and the Village of Milford have generally enjoyed an open and productive working relationship with the mutual objective of protecting human health, welfare, and the environment.

ZF appreciates that EGLE thoughtfully reviewed and considered the additional information about OW-16D2 that we provided in our recent letters and appreciates that EGLE remains open to reconsidering the AO upon a showing that there is not an imminent and substantial risk to the Village of Milford municipal wells due to the presence of vinyl chloride in groundwater at the location of OW-16D2. ZF intends to continue our long standing working relationship with EGLE and the Village of Milford to ensure that the ongoing activities at the Site to address the AO, including ZF's incorporation into its work plan of the recommendations in the April 14 EGLE Letter, continue to proceed in line with Part 201.

Thank you for your attention to these matters and please include this letter and its attachments in the administrative record for the AO and the Site. If you have any questions, please contact me at the phone number listed in the header on the first page of this letter.

Sincerely,

Kelly M. Martorano

Kelly M. Martorano
ZF Group
Senior Attorney – Environmental, Health & Safety

Enclosures
cc by email only:

Mr. Scott Detwiler, ZF
Mr. Robert Bleazard, ZF
Mr. John McInnis, Arcadis
Mr. Troy Sclafani, Arcadis
Mr. Grant Gilezan, Dykema
Mr. Paul Stewart, Dykema
Mr. Christian Wuerth, Village Manager, Village of Milford
Ms. Polly Synk, Michigan Department of Attorney General
Ms. Danielle Allison-Yokom, Michigan Department of Attorney General
Mr. Aaron B. Keatley, EGLE - Chief Deputy Director, EGLE
Mr. Kevin Wojciechowski, Project Manager, EGLE
Mr. Josh Mosher, EGLE – Remediation and Redevelopment Assistant Director
Mr. Dan Yordanich, EGLE
Ms. Mary Miller, EGLE
Mr. Darren Bowling, EGLE
Mr. Paul Owens, EGLE
Ms. Cheryl Wilson, EGLE
Ms. Lyndsey Hagy, EGLE
Ms. Katie Noetzel, EGLE

EXHIBIT 1

April 8, 2022 – ZF Letter RE: Additional Information for Consideration by EGLE

ZF Active Safety US Inc.
12001 Tech Center Drive, Livonia, Michigan 48150-2122

Department Health Safety andEnvironmental
From Robert Bleazard
Phone +1 480 722-4866
Email Robert.Bleazard@zf.com
Date April 8, 2022

VIA E-MAIL TO: WojchiechowskiK@Michigan.gov

Kevin Wojciechowski, Project Manager
Warren District Office Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
27700 Donald Court
Warren, Michigan 48092

RE: ZF Active Safety US Inc. Additional Information for Consideration by Michigan Department of Environment, Great Lakes, and Energy Related to Administrative Order for Response Activity; EGLE Docket No. AO-RRD-22-001.

Dear Mr. Wojciechowski,

ZF Active Safety US Inc. (ZF) appreciates the opportunity to meet with the Department of Environment, Great Lakes, and Energy (EGLE) last Thursday, March 31, 2022, to discuss the Administrative Order for Response Activity (AO) issued by EGLE to ZF, with respect to the former Kelsey-Hayes site in Milford, Michigan (the "Site").

As demonstrated by ZF's November 23, 2021 letter in response to EGLE's October 25, 2021 Compliance Communication and its presentation of information at the meeting, ZF and Arcadis have been reviewing the extensive data collected for the Kelsey-Hayes site, as well as any other available information, in order to understand the recent emergence of vinyl chloride in groundwater monitoring well OW-16D2 when that compound has not been detected at any time elsewhere in ZF's off-site monitoring well network in more than 25 years of monitoring. Furthermore, Arcadis recently noted an anomalous response in water level and certain groundwater parameters in the well during sampling, raising concerns regarding the possible integrity of the well screen and/or the sand pack surrounding the well screen. In addition, considering EGLE's concerns regarding the proximity of OW-16D2 to the Village of Milford municipal wells and the statement in the Administrative Order that "the presence of vinyl chloride in monitoring well OW-16D2, a known carcinogen, represents an imminent and substantial endangerment to the public health, safety, welfare, or the environment…," ZF and Arcadis carefully analyzed the current viability of OW-16D2 and began evaluating whether samples collected from this well are representative of the aquifer.

Arcadis initially questioned whether OW-16D2 may be compromised because there was significant drawdown in the well during most of the low-flow sampling events where vinyl chloride was detected and purge volumes were observed to be similar to the volume of standing water removed from the well. This indicated stagnant water conditions in the well. In addition, water samples with vinyl chloride detections had an oxidation reduction potential (ORP) in the range of -60 to -134 millivolts and low dissolved oxygen (DO) levels (see attached Table 1 – Attachment 1). These conditions within the well provide a reducing environment where anerobic microbes are active and reductive dichlorination of chlorinated volatile organic compounds (CVOCs) can occur (i.e., cis-1,2-dichloroethene to vinyl chloride). Furthermore, vinyl chloride has not been detected in the six observation wells, OW-9, OW-09ML-A/B/C/D, and MW-03-94, located upgradient of OW-16D2, in the Village of Milford drinking water wells, or in any of the other monitoring wells regularly sampled by Arcadis that have proven to be reliable in monitoring other CVOCs including trichloroethene (TCE). Collectively, these multiple lines of evidence are what caused Arcadis to take a closer look at the condition of OW-16D2 and also suggests that the recent detection of vinyl chloride in OW-16D2 is localized, anomalous, and warrants further evaluation. The inability of OW-16D2 to sustain EGLE's low-flow sampling and groundwater parameter stabilization requirements also indicates that groundwater samples collected from OW-16D2 are: 1) not representative of groundwater conditions; 2) not comparable to EGLE's Part 201 Cleanup Criteria for compliance purposes; and 3) therefore not a reliable basis for the conclusion by EGLE that OW-16D2 poses an imminent and substantial endangerment to the Village of Milford wells.

As Arcadis has previously discussed with you and as mentioned during the meeting, ZF's monitoring well OW-16D2 was further examined and redeveloped on Friday, April 1st with the objective of improving hydraulic communication between the well and formation to produce representative groundwater samples. During the examination and redevelopment of OW-16D2, Stearns, the well driller, used a surge block with a vacuum hose attachment to work up and down within the well screen and draw out sediments consistent with standard practice. Stearns moved this apparatus up and down within the well screen several times. During the process, there was initial discolored water and some fine sediment removed and then it cleared up. The plan was to then drop a pump down the well and purge water/groundwater as it re-entered the well, removing as much water as possible. However, after pulling the surge block apparatus out of the well, there was only about 2 feet of water remaining in the well (approximately 1/3 gallon). The amount of water in the well when Stearns started the redevelopment process was about 100 feet (approximately 16 gallons). This indicates that the well screen, sand pack, and/or formation around the screen is not functioning as designed. Arcadis measured the level of water in the well after this work and it recovered very slowly, at a rate of less than 1 foot per hour. Based on these observations, it appears that the water in the screened interval of the well was stagnant and therefore not fully representative of groundwater conditions in the aquifer. These well redevelopment findings, combined with the observations noted above regarding well behavior during sampling, indicate that OW-16D2 has become compromised and cannot be relied on for continued groundwater monitoring without further evaluation and potential corrective action on the well.

Following the redevelopment, Arcadis returned to sample OW-16D2 on Monday, April 4th and observed that the depth to groundwater was about 50 feet (so about 50 feet had recovered over the weekend). Arcadis used a low-flow bladder pump to purge the well (this took about 2 hours) and then sampled the well. The total drawdown of the well was approximately 7 feet during the sampling. Arcadis observed the water level in OW-16D2 to be relatively level for the last 10 minutes prior to sampling, indicating that the recharge was coming from the aquifer and not stagnant water within the well. One set of groundwater samples was collected on April 4th and was dropped off at Fibertec (Holt, Michigan) the same day, with a requested 48-hour turn-around-time and another set of samples was sent to Eurofins-TestAmerica for analysis under a standard turn-around-time. Analysis for volatile organic compounds using EPA Method 8260 was requested for both sets of samples.

The results from the Fibertec samples were returned on April 6th and as you know, were non-detect (less than 1.0 ug/L detection limit) for vinyl chloride. In contrast, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and 1,1-dichloroethane were detected and the concentrations of these other CVOCs were consistent with previous samples collected from OW-16D2, indicating that these compounds are stable in the formation water that entered OW-16D2 after development and are not degrading to vinyl chloride in the vicinity of OW-16D2. The laboratory analytical report (Attachment 2) was provided to you on April 6th. These findings, combined with the previous OW-16D2 sampling results and the well redevelopment observations described above show that the production of vinyl chloride appears to be a function of stagnant water within the well caused by the malfunctioning well itself. Additional samples from OW-16D2 will be collected on April 8th and April 18th. Arcadis will sample the well under as close to low-flow conditions as the well is able to sustain and will promptly report the results to EGLE.

Based on the observed conditions of OW-16D2 during the recent sampling and redevelopment of the well and the historical information provided above, there is an objectively reasonable and technical basis to conclude that the recent samples collected before the redevelopment of the well should not be relied upon as accurate representations of aquifer conditions in that location. Specifically, the following observations point to a lack of reliability for recent vinyl chloride results collected from OW-16D2:

- Inability of the OW-16D2 monitoring well to sustain low-flow purging/sampling consistent with EGLE guidelines;
- Recent consistent reducing conditions (i.e., negative ORP, low DO) with stagnant water conditions observed in OW-16D2, correlating with the observance of vinyl chloride detections that have improved after well redevelopment;
- The first occurrence of vinyl chloride in May 2021 after more than 25 years of monitoring, and its subsequent lack of detection following redevelopment of OW-16D2; while other CVOCs in OW-16D2 remained consistent with historical results;
- Continuing lack of vinyl chloride detections in any other monitoring wells, notably those that have unquestionably demonstrated the extent of TCE impacts, the presumed parent CVOC for dichlorination daughter products;
- Lack of vinyl chloride detections in Village of Milford municipal wells despite groundwater velocity calculations showing it would have arrived months ago if mobile.

Collectively, these findings provide compelling evidence of data quality concerns for OW-16D2 that must be further evaluated and corrected. It is imperative that any conclusions drawn from OW-16D2 sample results and determinations of potential additional response activities are based on accurate and reliable, representative data collected from a properly-performing monitoring well in accordance with EGLE requirements. Therefore, ZF intends to continue to evaluate OW-16D2 and collect additional data for this well which will be expedited and reported to EGLE as soon as available. We are planning to re-sample OW-16D2 on April 8th one week following redevelopment as previously discussed with you via email on April 1st. OW-16D2 will also be sampled again on April 18th.

In addition to the additional monitoring planned for OW-16D2, ZF is also evaluating potential corrective measures for the well including, further well rehabilitation using an approvable drinking water well additive as was communicated with EGLE via email on April 4th, and a downhole camera survey of the well. ZF is also evaluating potentially replacing OW-16D2 if the rehabilitation is not feasible or not successful, as you suggested. Such corrective measures would include a work plan that would be submitted to EGLE for review and approval, and careful coordination with the Village of Milford to ensure protection of the municipal wells.

In light of the recent findings regarding OW-16D2 detailed above and considering that the basis for the AO is EGLE's determination that the vinyl chloride reported in recent samples from OW-16D2 above the Part 201 Drinking Water Criterion, pose an imminent and substantial endangerment to the Village of Milford municipal wells due to their proximity to OW-16D2, it would be prudent for all parties to have reliable data and an objective basis for decisions moving forward. Allowing ZF more time to remedy OW-16D2 and collect accurate data from the well will allow the parties to make a proper technical determination of whether vinyl chloride is in the aquifer at the location of OW-16D2. This information would also provide a strong basis to determine if there is any reasonably objective and technical need to implement the response activity required by the AO and would further serve to inform future discussions and decisions by EGLE, the Village of Milford, and ZF. ZF will follow-up this correspondence with the sample results to be collected from OW-16D2 on April 8th, which we expect to receive from the lab by April 12th, and with our plans to implement the OW-16D2 rehabilitation and/or replacement as necessary. ZF will also provide a formal response to the AO, but wanted to provide you with this recently obtained additional information for your consideration at this time.

Thank you for your attention to these matters and please include this letter and its attachments in the administrative record for the AO and the Site.

If you have any questions, please feel free to contact me at the phone number listed in the header on the first page of this letter, Mr. Scott Detwiler – ZF Project Manager at 480-722-4139, or Mr. John McInnis of Arcadis at 248-994-2285.

Sincerely,

Robert A Bleazard

Robert Bleazard
Sr. EHS Manager – Environmental Remediation
ZF Health, Safety, and Environment

Enclosure
cc by email only:
- Mr. Scott Detwiler, ZF
- Mr. Robert Bleazard, ZF
- Ms. Kelly Martorano, ZF
- Mr. John McInnis, Arcadis
- Mr. Troy Sclafani, Arcadis
- Mr. Grant Gilezan, Dykema
- Mr. Paul Stewart, Dykema
- Mr. Christian Wuerth, Village Manager, Village of Milford
- Ms. Polly Synk, Michigan Department of Attorney General
- Ms. Danielle Allison-Yokom, Michigan Department of Attorney General
- Mr. Aaron B. Keatley, EGLE - Chief Deputy Director, EGLE
- Mr. Mike Neller, EGLE - Remediation and Redevelopment Director

Mr. Josh Mosher, EGLE – Remediation and Redevelopment Assistant Director
Mr. Dan Yordanich, EGLE
Ms. Mary Miller, EGLE
Mr. Darren Bowling, EGLE
Mr. Paul Owens, EGLE
Ms. Cheryl Wilson, EGLE
Ms. Lyndsey Hagy, EGLE
Ms. Katie Noetzel, EGLE

ATTACHMENT 1

Table 1

OW16D2 Groundwater Analytical Results and Field Parameters

Former Kelsey-Hayes Milford Plant

Sample Identification:	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Observation Well OW-16D2																		
Sample Collection Date:			6/15/2010	12/17/2010	6/15/2011	12/14/2011	6/29/2012	12/12/2012	6/12/2013	12/11/2013	6/15/2014	11/24/2014	6/24/2015	12/9/2015[1]	6/14/2016[1]	12/13/2016	12/6/2017	6/12/2018	12/4/2018	6/10/2019	12/3/2019
Tetrachloroethene	5.0 (A)	60 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	5.0 (A)	200 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	70 (A)	620	2.4	3.2	2.1	<1.0	1.4	12	<1.0	3.4	<1.0	22	<1.0	19	<1.0	1.7	18	<1.0	4.1	1.2	1.1
trans-1,2-Dichloroethene	100 (A)	1,500 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	880	740	<1.0	<1.0	1.1	<1.0	<1.0	2.1	<1.0	<1.0	<1.0	3.0	<1.0	2.3	<1.0	<1.0	1.9	<1.0	2.1	1.6	1.4
Vinyl chloride	2.0 (A)	13 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Field Parameters																					
Drawdown (feet)			-0.3	2.8	0.0	1.5	0.0	0.0	0.0	0.0	0.0	1.3	0.4	5.1	4.7	12.2	8.4	4.6	5.5	8.5	3.5
pH (standard units)			7.36	7.74	7.82	7.44	7.60	7.57	7.90	7.85	7.17	7.79	7.82	7.56	7.62	7.91	8.05	7.67	7.41	7.87	7.82
Conductivity (milliSiemens per centimenter)			0.59	0.56	0.64	0.54	0.64	0.60	0.64	0.59	0.60	0.80	0.634	0.952 [1]	0.827 [1]	0.604	0.63	0.64	0.62	0.64	0.82
Turbidity (Nephelometric Turbidity Unit)			1.09	4.22	3.67	0.76	3.68	2.24	0.60	2.43	2.19	102	2.27	52.1	0.61	1.36	11.7	0.80	2.2	3.06	0.79
Dissolved Oxygen (milligrams per liter)			1.33	0.47	0.11	1.44	0.56	0.8	1.19	3.45	4.99	3.8	4.08	0.19	3.22	0.38	0.3	3.04	1.21	0.25	11.74
Temperature (degrees Celsius)			14.66	9.23	15.71	10.33	17.45	9.90	15.19	10.39	14.72	10.83	14.1	11.75	13.89	11.33	10.6	14.60	10.96	12.7	8.6
Oxidation Reduction Potential (millivolt)			75	-12.5	78.3	12.7	125.1	110.6	115.1	115	82.4	-17.4	-39.1	-155.3	27.7	101.4	-121.6	203.7	159.9	231.9	122

Sample Identification:	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Observation Well OW-16D2																	
Sample Collection Date:			5/13/2020	11/17/2020	5/13/2021	6/8/2021	8/3/2021	8/16/2021	9/1/2021	9/13/2021	9/27/2021	10/11/2021	10/25/2021	11/8/2021	12/6/2021	1/4/2022	1/25/2022	2/17/2022	3/21/2022	4/4/2022
Tetrachloroethene	5.0 (A)	60 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	5.0 (A)	200 (X)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	70 (A)	620	<1.0	<1.0	17	10	16	13	16	20	18	12	17	17	8.2	15	15	12	18	19
trans-1,2-Dichloroethene	100 (A)	1,500 (X)	<1.0	<1.0	1.3	<1.0	1.6	1.1	1.3	1.7	1.7	1.1	1.6	1.5	<1.0	1.6	1.4	1.1	1.6	1.7
1,1-Dichloroethane	880	740	<1.0	<1.0	3.8	2.4	3.8	3.0	3.2	3.9	3.7	2.8	3.8	4.2	2.0	3.0	3.4	3.1	3.7	3.5
Vinyl chloride	2.0 (A)	13 (X)	<1.0	<1.0	3.5	1.2	3.0	1.8	1.7	1.6	1.8	1.4	1.5	1.5	<1.0	2.5	3.2	2.0	2.3	<1.0
First Depth to Water																				
Field Parameters																				
Drawdown (feet)			4.2	10.2	0.0	0.0	12.7	14.2	15.0	10.6	13.7	15.2	8.1	10.9	7.5	8.1	17.4	17.4	7.1	6.9
pH (standard units)			8.51	8.44	7.89	7.6	7.5	7.68	7.64	7.28	7.38	7.81	7.49	7.43	8.02	7.56	7.54	7.77	7.54	7.43
Conductivity (milliSiemens per centimenter)			0.78	0.71	0.93	0.85	0.93	0.718	1.011	1.03	1.07	0.97	1.09	1.07	0.84	1.1	1.11	0.985	1.082	1.1
Turbidity (Nephelometric Turbidity Unit)			2.29	1.08	59.6	5.29	33.8	6.82	3.86	3.9	9.44	9.05	10.7	10.1	4.74	28.4	13.7	4.9	3.04	96.3
Dissolved Oxygen (milligrams per liter)			4.9	9.67	0.45	0.41	1.32	0.25	0.38	0.86	0.22	0.58	0.15	0.17	0.27	0.2	0.1	0.57	0.51	5.81
Temperature (degrees Celsius)			11.6	12.3	12.2	17.4	15.6	14.1	15	14.1	15	15.5	12.4	14	10.8	10.8	9.8	9.9	10.4	7.1
Oxidation Reduction Potential (millivolt)			155.1	12.1	-134	-104.1	-99	-139.1	-74.7	-64.8	-89.9	-99.2	-88.2	-66.4	-14	-93.1	-96.7	-61.3	-72.3	3.0

Notes:

All volatile organic compound concentrations are in micrograms per liter (µg/L).

(A) Criterion is the State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act No. 399 of the Public Acts of 1976.

(X) The Groundwater Surface Water Interface (GSI) criterion shown is not protective for surface water that is used as a drinking water source.

[1] Specific Conductivity

ATTACHMENT 2

Fibertec
environmental
services

Wednesday, April 06, 2022

Fibertec Project Number:	A07755
Project Identification:	TRW Milford ZF Active Safety (30046730) /30046730
Submittal Date:	04/04/2022

Mrs. Marina Samp
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Mrs. Samp,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Sue Ricketts

By Sue Ricketts at 12:26 PM, Apr 06, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-001

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**FIELDBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**11:45**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-001** **Matrix: Blank: Field**
Method: EPA 5030C/EPA 8260D **Description: FIELDBLANK_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-001

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**FIELDBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**11:45**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-001** **Matrix: Blank: Field**
Method: EPA 5030C/EPA 8260D **Description: FIELDBLANK_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-002

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:55**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID:** **A07755-002** **Matrix: Ground Water**
Method: EPA 5030C/EPA 8260D **Description:** **OW-16D2_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
27. 1,1-Dichloroethane	**3.5**		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
30. cis-1,2-Dichloroethene	**19**		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
31. trans-1,2-Dichloroethene	**1.7**		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-002

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:55**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-002** **Matrix: Ground Water**
Method: EPA 5030C/EPA 8260D **Description: OW-16D2_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-003

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**EQUIPMENTBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Equipment**	Collect Time:	**12:10**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID:** A07755-003 **Matrix: Blank: Equipment**
Method: EPA 5030C/EPA 8260D **Description:** EQUIPMENTBLANK_040422

							Preparation		Analysis		
	Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
	1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡	2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡	20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-003

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**EQUIPMENTBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Equipment**	Collect Time:	**12:10**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-003** **Matrix: Blank: Equipment**
Method: EPA 5030C/EPA 8260D **Description: EQUIPMENTBLANK_040422**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-004

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**TRIP BLANK**	Chain of Custody:	**N/A**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID:** **A07755-004** **Matrix: Blank: Trip**

Method: EPA 5030C/EPA 8260D **Description:** **TRIP BLANK**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-004

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**TRIP BLANK**	Chain of Custody:	**N/A**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-004** **Matrix: Blank: Trip**
Method: EPA 5030C/EPA 8260D **Description: TRIP BLANK**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF

Definitions/ Qualifiers:

A:	Spike recovery or precision unusable due to dilution.
B:	The analyte was detected in the associated method blank.
E:	The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J:	The concentration is an estimated value.
M:	Modified Method
U:	The analyte was not detected at or above the reporting limit.
X:	Matrix interference has resulted in a raised reporting limit or distorted result.
W:	Results reported on a wet-weight basis.
*:	Value reported is outside QC limits

Exception Summary:

L-	: Recovery in the associated laboratory sample (LCS) exceeds the lower control limit. Results may be biased low.
V-	: Recovery in the associated continuing calibration verification sample (CCV) exceeds the lower control limit. Results may be biased low.

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

Quality Control Report
Laboratory Project Number: A07755

VI22D05B: Method Blank (MB)

EPA 8260D

Run Time: VI22D05B.MB 04/06/2022 23:54 [VI22D05B]

Analyte	MB Result µg/L	MB Qualifier	MB RDL µg/L
Acetone	U		50
Acrylonitrile	U		2.0
Benzene	U		1.0
Bromobenzene	U		1.0
Bromochloromethane	U		1.0
Bromodichloromethane	U		1.0
Bromoform	U		1.0
Bromomethane	U		5.0
2-Butanone	U		25
n-Butylbenzene	U		1.0
sec-Butylbenzene	U		1.0
tert-Butylbenzene	U		1.0
Carbon Disulfide	U		5.0
Carbon Tetrachloride	U		1.0
Chlorobenzene	U		1.0
Chloroethane	U		5.0
Chloroform	U		1.0
Chloromethane	U		5.0
2-Chlorotoluene	U		5.0
1,2-Dibromo-3-chloropropane (SIM)	U		1.0
Dibromochloromethane	U		5.0
Dibromomethane	U		5.0
1,2-Dichlorobenzene	U		1.0
1,3-Dichlorobenzene	U		1.0
1,4-Dichlorobenzene	U		1.0
Dichlorodifluoromethane	U		5.0
1,1-Dichloroethane	U		1.0
1,2-Dichloroethane	U		1.0
1,1-Dichloroethene	U		1.0
cis-1,2-Dichloroethene	U		1.0
trans-1,2-Dichloroethene	U		1.0
1,2-Dichloropropane	U		1.0
cis-1,3-Dichloropropene	U		0.50

VI22D05B: Method Blank (MB)

EPA 8260D

Run Time: VI22D05B.MB 04/05/2022 23:54 [VI22D05B]

Analyte	MB Result µg/L	MB Qualifier	MB RDL µg/L
trans-1,3-Dichloropropene	U		0.50
Ethylbenzene	U		1.0
Ethylene Dibromide	U		1.0
2-Hexanone	U		50
Isopropylbenzene	U		5.0
4-Methyl-2-pentanone	U		50
Methylene Chloride	U		5.0
2-Methylnaphthalene	U		5.0
MTBE	U		5.0
Naphthalene	U		5.0
n-Propylbenzene	U		1.0
Styrene	U		1.0
1,1,1,2-Tetrachloroethane	U		1.0
1,1,2,2-Tetrachloroethane	U		1.0
Tetrachloroethene	U		1.0
Toluene	U		1.0
1,2,4-Trichlorobenzene	U		5.0
1,1,1-Trichloroethane	U		1.0
1,1,2-Trichloroethane	U		1.0
Trichloroethene	U		1.0
Trichlorofluoromethane	U		1.0
1,2,3-Trichloropropane	U		1.0
1,2,3-Trimethylbenzene	U		1.0
1,2,4-Trimethylbenzene	U		1.0
1,3,5-Trimethylbenzene	U		1.0
Vinyl Chloride	U		1.0
m&p-Xylene	U		2.0
o-Xylene	U		1.0
4-Bromofluorobenzene(S)	*100*		*80-120*
Dibromofluoromethane(S)	*101*		*80-120*
1,2-Dichloroethane-d4(S)	*84*		*80-120*
Toluene-d8(S)	*99*		*80-120*

VI22D05B: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) EPA 8260D

Run Time: VI22D05B.LCS: 04/05/2022 22:09 [VI22D05B] VI22D05B.LCSD: 04/05/2022 22:35 [VI22D05B]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
Acetone	50.0	30.6	61	54-140		50.0	31.1	62		2	20	
Acrylonitrile	50.0	52.7	105	70-130		50.0	53.7	107		2	20	
Benzene	50.0	45.5	93	80-120		50.0	45.1	90		3	20	
Bromobenzene	50.0	44.7	89	75-125		50.0	44.2	88		1	20	
Bromochloromethane	50.0	40.7	81	70-130		50.0	40.1	80		1	20	
Bromodichloromethane	50.0	44.5	89	75-120		50.0	43.5	87		2	20	
Bromoform	50.0	45.8	92	70-130		50.0	45.4	91		1	20	
Bromomethane	50.0	27.5	55	68-136	*	50.0	29.1	58	*	5	20	
2-Butanone	50.0	40.1	80	70-149		50.0	40.5	81		1	20	
n-Butylbenzene	50.0	52.8	106	70-133		50.0	51.9	104		2	20	
sec-Butylbenzene	50.0	50.2	100	70-125		50.0	49.4	99		1	20	
tert-Butylbenzene	50.0	49.5	99	70-130		50.0	48.6	97		2	20	
Carbon Disulfide	50.0	44.6	89	70-130		50.0	42.8	86		3	20	
Carbon Tetrachloride	50.0	44.5	89	70-130		50.0	43.3	87		2	20	
Chlorobenzene	50.0	45.9	92	80-120		50.0	44.8	90		2	20	
Chloroethane	50.0	40.5	81	61-130		50.0	39.1	78		4	20	
Chloroform	50.0	44.2	88	80-120		50.0	43.4	87		1	20	
Chloromethane	50.0	38.4	77	67-125		50.0	38.9	78		1	20	
2-Chlorotoluene	50.0	47.3	95	75-125		50.0	46.6	93		2	20	
1,2-Dibromo-3-chloropropane (SIM)	50.0	48.5	97	70-130		50.0	49.6	99		2	20	
Dibromochloromethane	50.0	44.6	89	70-130		50.0	43.3	87		2	20	
Dibromomethane	50.0	41.6	83	75-125		50.0	40.4	81		2	20	
1,2-Dichlorobenzene	50.0	46.9	94	70-120		50.0	46.2	92		2	20	
1,3-Dichlorobenzene	50.0	45.8	92	75-125		50.0	45.0	90		2	20	
1,4-Dichlorobenzene	50.0	43.3	87	75-125		50.0	42.5	85		2	20	
Dichlorodifluoromethane	50.0	53.5	107	70-136		50.0	51.0	102		5	20	
1,1-Dichloroethane	50.0	45.9	92	70-130		50.0	44.5	89		3	20	
1,2-Dichloroethane	50.0	40.9	82	70-130		50.0	39.7	79		4	20	
1,1-Dichloroethene	50.0	43.8	88	78-120		50.0	42.1	84		5	20	
cis-1,2-Dichloroethene	50.0	44.8	90	70-125		50.0	43.2	86		5	20	
trans-1,2-Dichloroethene	50.0	44.5	89	70-130		50.0	43.5	87		2	20	
1,2-Dichloropropane	50.0	49.1	98	80-121		50.0	47.4	95		3	20	
cis-1,3-Dichloropropene	50.0	43.4	87	70-130		50.0	42.2	84		4	20	

VI22D05B: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) EPA 8260D

Run Time: VI22D05B.LCS: 04/05/2022 22:09 [VI22D05B] VI22D05B.LCSD: 04/05/2022 22:35 [VI22D05B]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
trans-1,3-Dichloropropene	50.0	48.2	96	70-132		50.0	46.7	93		3	20	
Ethylbenzene	50.0	48.4	97	80-120		50.0	47.0	94		3	20	
Ethylene Dibromide	50.0	45.2	90	80-120		50.0	44.4	89		1	20	
2-Hexanone	50.0	39.4	79	70-130		50.0	40.5	81		3	20	
Isopropylbenzene	50.0	48.7	97	75-125		50.0	47.5	95		2	20	
4-Methyl-2-pentanone	50.0	55.2	110	70-130		50.0	54.7	109		1	20	
Methylene Chloride	50.0	43.8	88	70-130		50.0	42.7	85		3	20	
2-Methylnaphthalene	50.0	46.0	92	70-130		50.0	46.5	93		1	20	
MTBE	50.0	48.3	97	70-125		50.0	47.3	95		2	20	
Naphthalene	50.0	46.7	93	70-130		50.0	47.5	95		2	20	
n-Propylbenzene	50.0	49.4	99	70-130		50.0	48.8	98		1	20	
Styrene	50.0	41.0	82	70-130		50.0	39.7	79		4	20	
1,1,1,2-Tetrachloroethane	50.0	46.7	93	80-130		50.0	45.2	90		3	20	
1,1,2,2-Tetrachloroethane	50.0	59.4	119	70-130		50.0	60.5	121		2	20	
Tetrachloroethene	50.0	48.5	97	70-130		50.0	46.9	94		3	20	
Toluene	50.0	47.9	96	80-120		50.0	46.4	93		3	20	
1,2,4-Trichlorobenzene	50.0	45.9	92	70-130		50.0	46.0	92		0	20	
1,1,1-Trichloroethane	50.0	45.5	91	70-130		50.0	44.3	89		2	20	
1,1,2-Trichloroethane	50.0	47.6	95	75-125		50.0	47.1	94		1	20	
Trichloroethene	50.0	41.6	83	71-125		50.0	39.9	80		4	20	
Trichlorofluoromethane	50.0	48.2	96	70-133		50.0	46.6	93		3	20	
1,2,3-Trichloropropane	50.0	49.9	100	75-125		50.0	49.3	99		1	20	
1,2,3-Trimethylbenzene	50.0	47.0	94	70-130		50.0	46.2	92		2	20	
1,2,4-Trimethylbenzene	50.0	49.1	98	75-130		50.0	48.7	97		1	20	
1,3,5-Trimethylbenzene	50.0	49.1	98	75-130		50.0	48.1	96		2	20	
Vinyl Chloride	50.0	43.9	88	74-125		50.0	42.2	84		5	20	
m&p-Xylene	100	95.1	95	75-130		100	92.8	93		2	20	
o-Xylene	50.0	47.9	96	80-120		50.0	46.3	93		3	20	
4-Bromofluorobenzene(S)			*100*	*80-120*				*101*				
Dibromofluoromethane(S)			*99*	*80-120*				*98*				
1,2-Dichloroethane-d4(S)			*91*	*80-120*				*90*				
Toluene-d8(S)			*100*	*80-120*				*100*				

Definitions/ Qualifiers:

U: The analyte was not detected at or above the Reporting Limit (RL).
*: Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:

Sue Ricketts

By Sue Ricketts at 12:32 PM, Apr 06, 2022

Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 201041
PAGE 1 of 1

Client Name: Arcadis
Contact Person: Marina Samp
Project Name/ Number: TRW Milford 30046730
Email distribution list: marina.samp@arcadis.com
john.mcinnis@arcadis.com
Quote#
Purchase Order# 30046730.000IZ

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	VOCs 8260B	HOLD SAMPLE
4.4.22	1145		FIELDBLANK_040422	GW	3	3	
4.4.22	1155		OW-16D2-040422	GW	3	3	
4.4.22	1210		EQUIPMENTBLANK_040422	GW	3	3	

PARAMETERS

Matrix Code
S Soil
A Air
O Oil
P Wipe
[✓ GW] Ground Water
SW Surface Water
WW Waste Water
X Other: Specify

Deliverables
☒ Level 2
☐ Level 3
☐ Level 4
☒ EDD

Remarks:

Received By Lab
APR 04 2022
initials Ef

Received On Ice

Comments:

Sampled/Relinquished By: Stacey Hannula
Date/ Time 4.4.22 1230
Received By: Anyssa Mandich/Arcadis

Relinquished By: Anyssa Mandich/Arcadis
Date/ Time 4/4/22 1415
Received By: Fibertec

Relinquished By:
Date/ Time
Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

____ 1 bus. day
X 2 bus. day (48 HRS)
____ 3 bus. days
____ 4 bus. days
____ 5-7 bus. days (standard)
Other (specify time/date requirement): ____

LAB USE ONLY

Fibertec project number: A07755
Temperature upon receipt at Lab: 2.0°C

Please see back for terms and conditions

EXHBIT 2

April 13, 2022 - Letter RE: Additional Information for Consideration by EGLE

ZF Active Safety US Inc.
12001 Tech Center Drive, Livonia, Michigan 48150-2122

Department	Health Safety andEnvironmental
From	Robert Bleazard
Phone	+1 480 722-4866
Email	Robert.Bleazard@zf.com
Date	April 13, 2022

VIA E-MAIL TO: WojchiechowskiK@Michigan.gov

Kevin Wojciechowski, Project Manager
Warren District Office Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
27700 Donald Court
Warren, Michigan 48092

RE: ZF Active Safety US Inc. Additional Information for Consideration by Michigan Department of Environment, Great Lakes, and Energy Related to Administrative Order for Response Activity; EGLE Docket No. AO-RRD-22-001.

Dear Mr. Wojciechowski,

ZF Active Safety US Inc. (ZF) is submitting the following information and attachment to the Department of Environment, Great Lakes, and Energy (EGLE) with respect to the Administrative Order for Response Activity (AO) issued by EGLE to ZF, with respect to the former Kelsey-Hayes site in Milford, Michigan (the "Site").

As noted in the letter that ZF sent to EGLE on April 8, 2022, Arcadis recently began redevelopment activities on monitoring well OW-16D2 on April 1st and subsequently collected samples from the well on April 4th and April 8th. The sample collected on April 8th was submitted to Fibertec and 48-hour turn-around-time was again requested. The groundwater sample result from OW-16D2 is again non-detect (less than 1 microgram per liter) for vinyl chloride. See attached Laboratory Report.

Our April 8th letter details the reasons why ZF and Arcadis suspected OW-16D2 may be compromised and describes the measures we took to further examine and redevelop the well on April 1st. The April 8th sample results collected one week following the redevelopment of OW-16D2 are consistent with, and further support our understanding that, OW-16D2 had become compromised and sample results obtained from the well prior to the redevelopment are not reliable because they were not representative of groundwater conditions. Specifically, the non-detect vinyl chloride results for now two consecutive post-redevelopment sampling events, coupled with the other chlorinated volatile organic compounds (CVOCs) that were detected in OW-16D2 below drinking water criteria at concentrations consistent with previous results, confirms that dissolved CVOCs present in groundwater in the vicinity of OW-16D2 are stable and not degrading to vinyl chloride, which is consistent with the sampling results throughout ZF's monitoring well network over the past 25 years.

The hydraulic observations presented in our April 8th letter clearly show that the well was unable to sustain low-flow purging. Stagnant water was removed during the redevelopment work and the resultant recharge into the well was inflow from the surrounding formation. In addition to the CVOC analytical results and hydraulic observations, it was noted during the April 8th sampling that drawdown was improved versus pre-redevelopment conditions and other parameters (i.e., dissolved oxygen, oxidation-reduction potential) were stable. Collectively, these multiple lines of evidence are indicating the well is now producing more representative groundwater samples than it was prior to the redevelopment. ZF and Arcadis believe that the initial redevelopment work completed on OW-16D2 meets the objective of improving hydraulic communication between the well and the formation and the well conditions are currently producing more accurate groundwater samples.

Based on these observations and the April 8th sample that detected no vinyl chloride, it appears that the vinyl chloride that had been detected in OW-16D2 prior to the recent well redevelopment action was the result of stagnant water within the well and not representative of true groundwater conditions. At this point, there is an objectively reasonable basis and enough technical evidence to say that EGLE should not rely on the samples collected from OW-16D2 prior to redevelopment of the well to make a determination that this well poses an imminent and substantial endangerment to the Village of Milford municipal wells. More work is necessary to further evaluate OW-16D2, including additional redevelopment activities, and this work will require additional time beyond the current April 15th compliance date in the AO.

Given that the sole basis for the corrective action work set forth in the AO is the detection of vinyl chloride in recent samples now understood to be consisting of stagnant water collected from OW-16D2 in a compromised condition, it would be reasonable and consistent with applicable laws and regulations for EGLE to provide ZF an extension of the compliance date in the AO in order to submit a work plan for additional well redevelopment activities, allow ZF time to implement the work plan, and further evaluate and discuss the work plan results and any necessary corrective actions with EGLE. Therefore, ZF will submit a detailed work plan to EGLE by **no later than April 22nd**, which will include plans for routine additional sampling of OW-16D2, and information regarding further mechanical and additive techniques to rehabilitate OW-16D2 or replace it.

Furthermore, a **60-day extension of the AO response deadline** will allow ZF time to implement the work plan and provide the parties time to review and discuss the work plan results. This additional information will enable the parties to reasonably act on an understanding based on representative data and objectively developed technical information about the integrity of OW-16D2, rather than presumptions about the recent appearance of vinyl chloride in only one well that has been determined to be compromised and was not yielding samples representative of the groundwater in that location before redevelopment. Furthermore, if EGLE is concerned about vinyl chloride appearing in the Village of Milford municipal well during the extension of the AO notice deadline, ZF's understanding based on the Focused Feasibility Study Report prepared by Wood for the Village of Milford is that the current Iron Removal System provides a feasible temporary response measure that could be utilized to remove vinyl chloride at the levels consistent with those previously reported in OW-16D2, if it were to be needed.

In light of the tight timing circumstances, we ask that EGLE please communicate to ZF prior to April 15th whether or not EGLE agrees with ZF's proposed submission of a work plan by no later than April 22nd and with a 60-day extension of the AO response deadline.

Thank you for your attention to these matters and please include this letter and its attachment in the administrative record for the AO and the Site.

If you have any questions, please feel free to contact me at the phone number listed in the header on the first page of this letter, Mr. Scott Detwiler – ZF Project Manager at 480-722-4139, or Mr. John McInnis of Arcadis at 248-994-2285.

Sincerely,

Robert A Bleazard

Robert Bleazard
Sr. EHS Manager – Environmental Remediation
ZF Health, Safety, and Environment

Enclosure
cc by email only:

Mr. Scott Detwiler, ZF
Ms. Kelly Martorano, ZF
Mr. John McInnis, Arcadis
Mr. Troy Sclafani, Arcadis
Mr. Grant Gilezan, Dykema
Mr. Paul Stewart, Dykema
Mr. Christian Wuerth, Village Manager, Village of Milford
Ms. Polly Synk, Michigan Department of Attorney General
Ms. Danielle Allison-Yokom, Michigan Department of Attorney General
Mr. Aaron B. Keatley, EGLE - Chief Deputy Director, EGLE
Mr. Mike Neller, EGLE - Remediation and Redevelopment Director
Mr. Josh Mosher, EGLE – Remediation and Redevelopment Assistant Director
Mr. Dan Yordanich, EGLE
Ms. Mary Miller, EGLE
Mr. Darren Bowling, EGLE
Mr. Paul Owens, EGLE
Ms. Cheryl Wilson, EGLE
Ms. Lyndsey Hagy, EGLE
Ms. Katie Noetzel, EGLE

ATTACHMENT

Fibertec
environmental
services

Tuesday, April 12, 2022

Fibertec Project Number:	A07873
Project Identification:	TRW Milford ZF Active Safety (30046730) /30046730
Submittal Date:	04/08/2022

Mrs. Marina Samp
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Mrs. Samp,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Sue Ricketts

By Sue Ricketts at 1:11 PM, Apr 12, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Fibertec
environmental
services

Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-001

Order: A07873
Date: 04/12/22

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Field Blank-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**10:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS
Method: EPA 5030C/EPA 8260D

Aliquot ID: A07873-001 **Matrix: Blank: Field**
Description: Field Blank-040822

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
3. Benzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
4. Bromobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
5. Bromochloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
7. Bromoform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
8. Bromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
9. 2-Butanone	U		µg/L	25	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
15. Chlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
16. Chloroethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
17. Chloroform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
18. Chloromethane	U	V+ L+	µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
22. Dibromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
35. Ethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Field Blank-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**10:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-001** **Matrix: Blank: Field**
Method: EPA 5030C/EPA 8260D **Description: Field Blank-040822**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
40. Methylene Chloride	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
42. MTBE	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
43. Naphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
45. Styrene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
49. Toluene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
53. Trichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
60. m&p-Xylene	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
61. o-Xylene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM

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Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-002

Order: A07873
Date: 04/12/22

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-002** **Matrix: Ground Water**
Method: EPA 5030C/EPA 8260D **Description: OW-16D2-040822**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
3. Benzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
4. Bromobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
5. Bromochloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
7. Bromoform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
8. Bromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
9. 2-Butanone	U		µg/L	25	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
15. Chlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
16. Chloroethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
17. Chloroform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
18. Chloromethane	U	V+ L+	µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
22. Dibromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
27. 1,1-Dichloroethane	**3.5**		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
30. cis-1,2-Dichloroethene	**20**		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
31. trans-1,2-Dichloroethene	**1.5**		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
35. Ethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS
Method: EPA 5030C/EPA 8260D

Aliquot ID: A07873-002 **Matrix: Ground Water**
Description: OW-16D2-040822

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
40. Methylene Chloride	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
42. MTBE	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
43. Naphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
45. Styrene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
49. Toluene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
53. Trichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
60. m&p-Xylene	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
61. o-Xylene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM

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Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-003

Order: A07873
Date: 04/12/22

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Trip Blank**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-003** **Matrix: Blank: Trip**
Method: EPA 5030C/EPA 8260D **Description: Trip Blank**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
3. Benzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
4. Bromobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
5. Bromochloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
7. Bromoform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
8. Bromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
9. 2-Butanone	U		µg/L	25	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
15. Chlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
16. Chloroethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
17. Chloroform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
18. Chloromethane	U	V+ L+	µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
22. Dibromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
35. Ethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-003

Order: A07873
Date: 04/12/22

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Trip Blank**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-003** **Matrix: Blank: Trip**
Method: EPA 5030C/EPA 8260D **Description: Trip Blank**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
40. Methylene Chloride	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
42. MTBE	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
43. Naphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
45. Styrene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
49. Toluene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
53. Trichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
60. m&p-Xylene	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
61. o-Xylene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
*: Value reported is outside QC limits

Exception Summary:

L+ : Recovery in the associated laboratory sample (LCS) exceeds the upper control limit. Results may be biased high.
V+ : Recovery in the associated continuing calibration verification sample (CCV) exceeds the upper control limit. Results may be biased high.

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

EXHIBIT 3

April 14, 2022 - EGLE Response to ZF April 8 and April 13, 2022 Letters RE: Additional Information for Consideration

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

April 14, 2022

VIA E-MAIL

Robert Bleazard
Sr. EHS Manager Environmental Remediation
ZF Health, Safety, and Environment
ZF Active Safety US Inc.
12001 Tech Center Drive
Livonia, Michigan 48150-2122

SUBJECT: Response to ZF Active Safety US Inc. Additional Information for Consideration Related to Administrative Order for Response Activity; EGLE Docket No. AO-RRD-22-001 (AO)

Dear Robert Bleazard:

The Department of Environment, Great Lakes, and Energy (EGLE) has received ZF Active Safety US Inc. (ZF) correspondence dated April 8, 2022, and April 13, 2022, containing technical information for EGLE's consideration pertaining to the potentially anomalous groundwater parameters in monitoring well OW-16D2 during sampling.

Although EGLE agrees that the information presented by ZF warrants additional investigation by ZF, EGLE does not believe the information presented thus far demonstrates that there is no imminent and substantial endangerment to the public drinking water supply for the Village of Milford. Therefore, EGLE cannot grant ZF's requested extension of the AO response deadline, and EGLE expects ZF's timely compliance with the AO.

If ZF intends to submit a work plan to undertake a parallel path to further investigate concerns regarding the integrity of OW-16D2, EGLE does not discourage those efforts, however the work plan should provide for the following:

- Continue to rehabilitate monitoring well OW-16D2 with mechanical and/or additive techniques. Collect post-rehabilitation groundwater samples for a sufficient period of time to demonstrate the samples are representative of aquifer conditions.
- Complete vertical aquifer profiling in close proximity to OW-16D2 to verify the screen is in the zone of highest contamination. Based on the completed vertical aquifer profile, if the depth of contamination differs from the screening interval of OW-16D2, install a new monitoring well to be screened at the depth of the highest level of contamination.

- Install a new monitoring well to replace OW-16D2 if it cannot be rehabilitated. The new monitoring well shall be screened based on the conclusions from the vertical aquifer profiling.

EGLE remains open to reconsider its position regarding the Administrative Order if additional data demonstrates that there is not an imminent and substantial risk to the Village of Milford's drinking water wells.

If you have questions regarding this matter, please contact Kevin Wojciechowski, Project Manager, at 586-623-2948 or WojciechowskiK@Michigan.gov; or you may contact me.

Sincerely,

Mike Neller

Mike Neller, Director
Remediation & Redevelopment Division
517-512-5859

cc: Danielle Allison-Yokom, Michigan Department of Attorney General
Aaron B. Keatley, Chief Deputy Director, EGLE
Joshua Mosher, EGLE
Mary Miller, EGLE
Dan Yordanich, EGLE
Paul Owens, EGLE
Darren Bowling, EGLE
Cheryl Wilson, EGLE
Tiffany Yusko-Kotimko, EGLE
Kevin Wojciechowski, EGLE
Lyndsey Hagy, EGLE
Katie Noetzel, EGLE

EXHIBIT 4

November 23, 2021 - ZF Response to EGLE Compliance Communication

ZF Active Safety US Inc.
12001 Tech Center Drive, Livonia, Michigan 48150-2122

Department	Health Safety andEnvironmental
From	Scott Detwiler
Phone	+1 480 722-4139
Email	Scott.Detwiler@zf.com
Date	November 23, 2021

VIA EMAIL: WojciechowskiK@Michigan.gov
AND CERTIFIED MAIL

Mr. Kevin Wojciechowski, Project Manager
Warren District Office -Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
27700 Donald Court
Warren, Michigan 48092

RE: ZF Active Safety US Inc. Response to Michigan Department of Environment, Great Lakes, and Energy Compliance Communications Regarding the Facility Located at 101 Oak Street, Milford, Michigan.
EGLE Facility ID No. 63000952

Dear Mr. Wojciechowski:

This letter and the accompanying Response Activity Plan (ResAP) include ZF Active Safety US Inc.'s (ZF's) response to Compliance Communication letters from the Michigan Department of Environment, Great Lakes, and Energy (EGLE), dated September 1, 2021; received by ZF on September 13th (the September 2021 Letter) and dated October 25, 2021; received by ZF on November 9th (the October 2021 Letter). The two Letters state that they are related to the former Kelsey-Hayes property located at 101 Oak Street, Milford, Michigan (the "Facility" or the "Property") for which ZF retains some clean-up responsibility. However, ZF is no longer the owner of the Property.

The primary issue presented by EGLE in both of the Letters is related to groundwater sampling data collected by ZF from an Observation Well (OW-16D2) that exceeded the Part 201 generic drinking water criterion for vinyl chloride. Observation Well OW-16D2 is less than 200 feet from Village of Milford (Milford's) drinking water wells.

The September 2021 Letter requests that ZF submit a ResAP with a schedule, that when implemented, will achieve the cleanup criteria or protect from exposure to the contamination; to demonstrate compliance with Part 201 by 90 days. ZF and its consultant, Arcadis, were in the process of preparing the ResAP within the requested time period, when the October 2021 Letter was received by ZF. The October 2021 Letter requests that ZF initiate the interim response measure of installing treatment on the Milford drinking water system within 14 days of receipt of the October 2021 Letter. Given the two parallel requests from EGLE and the fact that ZF was already in the process of responding to the September 2021 Letter when it received the October 2021 Letter, this response addresses the issues raised in both of the EGLE Letters. The information presented below describes the response activities that ZF has taken at the Facility, including the information provided in the attached ResAP requested by EGLE.

In addition, the information below provides ZF's response to EGLE's request to initiate the interim response measure of installing treatment on the Milford drinking water system.

I. September 2021 Letter and EGLE Request for a ResAP:

As noted above, the September 2021 Letter discusses the presence of vinyl chloride above the Part 201 drinking water criterion in Observation Well OW-16D2, and includes EGLE's request that ZF submit a ResAP with a schedule, that when implemented, will achieve the cleanup criteria or protect from exposure to the contamination. The following response actions have been completed or are ongoing with respect to the Property:

a. Immediately taking measures to contain or remove the contamination source

Numerous response actions have been implemented to address chlorinated volatile organic compound (CVOC) impacts at the Facility and include excavation and removal of impacted soil, installation and operation of a soil vapor extraction (SVE) system, and installation and operation of a groundwater extraction and treatment system (groundwater treatment system). Details of these interim response measures were reported to EGLE in the *Summary of Environmental Response Activities* (Haley and Aldrich of Michigan, LLC 2002) and *Remedial Action Plan* (Arcadis 2009). The combination of these interim responses and the continued operation and performance monitoring of the groundwater treatment system, combined with appropriate land-use restrictions, render relevant exposure pathways incomplete, thereby preventing potential threats to public health, safety, or welfare and to the environment.

b. Immediately identifying and eliminating any threat of fire or explosion or direct contact hazards

There are no threats of fire or explosion, or direct contact hazards associated with the detection of CVOCs at any observation wells sampled as part of the ongoing groundwater monitoring at the Facility. Concentrations of CVOCs detected are several orders of magnitude below the flammability and explosivity screening levels for groundwater. In addition, CVOCs detected in groundwater at Observation Well OW-16D2 are approximately 95 feet below grade. Groundwater concentrations observed at OW-16D2 do not exceed the generic drinking water criteria (except for vinyl chloride which was reported at concentrations of 3.5 and 3.0 ug/L during two sampling events on May 13 and August 3, 2021, and has not been above the drinking water criteria in the last six sampling events since August 3rd) and therefore do not pose unacceptable risks due to direct contact with groundwater. Continued groundwater sampling at this well from August 16 to October 25, 2021 did not indicate the presence of vinyl chloride or any other CVOCs above the generic drinking water criteria.

c. Notifying EGLE and affected neighbors if contamination has migrated off the property

Impacted parties affected by the migration of property-related impacts from beyond the Facility boundaries have been notified of such migration in accordance with Rule 522(4). Documentation of the notices were reported in the *Remedial Action Plan* (Arcadis January 2009). For properties located along the east side of Cabinet Street between Commerce and Liberty Streets, documentation was provided in *Final Notice of Migration Letters* (Arcadis January 2011). EGLE was previously provided copies of the notices in accordance with the Part 201 notification requirements.

d. Delineating the extent of contamination

The nature and extent of soil and groundwater CVOC impacts related to the former Kelsey-Hayes Property have previously been delineated.

Documentation of the soil delineation is presented in the *Supplemental Soil Delineation Report*, which is Appendix A of the *Remedial Action Plan* (Arcadis January 2009), the *Technical Memorandum Regarding the Remedial Action Plan* (Arcadis January 2010), and the *2010 Site Investigation Activities and Current Site Conditions Report* (Arcadis March 2011).

Groundwater has been investigated at the Property since 1991 through several phases of investigation. A summary of historical groundwater investigations from 1991 to 2001 is presented in the *Summary of Environmental Response Activities* (Haley & Aldrich of Michigan, Inc. 2002) provided to EGLE (formerly MDEQ) on July 24, 2002. Since 2001, additional vertical aquifer profile (VAP) observation well installation and groundwater monitoring events have been performed to further define and verify the extent of groundwater impacts associated with the Facility. This work is documented in the *Groundwater Investigation Summary Report*, which is Appendix D of the *Remedial Action Plan* (Arcadis January 2009), the *Technical Memorandum Regarding the Remedial Action Plan* (Arcadis January 2010), the *June 2010 Investigation at the Intersection of Cabinet and Liberty Streets* (Arcadis August 2010), the *2010 Site Investigation Activities and Current Site Conditions Report* (Arcadis March 2011), and *Interim Groundwater Response Action Activities Summary Reports* (Arcadis 2002-2021), all of which were previously provided to EGLE. The current extent of groundwater impacts above the drinking water criteria and the layout of the groundwater treatment system and groundwater observation wells are presented on Figure 1.

Specific to the Milford municipal well field, groundwater impacts associated with the Site have not been detected south of Liberty Street at concentrations above the generic drinking water criteria, and concentrations trends within the ZF monitoring network are indicative of stable/decreasing trends and an absence of vinyl chloride. The conceptual site model (CSM) informed by multiple lines of evidence indicates a stable plume that is being effectively remediated by ongoing pumping and is therefore not a risk to impact the municipal wells. In addition, as presented in the *Groundwater Flow Model Update and Hydraulic Capture Evaluation* (Arcadis August 2014), and presented on Figure 1, OW-16D2 and the municipal wells are not within the flow path of groundwater emanating from the Facility.

e. Undertaking the cleanup of contamination

As indicated above, numerous response actions have been implemented to address CVOC impacts at the Site and include excavation and removal of impacted soil, installation and operation of a SVE system, and installation and operation, and later enhancement of a groundwater treatment system. The treatment system enhancement work is documented in the *Groundwater Treatment System Optimization Work Plan* (Arcadis August 2011).

As presented in the *Remedial Action Plan* (Arcadis January 2009) all sources of CVOCs (tanks, drums, other containers, and secondary containment structures, as well as grossly impacted soils and foundation materials) have been physically removed from the Site as part of the building decommissioning and demolition, subsequent "hot spot" excavations of impacted subsurface soils have been conducted, and a SVE interim response has been implemented.

Current and historical groundwater monitoring data indicate that the current groundwater treatment system, which has been in operation since 1999, is effectively intercepting impacted groundwater associated with the Site and mitigating further migration of Property-related groundwater impacts above the drinking water criteria. In addition, as presented in the *Groundwater Flow Model Update and Hydraulic Capture Evaluation* (Arcadis August 2014) the Property groundwater treatment system extraction wells are providing adequate hydraulic capture of the Property-related CVOC plume.

f. Observation Well OW-16D2 Sampling

As presented above and demonstrated in the *Groundwater Flow Model Update and Hydraulic Capture Evaluation* (Arcadis August 2014), it's our position that OW-16D2 is not within the flow path of groundwater emanating from the Property. However, at the request of EGLE, ZF, recognizing that Observation Well OW-16D2 was included in the expansive and conservative well network originally developed by ZF, Arcadis/ZF submitted a sampling plan for OW-16D2 to EGLE on August 3, 2021 and October 7, 2021 via email, which was approved by you on October 13, 2021 via email (**see Attachment 1**). Pursuant to this plan, ZF sampled OW-16D2 bi-weekly until October 25, 2021. The concentrations of vinyl chloride in the last six sampling events conducted on August 16, September 1, September 13, September 27, October 11, and October 25, 2021 were below the generic drinking water criterion. Therefore, the sampling frequency will be monthly for November 2021, December 2021, and January 2022. If the concentration of vinyl chloride remains at or below the generic drinking water criterion during these three, monthly sampling events, the sampling frequency will return to the semiannual sampling schedule per the groundwater monitoring plan. If the generic drinking water criterion for vinyl chloride is exceeded during any of the remaining sampling events, the sampling frequency will be bi-weekly through January 2022.

g. Due Care

ZF is not the owner of the Property and therefore, is not responsible for complying with the due care provisions under Section 20107a of Part 201 that are applicable to the Property.

II. October 2021 Letter and EGLE Request for Interim Response Measure to Install Treatment:

The October 2021 Letter reiterates that vinyl chloride was detected in OW-16D2 above the generic drinking water criteria and states that, *"the concentration of vinyl chloride found at the Property (i.e. Facility) and the proximity to the Village of Milford municipal well field makes this an imminent and substantial endangerment to public health, safety and welfare, and steps are required to abate that danger in accordance with Section 20119."* The October 2021 Letter then requests that ZF initiate the interim response measure of installing treatment on the Milford drinking water system.

ZF disagrees that there is an imminent and substantial endangerment to public health, safety, and welfare that is being caused by the chlorinated solvent plume from the former Kelsey-Hayes Property. The information presented below, includes historical and current data collected by both ZF and other parties, that supports this conclusion.

The following information previously submitted by ZF to EGLE[1] supports ZF's contention that CVOC's from the former Kelsey-Hayes Property are not an imminent and substantial endangerment to public health, safety and welfare, including:

- Vinyl chloride detections in groundwater at the Property were limited to the former storage pad area (see Figure 1) in investigations conducted between 1999 and 2011, with no vinyl chloride detected recently in any wells monitored by ZF.
- Vinyl chloride previously detected in groundwater wells between 1999 and 2011 within the former storage pad area is located upgradient of and entirely within the capture zones of ZF's active groundwater extraction wells. This groundwater treatment system has been in operation since 1999 and has been providing continuous hydraulic capture of groundwater impacts associated with the Facility.
- ZF has completed delineation of groundwater impacts associated with the Facility. None of the observation wells hydraulically downgradient of the facility at Liberty Street exceed the drinking water criteria.

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[1] This information has previously been provided to EGLE in the following reports: *1) Remedial Action Plan* (Arcadis January 2009); 2) *2010 Site Investigation Activities and Current Site Conditions Report* (Arcadis March 2011).

- ZF has implemented multiple aggressive remedial actions including, source area excavations, soil vapor extraction (SVE), and a groundwater extraction and treatment system at the Facility. These remedies have been executed and completed during the past 25 years and the groundwater extraction and treatment system is continuing.
- ZF expanded the groundwater extraction and treatment system by installing PW-4 to specifically target groundwater impacts that were beyond the hydraulic influence of the Commerce Road ZF extraction wells.
- Results from numeric groundwater modeling completed by Arcadis, and shown on **Figure 1**, clearly shows that the groundwater extraction and treatment system completely captures the impacts from the Facility and shows the location of the ZF plume outside the hydraulic capture of the Milford municipal wells.

ZF has been collecting samples from OW-16D2 since 1998 and vinyl chloride has not been detected above the generic drinking water criteria in any samples collected until recently, in May 2021 and August 2021. The concentrations of vinyl chloride detected at OW-16D2 during the last six sampling events conducted between August 16th and October 25th, 2021 were all below the generic drinking water criteria for vinyl chloride.

Date	Vinyl Chloride (ug/L)	Drinking Water Criteria (ug/L)
May 13	3.5	2.0
June 8	1.2	2.0
August 3	3.0	2.0
August 16	1.8	2.0
September 1	1.7	2.0
September 13	1.6	2.0
September 27	1.8	2.0
October 11	1.4	2.0
October 25	1.5	2.0

Based on a several summaries of the data for the Milford municipal well system that have been provided to ZF and Arcadis, vinyl chloride has never been detected in Milford's municipal wells or associated distribution systems during the last 32 years. Therefore, based on the information that ZF has, it does not appear that there is an imminent and substantial endangerment to public health, safety and welfare and the installation of a treatment system on the Village of Milford drinking water system is not necessary.

In addition, there is no basis to conclude vinyl chloride at the levels detected in OW-16D2 will result in vinyl chloride being detected above drinking water criteria in Milford's municipal wells or its municipal water system.

In sharp contrast to OW-16D2, the Milford municipal wells have screens 20 feet long with an average pumping rate of 470 gallons per minute (gpm) and draw water from a large area, including to the east and south (i.e., the opposite direction of OW-16D2). Because the municipal wells draw groundwater from such a large area, even if vinyl chloride were to migrate from OW-16D2 to the municipal wells (which there is no evidence of) it would not cause an exceedance of the generic drinking water criteria in the municipal water.

Finally, ZF disputes EGLE's assertion that the source of the vinyl chloride found in OW-16D2 is from the former Kelsey-Hayes Property. Observation well OW-16D2 and the Milford municipal wells are not within the flow path of groundwater emanating from the Property. There are multiple other confirmed sources of CVOC contamination near and upgradient of OW-16D2, which include vinyl chloride as a contaminant, and several known CVOC plumes in the Village of Milford. The other known sources include the former Spiral Industries site and the Coe's Cleaners site, discussed further below. See attached **Figure 1**, which shows the known source areas and the municipal well capture zone within the Village of Milford. The Spiral Industries site and the Coe's Cleaner site are upgradient of and directly in the groundwater flow path of OW-16D2 and the Milford municipal wells. Based on the probability that other sites may be the source of the vinyl chloride found in OW-16D2, and the multiple lines of evidence that ZF has that the Property is not the source of vinyl chloride impacts in OW-16D2, ZF contends that there is no conclusive evidence regarding the source of the vinyl chloride in OW-16D2. Therefore, ZF disputes EGLE's presumption that the former Kelsey-Hayes Property is the source.

a. Former Spiral Industries – 140 and 150 West Summit Street

The former Spiral Industries site is located north of the Milford municipal wells. Based on a Baseline Environmental Assessment (BEA) submitted to EGLE in June 2014, concentrations of CVOCs detected at the former Spiral Industries site include, but are not limited to: vinyl chloride (Soil: 709 ug/kg and Groundwater: 280 ug/l), trichloroethene (Soil: 2,620,000 ug/kg and Groundwater: 153 ug/l), and cis-1,2 dichloroethene (Soil: 215,000 ug/kg and Groundwater: 650 ug/l). The concentrations of vinyl chloride at Spiral Industries are more than two times higher than any vinyl chloride concentrations ever detected at the former Kelsey-Hayes Property. Unlike the Property, the former Spiral Industries site is directly upgradient of and within proximity to the Milford municipal well capture zone. EGLE should be aware of this information based on EGLE's acknowledgement of receipt of the BEA.

Furthermore, the BEA for the Spiral Industries site indicates that:

- The property is a "Facility" as defined by Part 201.
- The source, nature and extent of contamination at the property is not fully delineated.
- Soil and groundwater contamination at the site, including with vinyl chloride and other CVOCs, is within the Village of Milford and directly upgradient of the Milford municipal wells.
- To ZF's knowledge this site has not yet implemented response actions and therefore, represents an unmitigated risk to the Village of Milford municipal wells.

b. Former Coe's Cleaners site – West of Main Street just north of Center Street

As for the Coe's Cleaners site, EGLE has also long been aware of and directly overseeing the ongoing investigation and cleanup of CVOCs emanating from this site. The groundwater monitoring wells associated with this site are located immediately upgradient of and within the Milford municipal well capture zone, as determined by the model results and shown on **Figure 1**. The concentrations of tetrachloroethene detected in soil samples collected at the former Coe's Cleaner site during an August 2007 investigation performed by Weston Solutions, Inc., ranged from 51 ug/kg to 22,000 ug/kg. There has been no source area removal or remediation performed at the Coe's Cleaner site.

III. Conclusion:

As detailed above and previously presented in various reports to EGLE, ZF has performed extensive response actions including site investigations and remediation at the Property and surrounding area for many years. These actions have achieved consistent compliance with Part 201 requirements. ZF continues to perform ongoing response actions associated with the Property, such as operating an active groundwater pumping remedy and completing groundwater monitoring. These remedies continue to be effective at removing CVOC mass from the aquifer and preventing the migration of contaminants from the Property. During the past 30 years, ZF has implemented response activities to achieve cleanup criteria or protect from exposure to the contamination at the Property and continues to do so.

Furthermore, based on the information presented in this letter, ZF disputes EGLE's assertion that there is an imminent and substantial endangerment to public health, safety, and welfare that is being caused by the chlorinated solvent plume from the Property. Based on the multiple lines of evidence that ZF has presented in this response, there is no conclusive evidence regarding the source of the vinyl chloride in OW-16D2 and ZF disagrees with EGLE's presumption that the former Kelsey-Hayes Property is the source. ZF does not have any information indicating that the Village of Milford drinking water system has been or could imminently be impacted with vinyl chloride. Therefore, it does not appear that there is an imminent and substantial endangerment to public health, safety and welfare and the installation of a treatment system on the Village of Milford drinking water system is not necessary and is not ZF's responsibility.

In light of the extensive response actions already undertaken by ZF, the complex history of CVOC contamination in the Village of Milford, and EGLE's request that ZF initiate plans to install treatment on the Milford municipal wells, ZF believes a technical meeting with EGLE would be a productive next step. Arcadis and ZF have made multiple attempts to schedule such a meeting with EGLE, most recently by calling you on November 9th. ZF would appreciate hearing from you regarding some dates and times that EGLE would be available to schedule a technical meeting. Please contact me at your earliest convenience.

.

Sincerely,

ZF Active Safety US Inc.

Scott D. Detwiler
Regional EHS Manager
ZF Health Safety and Environmental

Cc: John McInnis, Arcadis
Robert Bleazard, ZF Group
Kelly M. Martorano, ZF Group

Attachments: Attachment 1 – Email Correspondence with K. Wojciechowski
Figure 1 – Municipal Well Capture Zone and Known CVOC Sources

Attachment 1

McInnis, John

From: Wojciechowski, Kevin (EGLE) <WojciechowskiK@michigan.gov>
Sent: Wednesday, October 13, 2021 12:49 PM
To: McInnis, John
Cc: Detwiler Scott MSA HEEN; Christian Wuerth; Owens, Paul (EGLE); Wilson, Cheryl (EGLE); Dewyre, Robin (robin.dewyre@amecfw.com); Mark Sweatman; Christian Wuerth; Mike Karll
Subject: RE: Monitoring Well 16D2 Sampling

John,

Continue to monitor OW-16D2 as scheduled below.

Thanks,

Kevin Wojciechowski
Senior Environmental Quality Analyst
Michigan Department of Environment, Great Lakes, and Energy
Remediation Redevelopment Division
Warren District Office
Cell: 586-623-2948
wojciechowskik@michigan.gov
Pollution Emergency Alerting System: 1-800-292-4706

From: McInnis, John <John.McInnis@arcadis.com>
Sent: Thursday, October 7, 2021 9:53 AM
To: Wojciechowski, Kevin (EGLE) <WojciechowskiK@michigan.gov>
Cc: Detwiler Scott MSA HEEN <scott.detwiler@zf.com>; Christian Wuerth <cwuerth@villageofmilford.org>; Owens, Paul (EGLE) <OWENSP@michigan.gov>; Wilson, Cheryl (EGLE) <WILSONC3@michigan.gov>; Dewyre, Robin (robin.dewyre@amecfw.com) <robin.dewyre@amecfw.com>; Mark Sweatman <mark.sweatman@woodplc.com>; Christian Wuerth <cwuerth@villageofmilford.org>; Mike Karll <mkarll@villageofmilford.org>
Subject: RE: Monitoring Well 16D2 Sampling

Good morning Kevin,

Currently, we are operating in accordance with the Observation Well 16D2 sampling plan submitted to EGLE on August 3, 2021 via email. Sampling of Observation Well OW16D2 will continue bi-weekly, at a minimum, until October 25, 2021. The concentrations of vinyl chloride in the last three sampling events conducted on 8/16/21, 9/1/21, and 9/13/21 were below the drinking water criterion (DWC). If concentrations of vinyl chloride remain at or below the DWC for the next three sampling events (9/27/21, 10/11/21, and 10/25/21), the sampling frequency will change to monthly for the following three months (November 2021, December 2021, and January 2022). If the concentration of vinyl chloride remains at or below the DWC during these three months, the sampling frequency will return to the semiannual sampling schedule per the groundwater monitoring plan. If the DWC for vinyl chloride is exceeded during any of the remaining sampling events, the sampling frequency will remain at bi-weekly during the months of November 2021, December 2021, and January 2022.

Regarding the request for a Response Activity Plan (ResAP), we are reviewing site information and are planning to provide the ResAP in accordance with the 90-day schedule mentioned in the Compliance Communication, dated September 1, 2021.

I was able to track down a copy of the 1998 Techna Interim Response Work Plan if you still need it.

Please let me know if you have any questions.

Thanks, John

From: Wojciechowski, Kevin (EGLE) <WojciechowskiK@michigan.gov>
Sent: Wednesday, October 6, 2021 12:31 PM
To: McInnis, John <John.McInnis@arcadis.com>
Cc: Detwiler Scott MSA HEEN <scott.detwiler@zf.com>; Christian Wuerth <cwuerth@villageofmilford.org>; Owens, Paul (EGLE) <owensp@michigan.gov>; Wilson, Cheryl (EGLE) <WILSONC3@michigan.gov>; Dewyre, Robin (robin.dewyre@amecfw.com) <robin.dewyre@amecfw.com>; Mark Sweatman <mark.sweatman@woodplc.com>; Christian Wuerth <cwuerth@villageofmilford.org>; Mike Karll <mkarll@villageofmilford.org>
Subject: RE: Monitoring Well 16D2 Sampling

Good afternoon John,

What is ZF Corps plans for sampling OW-16D2 after the last October monitoring event? How are things progressing on the Response Active Plan for the groundwater? Now that we have received more data from the wells in the park the hit of vinyl chloride is not going away. Wood has found some old data from when these wells were installed, EGLE is going to be looking for the actual report from the 1990's because Wood doesn't have the complete report. This data is the vertical aquifer profiling that was done when the wells were installed. We can have a meeting once EGLE can track down that report.

Mark, what was the title and date of that vertical aquifer sampling report?

Thanks,

Kevin Wojciechowski
Senior Environmental Quality Analyst
Michigan Department of Environment, Great Lakes, and Energy
Remediation Redevelopment Division
Warren District Office
Cell: 586-623-2948
wojciechowskik@michigan.gov
Pollution Emergency Alerting System: 1-800-292-4706

From: Samp, Marina <Marina.Samp@arcadis.com>
Sent: Thursday, August 5, 2021 1:46 PM
To: Mike Karll <mkarll@villageofmilford.org>; Wojciechowski, Kevin (EGLE) <WojciechowskiK@michigan.gov>
Cc: Detwiler Scott MSA HEEN <scott.detwiler@zf.com>; Christian Wuerth <cwuerth@villageofmilford.org>; McInnis, John <John.McInnis@arcadis.com>
Subject: RE: Monitoring Well 16D2 Sampling

Hi Kevin and Mike,

A tentative schedule for the next couple months is outlined below. Field staff have reviewed and indicated this will work with their schedules so I do not anticipate too many, if any, changes at this time. Contact info for field staff is listed below in the event it is needed.

- Monday, August 16th at 9:30 AM (Stacey Hannula/Emma Witherspoon)
- Wednesday, September 1st at 9:30 AM (Stacey Hannula/Allyson Hartz)
- Monday, September 13th at 9:30 AM (Allyson Hartz)
- Monday, September 27th at 9:30 AM (Allyson Hartz)
- Monday, October 11th at 9:30 AM (Stacey Hannula)
- Monday, October 25th at 9:30 AM (Stacey Hannula)

Allyson Hartz: 313-401-7398
Stacey Hannula: 517-203-8600

Please let John or myself know if there are any questions or concerns with this schedule.

Thanks!

From: McInnis, John <John.McInnis@arcadis.com>
Sent: Thursday, August 5, 2021 9:50 AM
To: Mike Karll <mkarll@villageofmilford.org>; Wojciechowski, Kevin (EGLE) <WojciechowskiK@michigan.gov>
Cc: Detwiler Scott MSA HEEN <scott.detwiler@zf.com>; Samp, Marina <Marina.Samp@arcadis.com>; Christian Wuerth <cwuerth@villageofmilford.org>
Subject: RE: Monitoring Well 16D2 Sampling

Thanks Mike,

Marina has been working on a tentative schedule for the sampling of Monitoring Well 16D2 and will pass it around to the group.

Thanks, John

From: Mike Karll <mkarll@villageofmilford.org>
Sent: Wednesday, August 4, 2021 4:36 PM
To: McInnis, John <John.McInnis@arcadis.com>; Wojciechowski, Kevin (EGLE) <WojciechowskiK@michigan.gov>
Cc: Detwiler Scott MSA HEEN <scott.detwiler@zf.com>; Samp, Marina <Marina.Samp@arcadis.com>; Christian Wuerth <cwuerth@villageofmilford.org>
Subject: RE: Monitoring Well 16D2 Sampling

Good afternoon John,

That should not be an issue. We do have Milford Memories the weekend prior but cleanup should be wrapping up by then. Could you please provide a tentative schedule for the future sampling events for the next couple of months?

Thank you,

Mike Karll
Director of Public Services
Village of Milford
Office: 248-685-3055
Cell: 248-396-2315
Fax: 248-684-3465

From: McInnis, John
Sent: Wednesday, August 4, 2021 3:30 PM
To: Wojciechowski, Kevin (EGLE); Mike Karll
Cc: Detwiler Scott MSA HEEN; Samp, Marina
Subject: Monitoring Well 16D2 Sampling

Hi Kevin and Mike,

Any conflicts with conducting the next sampling event of Monitoring Well 16D2 on August 16, 2021 around 9 AM?

Thanks, John

John McInnis PE
Senior Engineer/Project Manager
Arcadis of Michigan, LLC
28550 Cabot Drive Suite 500 | Novi, MI | 48377 | USA
T +1 248 994 2285
M +1 248 982 9674
www.arcadis.com

ARCADIS

Professional Registration / PE-MI, 6201037207

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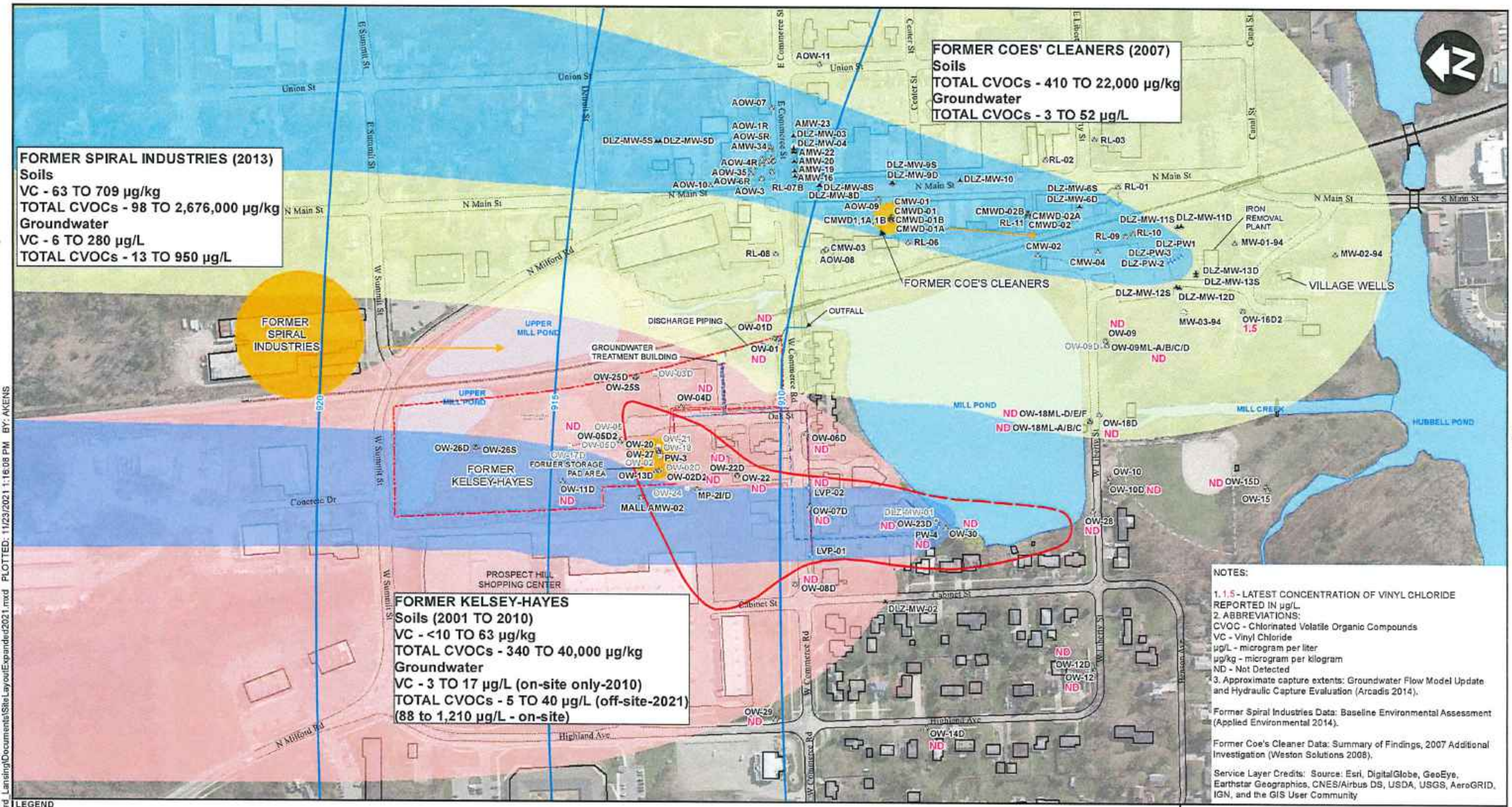

FORMER COES' CLEANERS (2007)
Soils
TOTAL CVOCs - 410 TO 22,000 µg/kg
Groundwater
TOTAL CVOCs - 3 TO 52 µg/L

FORMER SPIRAL INDUSTRIES (2013)
Soils
VC - 63 TO 709 µg/kg
TOTAL CVOCs - 98 TO 2,676,000 µg/kg
Groundwater
VC - 6 TO 280 µg/L
TOTAL CVOCs - 13 TO 950 µg/L

FORMER KELSEY-HAYES
Soils (2001 TO 2010)
VC - <10 TO 63 µg/kg
TOTAL CVOCs - 340 TO 40,000 µg/kg
Groundwater
VC - 3 TO 17 µg/L (on-site only-2010)
TOTAL CVOCs - 5 TO 40 µg/L (off-site-2021)
(88 to 1,210 µg/L - on-site)

NOTES:

1. 1.5 - LATEST CONCENTRATION OF VINYL CHLORIDE REPORTED IN µg/L.
2. ABBREVIATIONS:
CVOC - Chlorinated Volatile Organic Compounds
VC - Vinyl Chloride
µg/L - microgram per liter
µg/kg - microgram per kilogram
ND - Not Detected
3. Approximate capture extents: Groundwater Flow Model Update and Hydraulic Capture Evaluation (Arcadis 2014).

Former Spiral Industries Data: Baseline Environmental Assessment (Applied Environmental 2014).

Former Coe's Cleaner Data: Summary of Findings, 2007 Additional Investigation (Weston Solutions 2008).

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

- MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY MONITORING WELL
- ABANDONED MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY MONITORING WELL
- MONITORING/OBSERVATION WELL
- ABANDONED OBSERVATION WELL
- PUMPING WELL
- 2014 GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER TREATMENT SYSTEM UNDERGROUND ELECTRICAL
- GROUNDWATER TREATMENT SYSTEM UNDERGROUND ELECTRICAL AND CONVEYANCE PIPING
- GROUNDWATER TREATMENT SYSTEM UNDERGROUND CONVEYANCE PIPING
- GROUNDWATER TREATMENT SYSTEM UNDERGROUND DISCHARGE PIPING
- APPROXIMATE CAPTURE EXTENT OF EGLE'S GROUNDWATER TREATMENT SYSTEM WELLS
- APPROXIMATE CAPTURE EXTENT OF THE VILLAGE OF MILFORD'S DRINKING WATER WELLS
- APPROXIMATE CAPTURE EXTENT OF EXTRACTION WELL PW-4
- APPROXIMATE CAPTURE EXTENT OF EXTRACTION WELL LVP-2
- APPROXIMATE EXTENT OF TRICHLOROETHENE IN GROUNDWATER ABOVE DRINKING WATER CRITERIA (5µg/L)
- FORMER KELSEY-HAYES PROPERTY BOUNDARY
- RELATIVE CVOC CONCENTRATION OF THE SOURCE AREA
- RAILROAD TRACK
- FENCE LINE

0 250 500
SCALE IN FEET

FORMER KELSEY-HAYES PLANT
MILFORD, MICHIGAN

SITE LAYOUT

ARCADIS

FIGURE
1

CITY:LANSING DIV: ENV DB: A. SMITH PIC: J.BARRETT PM: J.MCINNIS TM: M.SAMP TR: M.SAMP PROJECT NUMBER: 30083633 CS: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
T:_ENV\NoviBrighton_MI\TRW\Milford_Lansing\Documents\SiteLayoutExpanded2021.mxd PLOTTED: 11/23/2021 1:16:08 PM BY: AKENS

Figure 1

EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
REMEDIATION AND REDEVELOPMENT DIVISION
PO BOX 30426, LANSING, MICHIGAN 48909-7926

Request for EGLE Review of Response Activity Plan

This form is required for submittal of a request for EGLE to review a Response Activity Plan, under Section 20114b, Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Section A: Type of Response Activity Plan being Submitted (Check all that apply):

Remedial Investigation	☐	20b(2)Site Specific Criteria *(modification of generic criteria)*	☐
Evaluation Plan	☒		
Feasibility Study	☐	20b(3) Site Specific Criteria or Surrogate *(no generic criteria available)*	☐
Remedial Action Plan	☐		
Interim Response Plan	☐	Section 20118(4) and (5) Request	☐
Mixing Zone Request	☐	Land or Resource Use Restrictions	☐
20e(14) De Minimus GSI Impact	☐	Other, Specify:	☐

The Response Activity Plan addresses the entire facility: ☐
(entire facility as defined by Part 201, all releases, hazardous substances, and environmental media)

The Response Activity Plan does not address the entire facility: ☒
Please specify the release(s), hazardous substance(s), environmental media, and/or portions of the facility addressed by the Response Activity Plan: Reported detection of vinyl chloride at Observation Well OW-16D2.

Section B: Facility/Property Subject to (Check all that apply):

Facility regulated under Part 201 Part 201 Facility ID (if known): 63000952	☒
Leaking Underground Storage Tank regulated pursuant to Part 213 Part 211/213. Facility ID, if known:	☐
Oil or gas production and development regulated pursuant to Part 615 or 625	☐
Licensed landfill regulated pursuant to Part 115	☐
Licensed hazardous waste treatment, storage, or disposal facility regulated pursuant to Part 111	☐
Consent Agreement or other legal agreement with EGLE	☐

Section C: Facility and Locational Information:

Facility Name: Former Kelsey-Hayes Plant Property

Street Address of Property: 101 Oak Street

City: Milford State: Michigan Zip: 48381

Property Tax ID (include all applicable IDs):16-10-227-018

Status of submitter relative to the property (check all that apply):

	Former	Current	Prospective
Owner	☒	☐	☐
Operator	☒	☐	☐

County: Oakland
City/Village/Township: Milford
Town: T 2N Range: R 7 E Section: 10
Quarter: NE Quarter-Quarter: NE

Decimal Degrees Latitude: 42.593101
Decimal Degrees Longitude: -83.602459

Reference point for latitude and longitude:
Center of site ☒ Main/front door ☐
Front gate/main entrance ☐ Other ☐

Collection method:
Survey ☐ GPS ☒ Interpolation ☐

Section D: Submitter Information:

Entity/person requesting review: ZF Active Safety US Inc.
Contact Person (name and title): Scott Detwiler
Submitter Address: 12025 Tech Center Drive
City: Livonia State: Michigan Zip: 48150
Telephone: 480-722-4139 E-Mail: scott.detwiler@zf.com
Relationship of contact person to the submitter: Same
Owner Name, if different from submitter: Village of Milford Company:
Address: 1100 Atlantic Street
City: Milford State: Michigan Zip: 48381
Telephone: 248-684-1515 E-Mail: info@villageofmilford.org

Section E: Are/were the following present at the facility (Check all that apply):

	Current	Previous	Unknown
Mobile or Migrating Non-Aqueous Phase Liquids (NAPL)	☐	☐	☐
Soil contamination above any residential criteria	☒	☐	☐
Soil contamination above any non-residential criteria	☒	☐	☐
Soil aesthetic impacts	☐	☐	☐
Groundwater contamination above any residential criteria	☒	☐	☐
Groundwater contamination above any non-residential criteria	☒	☐	☐
Groundwater aesthetic impacts	☐	☐	☐
Soil Gas contamination above residential vapor intrusion (VI) screening levels	☐	☐	☐
Soil Gas contamination above non-residential VI screening levels	☐	☐	☐
Conditions immediately dangerous to life or health (IDLH)	☐	☐	☐
Fire & Explosion hazards related to releases	☐	☐	☐
Contamination existing in drinking water supply	☐	☐	☐
Imminent threat to drinking water supply	☐	☐	☐
Impact to Surface Water	☐	☐	☐
Surface Water Sediments above screening levels	☐	☐	☐

Section F: The following questions assist EGLE in evaluating this request.

Known or Suspected Contaminant(s) Type (Check all that apply):
Petroleum ☐ Volatile Organic Compounds ☒ Metals ☐ Other ☐

Current Site Status (Check all that apply):
Undergoing property transfer ☐ Active operations ☐ Inactive operation ☒

Current Property Use:

Residential ☐
Non-residential ☒

Anticipated Property Use:

Residential ☐
Non-residential ☒

Estimated Area of Contamination Addressed in Response Action Plan (Cumulative):

Currently undetermined ☐ < 0.5 acre ☐ > 0.5 acre ☒

Migration:

	Yes	No	Unknown
Has contamination migrated beyond the property **boundaries?**	☒	☐	☐
Has the Notice of Migration been submitted?	☒	☐	☐

Facility Investigation Status:

Ongoing ☐ Complete ☒

Facility Response Activity Status (Check all that apply):

None ☐ IR Implemented ☒ Response Activity Ongoing ☐ Response Activity Completed ☐

Drinking Water Supply for Facility (Check all that apply):

Municipal ☐ Private Well(s) ☐ No Current Water Supply ☒ Municipal Available ☒

On-site Well(s) (Check all that apply):

Drinking Water ☐ Industrial/Commercial Production ☐ Agricultural/Irrigation ☐ No well on-site ☐

Approximate Depth of Well(s): Site Contains Observation Wells Only

Local Drinking Water Supply:

Is facility in a designated Wellhead Protection Area? Yes ☒ No ☐

Distance to nearest off-site drinking water well: 2,000 Feet Private ☐ Municipal ☒

Surface Water Bodies on or Adjacent to Facility (Check all that apply):

Wetlands ☐ Ditch ☐ Stream/River ☒ Lake/Pond ☒

Local Surface Water Bodies:

Distance to nearest wetland: Ditch: Stream/River: Lake/Pond: Approx. 550 Feet (Downgradient of Site)

Have other plans been submitted for this facility?

Facility Name, if different than this submittal: Same

Date and Name of most recent submittal: Remedial Action Plan-1/30/2009 and Tech Memo Regarding Remedial Action Plan – 1/11/2010

Section G: Environmental Professional Signature:

With my signature below, I certify that this plan and all related materials are true, accurate, and complete to the best of my knowledge and belief.

Signature: Date: 11/23/2021

Printed Name: Troy Sclafani

Company of Environmental Professional: Arcadis

Address: 28550 Cabot Drive, Suite 500

City: Novi State: Michigan Zip: 48377

Telephone: 248-994-2288 E-mail address: Troy.Sclafani@arcadis.com

Section H: Submitter Signature:

With my signature below, I certify that this plan and all related materials are true, accurate, and complete to the best of my knowledge and belief and I am legally authorized to sign for the submitter.

Signature: Date: 11/23/2021

Printed name: Scott Detwiler

Title/Relationship of signatory to submitter: Regional EHS Manager/ZF Active Safety US Inc.

Address: 12025 Tech Center Drive

City: Livonia State: Michigan Zip: 48150

Telephone: 480-722-4139 E-Mail address: scott.detwiler@zf.com

This form and the Response Activity Plan should be submitted to EGLE Remediation & Redevelopment Division District Office for the county in which the property is located, unless the response activity is related to a facility that is regulated by another EGLE Division. A district map is located at www.michigan.gov/EGLErrd. If regulated by another division, contact should be made with that division for information on where to submit the form and plan.

For information or assistance on this publication, please contact the (program), through EGLE Environmental Assistance Center at 800-662-9278. This publication is available in alternative formats upon request.
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This form and its contents are subject to the Freedom of Information Act and may be released to the public.

ATTACHMENT 5

Initial and Follow-up Design Meeting Minutes (April 20, May 3, 6, and 10, 2022)

AGENDA and MEETING MINUTES
April 20, 2022
Initial Design Meeting
Village of Milford Drinking Water System
Air Stripper Installation
(Discussion Purposes Only)

Pursuant to Paragraph 5.2.a of EGLE Administrative Order AO-RRD-22-001

- Introduction
    - ➢ Completed introduction of call participants representing: ZF, Arcadis, Village of Milford (VOM), Wood (VOM consultant), and EGLE
    - ➢ Tiffany Yusko-Kotimko (EGLE) asked who was taking design lead (i.e. VOM/Wood lead with ZF/Arcadis as support, or ZF/Arcadis lead with VOM/Wood as support). Tiffany indicated EGLE has been having conversations with Wood and the Village. Based on the AO, ZF has anticipated that ZF would be driving the design with input from Wood and Village.
    - ➢ Village's desire is that a solution is designed and installed as quickly as possible that protects the DW supply, and is open to having Arcadis design with Wood providing QC. Tiffany indicated that some of the milestones in the AO were intended to have a more integrated design interface to smooth out the permitting process.
    - ➢ Roles and responsibility follow-up call currently scheduled for April 27. A follow-up onsite meeting to discuss information with Wood and Village was also suggested.

- Project Status – Procurement of Equipment Information/Specifications
    - ➢ VOM/Wood has started some initial design activities (i.e. site walk, inquiry with equipment suppliers for equipment availability, etc.)
    - ➢ VOM has reached out to supplier of iron removal equipment to confirm efficacy of that system to remove VC
    - ➢ Discussed the fact that no "Force Majeure" provisions exist in the AO, and requested that EGLE (Kevin W.) provide the criteria and documentation expectations for what would be considered legitimate claims of "sufficient cause" for securing relief from compliance dates in the AO due to circumstances beyond our control

- Site Layout – Proposed Air Stripper/Building Location
    - ➢ Discussed possible location of air stripper in either the well building complex or iron removal plant
    - ➢ Not enough space in any existing buildings, however, likely enough space within the fenced area of the iron removal plant for an additional pad/pedestal for an air stripper

- Information Needs – (As-builts-existing site plans, process flow and instrumentation diagrams, equipment specifications, etc.)
    - ➢ VOM confirmed full access to existing site plans/as-builts, flow diagrams, etc.

- EGLE Permitting Requirements (Act 399/Air permit Exemption)
    - ➢ Act 399 Construction Permit will be required
    - ➢ Permitting process has to go thru the Village and they have to sign off on any design before it goes to EGLE for permitting
    - ➢ Air permit not likely required
    - ➢ If sufficient soil disturbed an Erosion Control Permit from the County may be required

- Village of Milford Requirements (Permits, access, working hours/limitations during events, T&C's for working on the water system)
    - ➢ These provisions will be further discussed once roles and responsibilities are clearly defined

- 80% Design/Meeting Schedule
    - ➢ Discussed the due date for the 80% Design Meeting, per the AO, is within 30 days from today

- Other Design Considerations
    - ➢ Wood mentioned the need to review the design and its impact on the water quality (e.g. ORP, pH, etc.) that could cause issues in the distribution system

MEETING MINUTES
May 3, 2022
Design Group Meeting
Village of Milford Drinking Water System
Vinyl Chloride Treatment System
(Discussion Purposes Only)

- Participants (Design Group)
    - Mike Karll, VOM
    - Kevin Wojciechowski, EGLE (RRD)
    - Tiffany Yusko-Kotimko, EGLE (DW & EHD)
    - Scott Detwiler, ZF
    - John McInnis, Brad Hitts, Grant Andrews, Arcadis,
    - Jeshua Hansen, Wood (VOM consultant)
    - Ted Erickson, IMEG, (Wood consultant)

- Design Updates
    - Discussed potential options (vinyl chloride treatment system before or after the iron removal system) and preliminary advantages and disadvantages.
    - Currently reviewing performance efficiency for various options including using the existing aeration units, larger units, or adding a third unit. Arcadis indicated that a preliminary review was performed by DeLoach Industries, Inc. (the proposed manufacturer of the air stripping units), but further analysis was underway.
    - A review of the potential maintenance requirements was requested with the new air stripping units.
    - It was recommended that an extra set of the packing media be provided as part of the specifications to help facilitate the cleaning process.
    - A review of the stand-by power source was requested if an increase in the well pumps is required.

- Other Design Considerations
    - Tiffany Yusko-Kotimko indicated that the 10 States Standards need to be reviewed under Section 4.7 and 4.75 which includes requirements for air stripping units.

- Information Needs
    - No concerns with receiving access to existing site plans/as-builts, flow diagrams, etc. from the VOM.

MEETING MINUTES
May 6, 2022
Design Group Meeting
Village of Milford Drinking Water System
Vinyl Chloride Treatment System
(Discussion Purposes Only)

- Participants (Design Group)
  - Mike Karll, VOM
  - Kevin Wojciechowski, EGLE (RRD)
  - Tiffany Yusko-Kotimko and Nick Swiger, EGLE (DW & EHD)
  - Scott Detwiler, ZF
  - John McInnis, Arcadis,
  - Rob Dewyre and Jeshua Hansen, Wood (VOM consultant),

- Design Updates
  - Arcadis presented four options for the vinyl chloride treatment system and discussed advantages and disadvantages. Performance data was also presented for each option. Option 4 includes two new air strippers placed prior to the iron removal system and potentially upgrades to the two well pumps. This option met the performance requirements of the AO. There were no objections to moving forward with the Option 4 configuration.
  - Regarding the basis of design and performance, Arcadis will request updated performance data from DeLoach Industries, Inc. (the proposed manufacturer of the air stripping units) under different flow scenarios for informational purposes only.
  - Initial information was also presented on potential maintenance cleaning frequency for the new units.

- Other Design Considerations
  - Tiffany Yusko-Kotimko indicated that she would review potential corrosion issues resulting from the increased aeration of the proposed air stripping units.

- Information Needs
  - No concerns with receiving access to existing site plans/as-builts, flow diagrams, etc. from the VOM.

MEETING MINUTES
May 10, 2022
Design Group Meeting
Village of Milford Drinking Water System
Vinyl Chloride Treatment System
(Discussion Purposes Only)

- Participants (Design Group)
    - Mike Karll, VOM
    - Kevin Wojciechowski, EGLE (RRD)
    - Tiffany Yusko-Kotimko and Nick Swiger, EGLE (DW & EHD)
    - Scott Detwiler, ZF
    - John McInnis, Brad Hitts, and Grant Andrews, Arcadis,
    - Rob Dewyre and Jeshua Hansen, Wood (VOM consultant),
    - Ted Erickson, IMEG, (Wood consultant)

- Design Updates
    - ZF clarified that the design the vinyl chloride treatment system would be based on the performance of criteria stated in the AO which requires treatment of 50 ug/L of vinyl chloride to less than 2 ug/L at a flow rate of 1,375 gpm.
    - Arcadis presented the process flow diagram to the for the selected configuration showing two new air strippers placed prior to the iron removal system. There were no objections to the configuration.
    - It was also noted that the well pumps may also need to be upgraded pending analysis of the hydraulics. The proposed air strippers are approximately 10 feet taller than the existing aeration units.
    - Arcadis presented a basis of design summary (two air stripping units operated in parallel), preliminary air stripper specifications, and information on air stripper cleaning. Removal efficiency for vinyl chloride at 1,400 and 2,100 gallons per minute met the performance criteria required by the AO (50 ug/L to less than 2 ug/L) according to calculations performed by DeLoach Industries, Inc. (the proposed manufacturer of the air stripping units). There was a question regarding the air stripper meeting NSF standards. The requirement was understood. Arcadis will verify with DeLoach that the components of the air stripping units are NSF certified. Documentation will be provided during the design review process.
    - Additional information was also provided on potential cleaning frequency for the new units.
    - Arcadis reviewed preliminary stand-by generator electrical requirements but indicated that further evaluation will be performed if new well pumps are needed.
    - It was also noted that an extra set of the packing media be provided as part of the specifications to help facilitate the cleaning process.

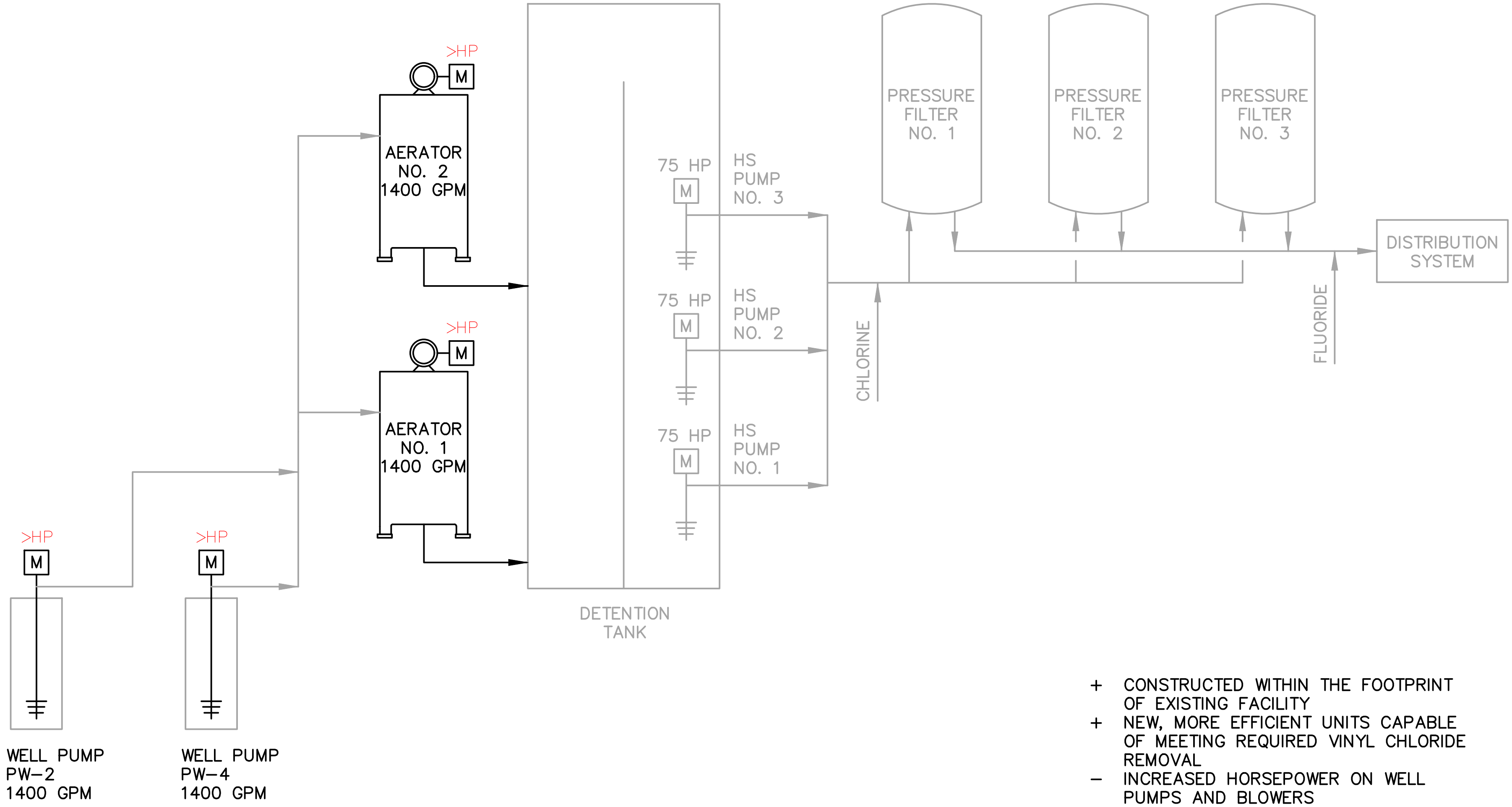
- Other Design Considerations
    - Tiffany Yusko-Kotimko indicated that she would review potential corrosion issues resulting from the increased aeration of the proposed air stripping units and provide an update by the next meeting.

- Information Needs
    - No concerns with receiving access to existing site plans/as-builts, flow diagrams, etc. from the VOM.

ATTACHMENT 6

Draft Process Flow Diagram and Summary of the Basis of Design and Air Stripping Unit Information

User: GANDREWS Spec: AUS-NCSMOD File: C:\USERS\GANDREWS\ARCADIS\30126485 – ZF 2022 KELSEY-HAYES MILFORD OMM – 01 VILLAGE OF MILFORD TREATMENT SYS DESIGN\WATER\PROCESS FLOW DIAGRAM (OPTIONS).DWG
Scale: 1:1 SavedDate: 5/5/2022 Time: 11:57 Plot Date: Andrews, Grant; 5/5/2022; 11:57 ; Layout: OPTION 4



+ CONSTRUCTED WITHIN THE FOOTPRINT OF EXISTING FACILITY
+ NEW, MORE EFFICIENT UNITS CAPABLE OF MEETING REQUIRED VINYL CHLORIDE REMOVAL
– INCREASED HORSEPOWER ON WELL PUMPS AND BLOWERS

ARCADIS Design & Consultancy for natural and built assets

ZF ACTIVE SAFETY US INC.

EGLE ADMINISTRATIVE ORDER
DOCKET NO. AO–RRD–22–001

MILFORD, MI WTP
VINYL CHLORIDE REMOVAL SYSTEM
OPTION 4
NOT TO SCALE

5/5/2022

SK–04

DRAFT

Village of Milford Drinking Water System
Vinyl Chloride Treatment System

The following information was provided by DeLoach Industries, Inc.

Basis of Design (two air stripping units operated in parallel)

Utilized 7'-6" sq. units with 14' bed depth of 3.5" Tripack, 30:1 A/W ratio (5615 cfm) @ 50 F influent water temperature. Assumed influent vinyl chloride concentration of 50 ug/L and cis-1,2-dichloroethene concentration of 4 ug/L.

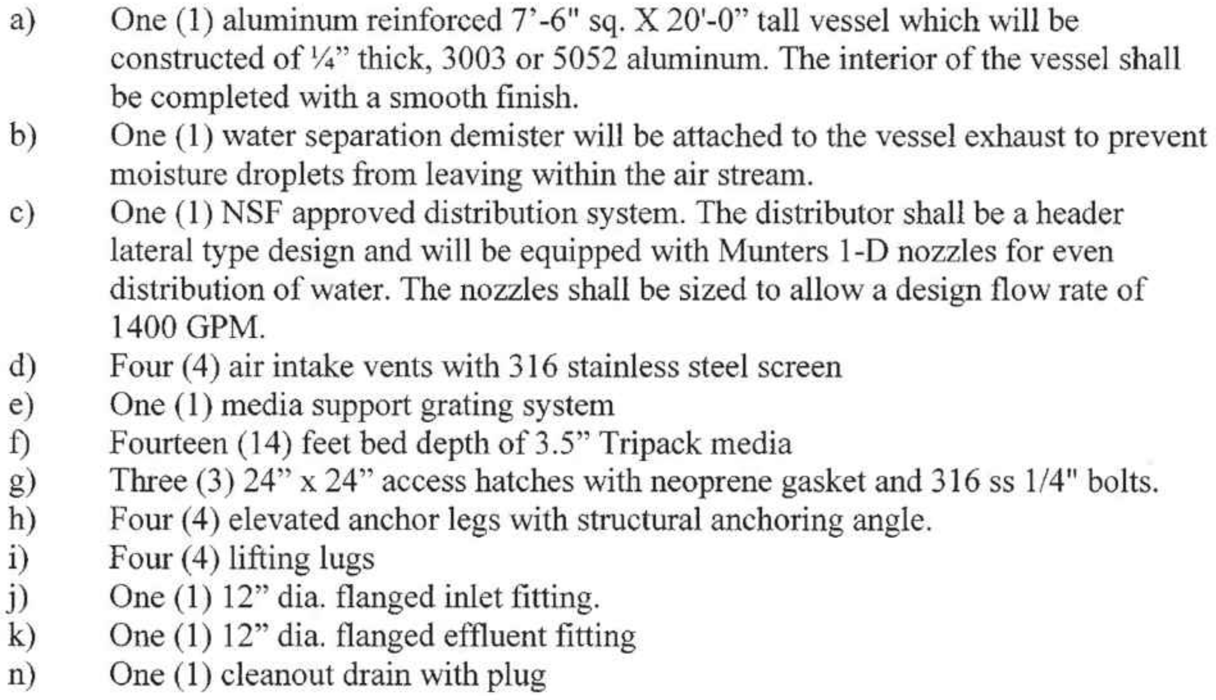
Vinyl Chloride removal @1400 gpm - 98.7% (0.7 ug/L)

Vinyl Chloride removal @2100 gpm - 98.0% (1.0 ug/L)

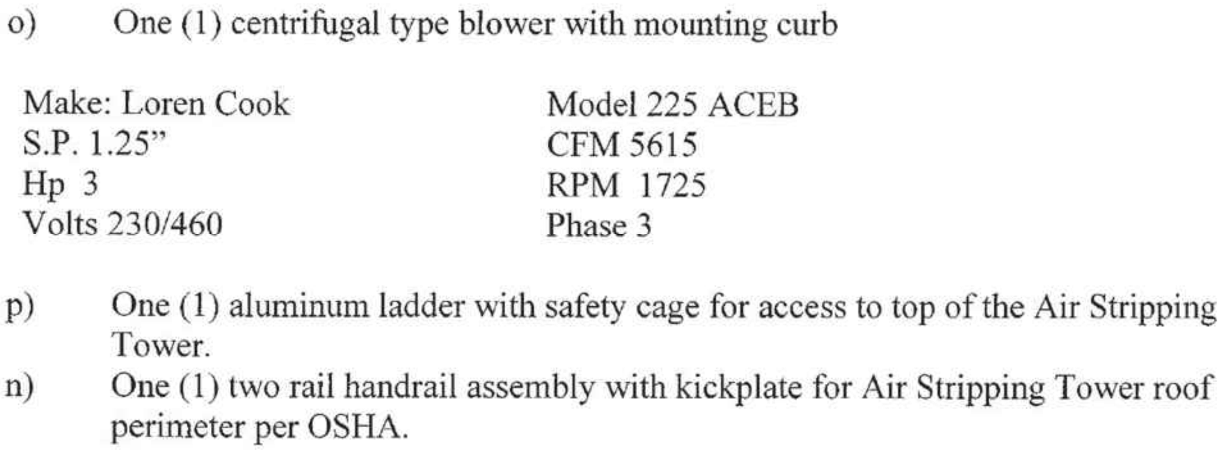
Cis-1,2-dichloroethene removal @ 1400 gpm - 57.6% (1.7 ug/L)

Cis-1,2-dichloroethene removal @ 2100 gpm - 56.4% (1.7 ug/L)

Preliminary Specifications – Each Air Stripping Unit (For Informational Purposes Only)



a) One (1) aluminum reinforced 7'-6" sq. X 20'-0" tall vessel which will be constructed of ¼" thick, 3003 or 5052 aluminum. The interior of the vessel shall be completed with a smooth finish.
b) One (1) water separation demister will be attached to the vessel exhaust to prevent moisture droplets from leaving within the air stream.
c) One (1) NSF approved distribution system. The distributor shall be a header lateral type design and will be equipped with Munters 1-D nozzles for even distribution of water. The nozzles shall be sized to allow a design flow rate of 1400 GPM.
d) Four (4) air intake vents with 316 stainless steel screen
e) One (1) media support grating system
f) Fourteen (14) feet bed depth of 3.5" Tripack media
g) Three (3) 24" x 24" access hatches with neoprene gasket and 316 ss 1/4" bolts.
h) Four (4) elevated anchor legs with structural anchoring angle.
i) Four (4) lifting lugs
j) One (1) 12" dia. flanged inlet fitting.
k) One (1) 12" dia. flanged effluent fitting
n) One (1) cleanout drain with plug



o) One (1) centrifugal type blower with mounting curb

Make: Loren Cook	Model 225 ACEB
S.P. 1.25”	CFM 5615
Hp 3	RPM 1725
Volts 230/460	Phase 3

p) One (1) aluminum ladder with safety cage for access to top of the Air Stripping Tower.

n) One (1) two rail handrail assembly with kickplate for Air Stripping Tower roof perimeter per OSHA.

Air Stripper Cleaning (For Informational Purposes Only)

Recommendations on cleaning estimates are based on experience. The initial recommendation is to have them cleaned after one-year of operation and then potentially adjusted based on inspections and extent of fouling. They have been building and servicing water treatment systems for over 64 years.

Treatment units are typically cleaned onsite by removing the packing media, cleaning in tanks or specialized equipment, and then placing the media back into the units. Under a service agreement and cleaning program, the packing media is typically removed and replaced with a new set. The dirty set is cleaned and kept in storage. The type of cleaning (pressure washing/use of acid) depends on the fouling.

ATTACHMENT 7

April 22, 2022 ZF Work Plan

ZF Active Safety US Inc.
12001 Tech Center Drive, Livonia, Michigan 48150-2122

Department	Environmental, Health and Safety
From	Scott Detwiler
Phone	+1 480-722-4139
Email	Scott.Detwiler@zf.com
Date	April 22, 2022

VIA EMAIL: WojciechowskiK@Michigan.gov
AND CERTIFIED MAIL

Kevin Wojciechowski, Project Manager
Warren District Office Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
27700 Donald Court
Warren, Michigan 48092

RE: ZF Active Safety US Inc. Submittal of the Monitoring Well Rehabilitation and Vertical Aquifer Profiling Work Plan Related to the Department of Environment, Great Lakes, and Energy April 14, 2022 Response to ZF's Additional Information for Consideration Related to Administrative Order for Response Activity; EGLE Docket No. AO-RRD-22-001 (AO) Regarding Former Kelsey-Hayes Company, 101 Oak Street, Milford, Oakland County, Michigan, Facility ID No. 63000952 (the "Site").

Dear Mr. Wojciechowski,

ZF Active Safety US Inc. (ZF) is providing the attached Monitoring Well Rehabilitation and Vertical Aquifer Profiling Work Plan (the "Work Plan") for the Department of Environment, Great Lakes, and Energy's (EGLE's) attention related to the April 14th Letter in Response to Additional Information for Consideration Related to the Administrative Order for Response Activity ("EGLE's April 14th Letter").

Pursuant to the Work Plan, ZF will perform the work listed in EGLE's April 14th Letter and will also conduct additional activities to further investigate, redevelop and possibly replace monitoring well OW-16D2, and gather information to further assess the aquifer. ZF will coordinate with EGLE and the Village of Milford as appropriate regarding the activities set forth in the Work Plan.

Thank you for your attention to these matters and please include this letter and its attachment in the administrative record for the AO and the Site.

If you have any questions, please contact me at the phone number listed in the header on the first page of this letter, Mr. Robert Bleazard – ZF Sr. EHS Manager, Environmental Remediation at 480-722-4866, or Mr. John McInnis of Arcadis at 248-994-2285.

Sincerely,

Scott Detwiler
Sr. Regional Manager
ZF Environmental, Health and Safety

Enclosures
cc by email only:

Mr. Robert Bleazard, ZF
Ms. Kelly Martorano, ZF
Mr. John McInnis, Arcadis
Mr. Troy Sclafani, Arcadis
Mr. Grant Gilezan, Dykema
Mr. Paul Stewart, Dykema
Mr. Christian Wuerth, Village Manager, Village of Milford
Ms. Polly Synk, Michigan Department of Attorney General
Ms. Danielle Allison-Yokom, Michigan Department of Attorney General
Mr. Aaron B. Keatley, EGLE - Chief Deputy Director, EGLE
Mr. Kevin Wojciechowski, Project Manager, EGLE
Mr. Josh Mosher, EGLE – Remediation and Redevelopment Assistant Director
Mr. Dan Yordanich, EGLE
Ms. Mary Miller, EGLE
Mr. Darren Bowling, EGLE
Mr. Paul Owens, EGLE
Ms. Cheryl Wilson, EGLE
Ms. Lyndsey Hagy, EGLE
Ms. Katie Noetzel, EGLE

Attachment 1

ZF Monitoring Well Rehabilitation and Vertical Aquifer Profiling Work Plan

Work Plan

SUBJECT
Former Kelsey-Hayes Plant,
101 Oak Street
Oakland County, Michigan
EGLE Facility ID No. 63000952

TO
Kevin Wojciechowski and Tiffany Yusko-Kotimko,
Michigan Department of Environment,
Great Lakes, And Energy

DATE
April 22, 2022

OUR REF
Monitoring Well Rehabilitation and Vertical Aquifer Profiling Work Plan

DEPARTMENT
Environment

PROJECT NUMBER
30046730

COPIES TO
Christian Wuerth, Village of Milford
Mike Karll, Village of Milford

OVERVIEW

On behalf of ZF Active Safety US Inc. (ZF), Arcadis of Michigan, LLC (Arcadis) has prepared this Monitoring Well Rehabilitation and Vertical Aquifer Profiling (VAP) Work Plan (Work Plan) to document proposed activities for the rehabilitation of Monitoring Well OW-16D2, VAP, and potential new well installation. This Work Plan was prepared pursuant to ZF's Letters to Michigan Department of Environment, Great Lakes, and Energy (EGLE) dated April 8, April 13 and April 15, 2022, and EGLE's letter to ZF dated April 14, 2022 and related email correspondence. This Work Plan describes the process for rehabilitating OW-16D2 (including possibly the introduction of an additive), conducting VAP, and possibly replacing OW-16D2.

The objective of these activities as mentioned in the above referenced correspondence is to ensure a properly performing and reliable monitoring well exists at or near the location of OW-16D2 that will provide groundwater data representative of conditions in the aquifer for comparison to Part 201 criteria and for determining whether the Administrative Order for Response Activity, EGLE Docket No. AO-RRD-22-001 was based on accurate prior data concerning the presence of vinyl chloride at that location. In addition, VAP (at three locations) will assess the lateral and vertical extent of groundwater impacts at and in the proximity of OW-16D2 and can be used to verify that the existing screen in OW-16D2 is in the zone of highest contamination and most representative of the impacted groundwater intended to be monitored by OW-16D2. The VAP can also be used if the rehabilitation of OW-16D2 does not meet the objectives set forth above and it is determined that replacement of OW-16D2 is necessary. See **Figures 1 and 2** for reference.

MONITORING WELL OW-16D2 REHABILITATION

Field activities associated with the rehabilitation of OW-16D2 will include:

- collecting water samples from OW-16D2 for chemical and biological analysis to determine if the recharging issues observed with the well are related to scaling or biofouling;
- performing a camera survey of the groundwater monitoring well to assess the integrity of the screen and the casing;
- performing a rising head/slug-out test to establish baseline well hydraulic performance;

- conducting redevelopment activities using a combination of surging, swabbing, airlifting, possibly the introduction of an approved additive, and removal of liquids from the well.

Sample Collection for Chemical and Biological Analysis

Water samples will be collected for chemical and biological analysis from OW-16D2 for a complete well profile. The samples will be submitted to Water System Engineering, Inc, (WSE) Ottawa, Kansas. The purpose of the sample is to collect data regarding biological and chemical factors (biofouling, scaling, etc.) that might contribute to the poor hydraulic connection of the current well to the aquifer. The data will be used to determine potential mechanical techniques and/or additives to remove a potential blockage from the well screen or maintain proper hydraulic connection of the well to the aquifer.

The water samples will be collected in two steps: The first sample will be collected from the water initially purged from the well (casing sample). After the first sample has been collected, the well will continue to be purged and the water quality will be monitored, using a multiparameter probe. The multiparameter probe will be used to measure field parameters (temperature, specific conductance, oxygen, pH, and Oxidation-Reduction Potential [ORP]) until they have stabilized within 10 percent, indicating that the well is drawing water from the formation. Once the readings indicate that formation water has entered the well, the second sample (well sample) will be collected. Unlike low-flow sampling, which requires the pump to be placed at the center of the screen, the pump will be placed approximately 5 to 10 feet above the well screen to collect the compete well profile. The pump rate will be up to 1,500 milliliters per minute.

The analysis of the samples will include: pH, alkalinity, bicarbonate, carbonates, chloride, total dissolved solids, conductivity, total hardness, calcium, magnesium, copper, iron, manganese, phosphate, nitrate, silica, sulfate, tannin, potassium, sodium, chlorine, ORP, Total Organic Carbon (TOC), Saturation Index calculation, Heterotrophic plate count, cell count made by adenosine triphosphate (ATP) method, bacterial identification of the two major populations, assessment of aerobic and anaerobic growth, sulfate reducing bacteria (SRB), iron oxidizing bacteria, total and E.coli coliform bacteria, and microscopic evaluation.

Monitoring Well Camera Survey

A down-well camera survey will be conducted to assess the integrity of OW-16D2. The survey will assess potential damage to the casing or the screen and will help determine if there is scaling or bioaccumulation in the well screen. The survey will be accomplished by lowering a camera down the well. Sections of the well with obvious defects or irregularities will be noted. A video recording of the camera survey will be created.

Assessment of Baseline Hydraulic Performance

A rising head/slug-out test will be conducted to establish baseline well performance using a disposable bailer. Field staff will use the following procedure for the test:

1. Measure depth to water and well total depth.
2. Total depth will be taken using a weighted tag line to determine the water column length. The "static” depth to water should be representative of the water level after the well equalizes with the atmosphere. Multiple depth to water measurements will be measured and any trends will be noted.
3. Review the well construction log to determine the screened interval and confirm the depth to the bottom. If discrepancies exist, the project hydrogeologist will be consulted.

4. Equip the well with a vented pressure transducer and program the instrument to read water level changes in 1-second intervals. Leave the laptop connected to the transducer during the test. If the transducer is not vented, install a barologger in the headspace of a nearby well to record barometric pressure.
5. Measure the bailer and rope assembly length and mark the rope at lengths as follows: Rope Mark #1 = Depth to Potentiometric Surface from TOC; Rope Mark #2 = Depth to Potentiometric Surface from TOC + Length of Bailer + Safety Factor (Safety Factor = ten percent (10%) of the Length of Bailer)
6. When deployed, Rope Mark #2 should ensure that the bailer is fully submerged. If a sufficient water column is not available to obtain a full bailer, measure the volume removed upon removal.
7. Slowly insert the bailer into the well and stop just above the potentiometric surface Rope Mark #1.
8. With slack in the rope and the bailer being suspended above the water column, lower the bailer and place the Rope Mark #2 at the top of casing. Clamp the non-bailer end of the rope to a static object to keep the rope in place.
9. Wait for the water level to equilibrate using a water level meter or observe using the transducer data displayed in real-time on the laptop computer.
10. Quickly remove the bailer from the water column and carefully pull it to the surface; start recording elapsed time once the bailer has been removed from the water column. Pour the removed water into an empty bucket.
11. Observe the water level response by measuring depth to water and observing water level changes on a laptop computer, if using a transducer. Allow sufficient time for the water level to recover to pre-test level (static). If completing one test, a recovery to 80% is sufficient.
12. With slow recovery, it is recommended to return to the well after a few days to observe recovery. The transducer will be retrieved once recovery has been achieved. The data will be downloaded and processed after the test.

The test will be performed before and after rehabilitation to evaluate the success of the rehabilitation measures.

Redevelopment of OW-16D2

Following the baseline well performance test, Arcadis will oversee the redevelopment of OW-16D2. Depending on the results of the chemical/biological analysis and camera survey, the redevelopment of OW-16D2 may include the introduction of Aqua-Clear®PFD and mechanical development techniques that will require the use of a water source. The Village of Milford water supply is the most readily available source of water and is proposed for this redevelopment work. If Aqua-Clear®PFD will be used, the date and time of the redevelopment will be coordinated with the Village of Milford to perform the work when its supply wells can be turned-off.

The well was redeveloped using surging/pumping technique on April 1, 2022. However, if additional sediment is found at the bottom of the well, which will be determined by comparing total depth measurements and review of the down well camera survey as described above, the material will be removed via air-lifting or pumping before beginning the next treatment step.

In a first step of the redevelopment process, a nylon brush appropriately sized for the well screen inner diameter (ID) will be used to brush two-foot sections of the screen at least 10 minutes (min) per section until the entire screen has been brushed. This process will be started at the top of the well screen and then continued downward to loosen/remove any biofilm, scaling, or fines that have accumulated on the well screen. After completion, the brush assembly will be removed, the well depth will be measured, and the presence of any sediment or loosened materials in the bottom of well will be noted. As before, any sediment accumulated at the bottom of the well will be removed via bailer/air lift/pump before beginning the next redevelopment step. This step will be omitted if the review of the camera survey indicates that the well screen is free of scaling or bioaccumulation.

Upon consultation with EGLE and the Village of Milford, a commercially available mud dispersant (Aqua-Clear®PFD which is National Sanitation Foundation (NSF) / American National Standards Institute 60 certified) will be mixed with water following the manufacturer's directions for dosing and introduced into the screened interval. The water will come from the Village of Milford, as that is the nearest water source. Aqua-Clear®PFD is a common liquid polymer dispersant used in the water supply and environmental drilling industry. The material is classified as non-reactive and contains no hazardous substances above Occupational Safety and Health Administration cut-off values. The only ingredient contained in the NSF listing is sodium polyacrylate which is an approved Food and Drug Administration food additive and used in various medical applications. Copies of the NSF certification listing, manufacturer's information, and safety data sheet for Aqua-Clear® PFD are included in **Attachment 1**.

The mixture will be worked through the entire saturated screen interval by surging and brushing the screen for approximately 15 minutes. The dispersant will then be allowed to sit for approximately four hours before continuing well redevelopment activities.

The steps for mixing the dispersant are as follows:

1. Determine the volume of water in the screen area and double the calculated volume to account for water in the gravel pack and formation interface.
2. Once the water volume is determined, calculate the required volume of Aqua-Clear®PFD by using the following formula: Aqua-Clear®PFD (gal or L) = 0.002 x Water Volume (gal or L).
3. This equates to one gallon of Aqua-Clear®PFD for every 500 gallons of water (0.2% by volume) or 2.0 liters of Aqua-Clear®PFD for every cubic meter of water.
4. Mix thoroughly before introducing into well.
5. The preferable application method utilizes a tremie line with the product applied into the screened area.

After allowing the Aqua-Clear®PFD to sit for approximately four hours, mechanical redevelopment will start by lowering an appropriately sized double-surge block (or similar) into the well. Surging will start above the screen to reduce the possibility of "sand-locking" the surge block and will include the following:

- Initial surging will be done with a long stroke and at a slow rate (20 to 25 strokes per minute).
- After surging above the screen, the well will be cleaned by air-lifting.
- Surging will start at the lower end of the screen - gradually working upward, surging in 2-foot intervals until the entire screen has been developed. The well will be surged for a minimum of 10 throws per 2-ft screen interval.

Each interval may require several surge cycles to achieve the best development. The entire length of well screen must be surged.

The surge block will be moved upward faster than downward to pull the fines out of the filter pack, instead of forcing them back in (and allowing for proper settlement).

During the surging, the total depth of the well will be measured periodically to ensure that excessive amounts of sediment are not being pulled through the screen. Any debris accumulated in the well will be removed via simultaneous airlifting (if a combined tool is available) or pumping.

A multiparameter probe will be used to measure field parameters from the redevelopment water including turbidity during redevelopment. Redevelopment (purging) will continue until turbidity is relatively stable (± 10%) and is visibly clear (ideally less than 10 nephelometric turbidity units).

Up to 10 well volumes of water, depending on well production following surging, will be removed from the well once surging has been completed. The extracted liquids will be containerized in totes or tanks and disposed of at the groundwater remediation system at the former Kelsey-Hayes site. The well redevelopment process outlined above will take approximately 8 hours.

Following the redevelopment of OW-16D2, a second hydraulic performance test will be conducted as outlined above. The result will determine if additional mechanical redevelopment will be necessary in the future or possibly plugging and replacement of OW-16D2.

VERTICAL AQUIFER PROFILING

VAP will be conducted at three locations near and west of OW-16D2 (see **Figure 2**) to determine the potential lateral and vertical extent of groundwater impacts. Prior to any intrusive work, the Village of Milford will be contacted for access and Miss Dig 811 will be informed about the activities and requested that utilities to be marked in the work area. In addition, a private utility locating service will be contracted to confirm the markings.

Soil cores will be logged and screened for evidence of volatile organic compounds using a Photo Ionization Detector (PID).

Groundwater samples will be collected at 10-foot intervals from the water table to a maximum depth of 130 feet below ground surface, or the surface of the clay underlaying the aquifer, using sonic drilling methods in combination with an inflatable packer system or a push ahead sampler to isolate the target sampling interval. Samples will be collected top-down, starting at the highest interval going down.

When the target sampling interval has been reached, the water between the packers will be evacuated prior to collecting the sample. After the sample has been collected, the packer will be retrieved and decontaminated. The boring will then be advanced to the next sampling interval and the process will be repeated.

After finalizing sample collection and when the final depth of the boring has been reached, the borehole will be abandoned by injecting a bentonite grout slurry. The grout will be injected starting at the bottom of the hole using a tremie pipe.

Soil cuttings will be containerized in 55-gallon Department of Transportation approved steel drums and temporarily stored near the groundwater treatment system building at the former Kelsey-Hayes Site for waste characterization prior to off-site disposal. All purge water will be disposed of in the groundwater treatment system at the former Kelsey-Hayes Site.

The groundwater samples will be submitted to Eurofins Laboratories and/or another lab for analysis of volatile organic compounds using USEPA Method SW-846 8260D.

The analytical results of the VAP sampling will be used to assess the lateral and vertical extent of groundwater impacts at and in the proximity of OW-16D2 and can be used to verify that the existing screen in OW-16D2 is in the zone of highest contamination and most representative of the impacted groundwater intended to be monitored by OW-16D2. The VAP can also be used if the rehabilitation of OW-16D2 does not meet the objectives set forth above and it is determined that replacement of OW-16D2 is necessary.

If the result of the redevelopment indicates that a replacement for OW-16D2 is necessary, a new 2-inch diameter monitoring well with a 5-foot stainless steel screen will be installed using sonic drilling methods. As described before, the well location and screen placement will be determined by the VAP results.

TARGET SCHEDULE

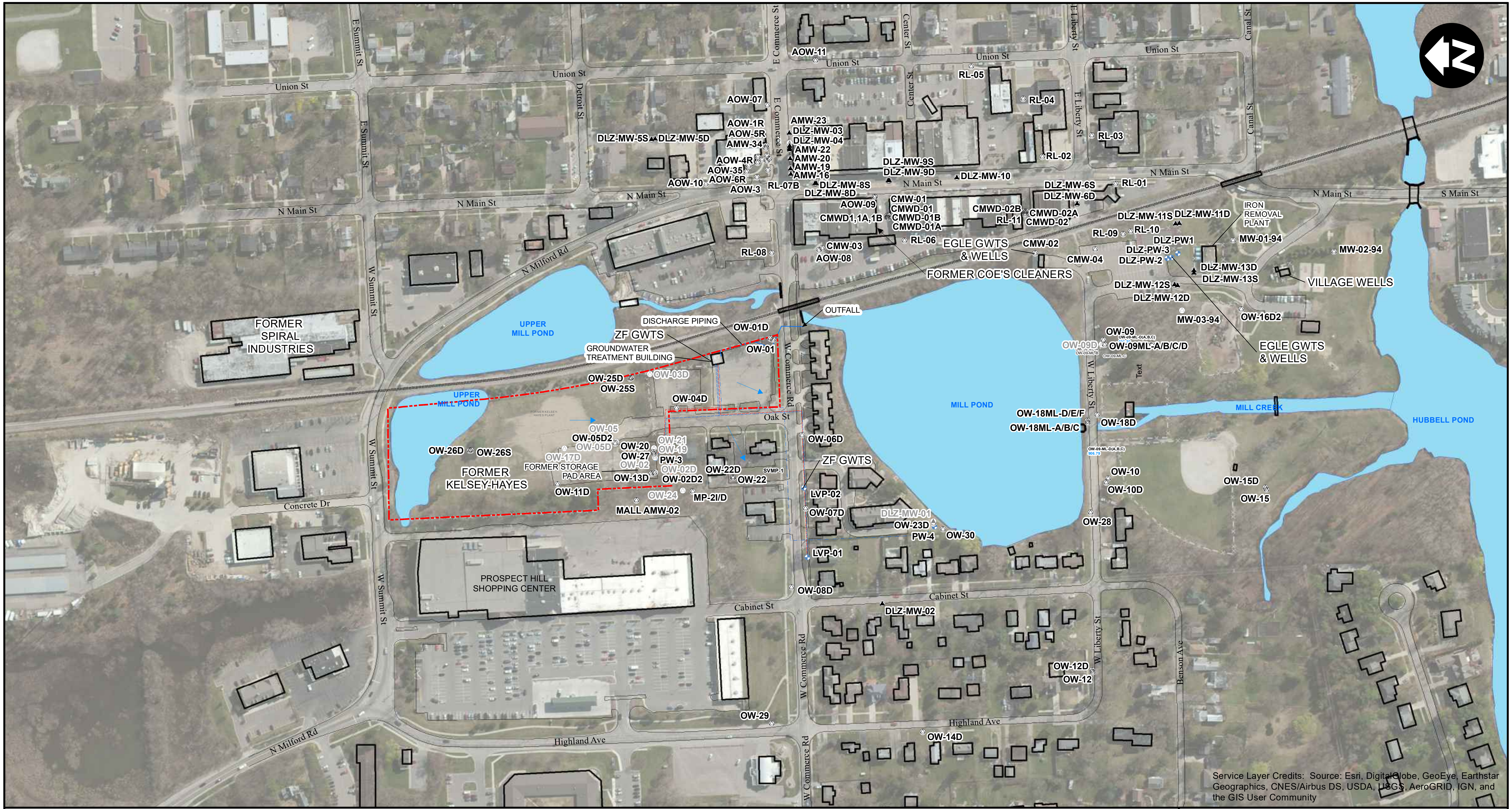
Arcadis will implement this Work Plan based on the following proposed schedule, pending weather conditions, site access, and EGLE approval of the Aqua-Clear PFD® additive.

- Early May 2022 – Biological and chemical sampling and camera survey of OW-16D2.
- May 2022 – Hydraulic Performance testing, Redevelopment of OW-16D2.
- June 2022 – VAP and potential well replacement.
- Continue groundwater monthly sampling at OW-16D2.
    - The last sample was collected on April 18, 2022
    - The next sample will be collected the week of May 16, 2022.

Enclosures: Figures and Attachments

Figures
1 - Site Layout Map
2 – Site Layout Map with Proposed VAP Locations
Attachment
1 - Product Information for Halliburton AQUA-CLEAR® PFD.

Figures



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

▲	MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY MONITORING WELL
△	ABANDONED MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY MONITORING WELL
◎	MONITORING/OBSERVATION WELL
○	ABANDONED OBSERVATION WELL
◑	PUMPING WELL
- - -	GROUNDWATER TREATMENT SYSTEM UNDERGROUND ELECTRICAL
-·-·-	GROUNDWATER TREATMENT SYSTEM UNDERGROUND ELECTRICAL AND CONVEYANCE PIPING
- - -	GROUNDWATER TREATMENT SYSTEM UNDERGROUND CONVEYANCE PIPING
—	GROUNDWATER TREATMENT SYSTEM UNDERGROUND DISCHARGE PIPING
▭	FORMER KELSEY-HAYES PROPERTY BOUNDARY
┼┼┼	RAILROAD TRACK
×—×	FENCE LINE

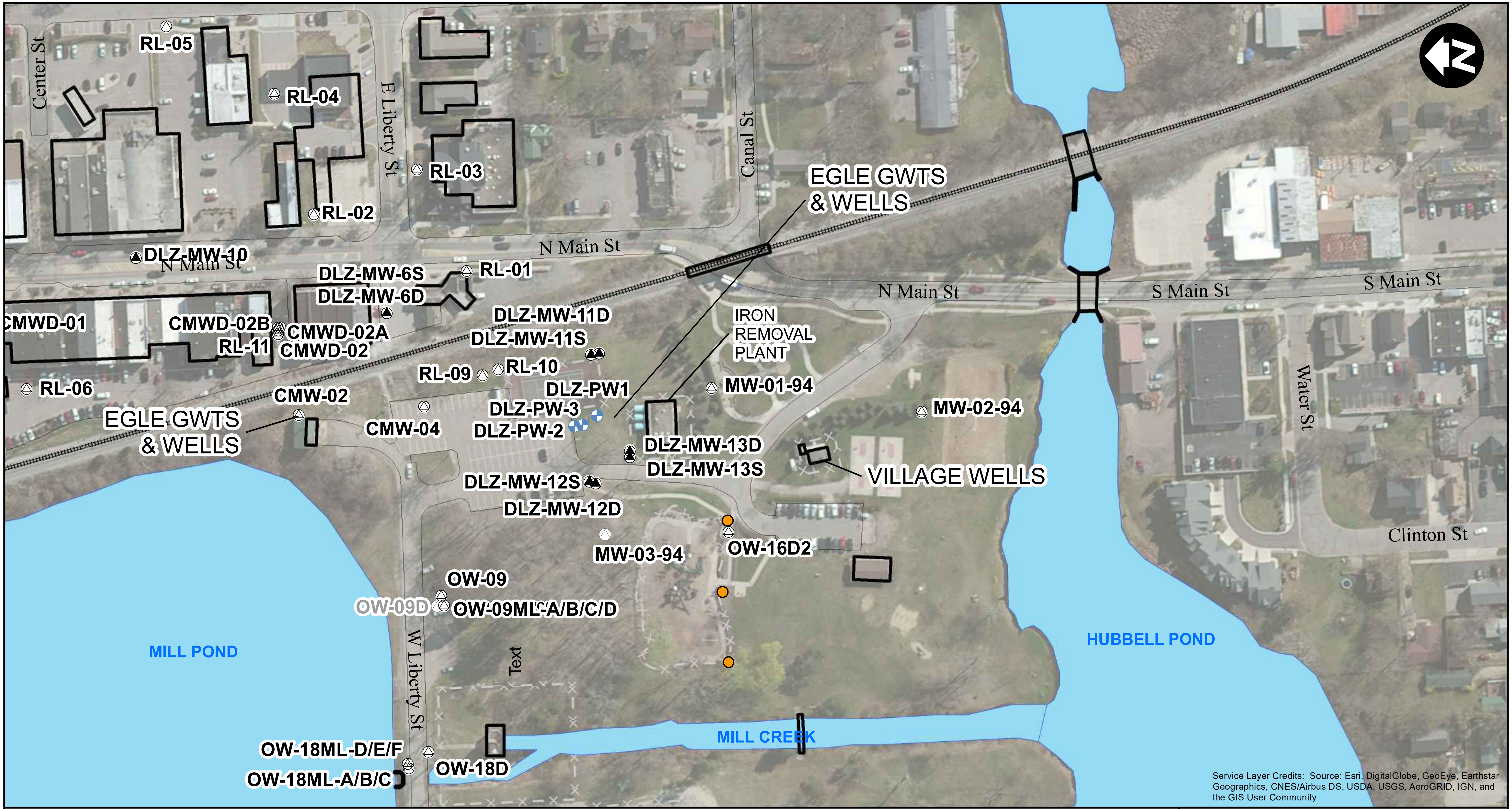
0 250 500
SCALE IN FEET

FORMER KELSEY-HAYES PLANT
MILFORD, MICHIGAN

SITE LAYOUT

ARCADIS

FIGURE
1



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

▲ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY MONITORING WELL

△ MONITORING/OBSERVATION WELL

△ ABANDONED OBSERVATION WELL

◐ PUMPING WELL

RAILROAD TRACK

×—× FENCE LINE

● VERTICAL AQUIFER PROFILING (VAP) LOCATION

0 120 240
SCALE IN FEET

FORMER KELSEY-HAYES PLANT
MILFORD, MICHIGAN

SITE LAYOUT WITH PROPOSED VAP BORING LOCATIONS

ARCADIS

FIGURE
2

Attachment 1

Product Information for Halliburton AQUA-CLEAR® PFD.

The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Monday, April 04, 2022** at 12:15 a.m. Eastern Time. Please contact NSF to confirm the status of any Listing, report errors, or make suggestions.

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http://info.nsf.org/Certified/PwsChemicals/Listings.asp?Company=05240&Standard=060&

NSF/ANSI/CAN 60
Drinking Water Treatment Chemicals - Health Effects

Halliburton

3000 North Sam Houston Parkway East
Houston, TX 77032
United States
800-735-6075
281-871-4612
Visit this company's website (http://www.baroididp.com)

Facility : # 1 USA

Miscellaneous Water Supply Products[1]

Trade Designation	***Product Function***	***Max Use***
N-Seal™	Drilling Fluid	NA

[1] These products are designed to be flushed out prior to using the system for drinking water. Before being placed in service, the well is to be properly flushed and drained according to the manufacturer's use instructions.

NOTE: All N-Seal™ from this location is NSF Certified, whether or not it bears the NSF Mark.

Facility : # 4 USA

Miscellaneous Water Supply Products

Trade Designation	*Product Function*	*Max Use*
AQF-2™ XG[1]	Foaming Agent	NA
IDP-1004[1]	Foaming Agent	NA
IDP-1009[2]	Foaming Agent	NA
QUIK-FOAM® HP[2]	Foaming Agent	NA

[1] Certification of this product is based on a well drilling model using assumptions stated in NSF/ANSI Standard 60, Section 8 for well drilling foamers.

[2] Certification of this product is based on a well drilling model using assumptions stated in NSF/ANSI Standard 60, Section 8 for well drilling foamers.

Facility : # 7 USA

Miscellaneous Water Supply Products[1] [2]

Trade Designation	*Product Function*	*Max Use*
IDP-952	Well Sealant	NA
MAX-YIELD TCM	Well Sealant	NA

[1] The sealant is to be mixed at a ratio of not greater than 36 pounds to 50 pounds of grout.

[2] Certified for use as a well sealant additive only when used in conjunction with a well sealant grout.

Facility : # 8 USA

Miscellaneous Water Supply Products[1]

Trade Designation	*Product Function*	*Max Use*
IDP-953	Well Sealant	NA
MAX-YIELD HP	Well Sealant	NA

[1] This product is designed to be flushed out until the turbidity of the water is <1 NTU. Flushing is required before the system may be used for drinking water.

Facility : Belle Fourche, SD

Bentonite[1]

Trade Designation	*Product Function*	*Max Use*
AQUAGEL®	Drilling Fluid	NA
AQUAGEL® GOLD SEAL	Drilling Fluid	NA
AQUAGUARD®	Well Sealant	NA
BAROTHERM® GOLD	Well Sealant	NA
BENSEAL®	Well Sealant	NA
BORE-GEL®	Drilling Fluid	NA
BORE-GROUT®	Well Sealant	NA
IDP-502	Well Sealant	NA
IDP-512	Well Drilling Aid	NA
QUIK-BORE	Well Drilling Aid	NA
QUIK-GEL GOLD®	Drilling Fluid	NA
QUIK-GEL®	Drilling Fluid	NA
QUIK-GROUT®	Well Sealant	NA

[1] This product is designed to be used off-line following manufacturer's use instructions. The well is to be flushed until the turbidity of the water is < 1 NTU before the system may be used for drinking water.

Miscellaneous Water Supply Products

Trade Designation	*Product Function*	*Max Use*
BARAD-399 CORE[2]	Drilling Fluid	NA
BARASORB 955	Well Sealant	NA
IDP-399[2]	Drilling Fluid	NA

[2] These products are designed to be flushed out prior to using the system for drinking water. Before being placed into service, the well is to be properly flushed according to the manufacturer's use instructions. Certification of these products is based on the well drilling model with the following assumptions:

- The amount of well drilling fluid used is 3780 L (1000 U.S. gallons) to which the drilling fluid has been added at the manufacturer's recommended level.
- The aquifer contains 3.1 million liters of water (815,000 gallons) based on a 0.5 acre aquifer of 6.1 meter depth (20 ft.) and 25% porosity.
- The bore hole is 61 meters in total depth (200 ft.), the screen is 6.1 meters in length (20 ft.), and the bore hole is 25.4 cm. in diameter (10 in.).
- The amount of well drilling fluid removed from the well during construction is equal to the combined volumes of the casing and the screen, plus an additional amount removed through the well disinfection and development (90% removed).

- This product should not be used in constructing wells in highly porous formations, such as cavernous limestone.

NOTE: Only Listed products bearing the NSF Mark are NSF Certified.

Facility : Conroe, TX

Miscellaneous Water Supply Products

Trade Designation	***Product Function***	***Max Use***
BARAD-658[1] [2]	Other	NA
IDP-658[1] [2]	Other	NA
IDP-920[3]	Drilling Fluid Well Drilling Aid	NA
PENETROL DRY[3]	Drilling Fluid Well Drilling Aid	NA
QUIK-TROL® GOLD[4]	Well Drilling Aid	NA
QUIK-TROL® GOLD LV[1]	Well Drilling Aid	NA

[1] This product is designed to be used off-line following manufacturer’s use instructions. The well is to be flushed until the turbidity of the water is < 1 NTU before the system may be used for drinking water.

[2] This product is Certified for use as a well sealant additive only when used in conjunction with a well sealant grout.

[3] These products are designed to be flushed out prior to using the system for drinking water. Before being placed into service, the well is to be properly flushed according to the manufacturer's use instructions.
Certification of these products is based on the well drilling model with the following assumptions:
- The amount of well drilling fluid used is 3780 L (1000 U.S. gallons) to which the drilling fluid has been added at the manufacturer's recommended level.
- The aquifer contains 3.1 million liters of water (815,000 gallons) based on a 0.5 acre aquifer of 6.1 meter depth (20 ft.) and 25% porosity.
- The bore hole is 61 meters in total depth (200 ft.), the screen is 6.1 meters in length (20 ft.), and the bore hole is 25.4 cm. in diameter (10 in.).
- The amount of well drilling fluid removed from the well during construction is equal to the combined volumes of the casing and the screen, plus an additional amount removed through the well disinfection and development (90% removed).
- This product should not be used in constructing wells in highly porous formations, such as cavernous limestone.

[4] This product is designed to be used off-line following manufacturer’s use instructions.

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The well is to be flushed until the turbidity of the water is 1 NTU before the system
may be used for drinking water.
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Polyacrylamide[PC]

Trade Designation	***Product Function***	***Max Use***
POLY-BORE™	Well Drilling Aid	NA

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[PC] Polyacrylamide Products Certified by NSF International comply with 40 CFR 141.111
     requirements for percent monomer and dose.
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Polymer Blends[PC]

Trade Designation	***Product Function***	***Max Use***
Clay-Drill	Drilling Fluid	NA

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[PC] Polyacrylamide Products Certified by NSF International comply with 40 CFR 141.111
     requirements for percent monomer and dose.
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Facility : Rosenberg, TX

Miscellaneous Water Supply Products

Trade Designation	***Product Function***	***Max Use***
AQF-2[1] [2]	Foaming Agent	NA
AQF-2™ XG[1]	Foaming Agent	NA
AQUA-CLEAR® AE[3]	Well Rehabilitation Aid	NA
AQUA-CLEAR® MGA[3]	Well Rehabilitation Aid	NA
IDP-1004[1]	Foaming Agent	NA
IDP-1009[1]	Foaming Agent	NA
IDP-930[4] [5] [PC]	Drilling Fluid Well Drilling Aid	NA
PENETROL DRY[2] [4] [5]	Drilling Fluid Well Drilling Aid	NA
Performatrol 930[4] [5] [PC]	Drilling Fluid Well Drilling Aid	NA
QUIK-FOAM® HP[1]	Foaming Agent	NA
QUIK-TROL®	Well Drilling Aid	NA
QUIK-TROL® GOLD[3]	Well Drilling Aid	NA
QUIK-TROL® GOLD LV[3]	Well Drilling Aid	NA
QUIK-TROL® LV	Well Drilling Aid	NA
Quik-Foam®[2]	Foaming Agent	NA

[1] Certification of this product is based on a well drilling model using assumptions staed in NSF/ANSI/CAN 60, Section 8 for well drilling foamers.
[2] This product is designed to be used off-line and flushed out prior to using the system for drinking water, following manufacturer's use instructions.
[3] This product is designed to be used off-line following manufacturer's use instructions. The well is to be flushed until the turbidity of the water is < 1 NTU before the system may be used for drinking water.
[4] These products are designed to be flushed out prior to using the system for drinking water. Before being placed into service, the well is to be properly flushed according to the manufacturer's use instructions.
[5] Certification of these products is based on the well drilling model with the following assumptions:
- The amount of well drilling fluid used is 3780 L (1000 U.S. gallons) to which the drilling fluid has been added at the manufacturer's recommended level.
- The aquifer contains 3.1 million liters of water (815,000 gallons) based on a 0.5 acre aquifer of 6.1 meter depth (20 ft.) and 25% porosity.
- The bore hole is 61 meters in total depth (200 ft.), the screen is 6.1 meters in length (20 ft.), and the bore hole is 25.4 cm. in diameter (10 in.).
- The amount of well drilling fluid removed from the well during construction is equal to the combined volumes of the casing and the screen, plus an additional amount removed through the well disinfection and development (90% removed).
- This product should not be used in constructing wells in highly porous formations, such as cavernous limestone.

[PC] Polyacrylamide Products Certified by NSF International comply with 40 CFR 141.111 requirements for percent monomer and dose.

Polyacrylamide [PC]

Trade Designation	*Product Function*	*Max Use*
EZ-MUD GOLD[5] [PC] [WL]	Well Drilling Aid	NA
EZ-MUD®[5] [PC] [WL]	Well Drilling Aid	NA
EZ-MUD® DP[5] [PC] [WL]	Well Drilling Aid	NA
EZ-MUD® PLUS[5] [6] [PC] [WL]	Well Drilling Aid	NA
POLY-BORE™[5] [PC] [WL]	Well Drilling Aid	NA

[5] Certification of these products is based on the well drilling model with the following assumptions:
- The amount of well drilling fluid used is 3780 L (1000 U.S. gallons) to which the drilling fluid has been added at the manufacturer's recommended level.
- The aquifer contains 3.1 million liters of water (815,000 gallons) based on a 0.5 acre aquifer of 6.1 meter depth (20 ft.) and 25% porosity.
- The bore hole is 61 meters in total depth (200 ft.), the screen is 6.1 meters in length (20 ft.), and the bore hole is 25.4 cm. in diameter (10 in.).

- The amount of well drilling fluid removed from the well during construction is equal to the combined volumes of the casing and the screen, plus an additional amount removed through the well disinfection and development (90% removed).
- This product should not be used in constructing wells in highly porous formations, such as cavernous limestone.

[6] This product is designed for the treatment of surface water before it enters the water treatment facility.

[PC] Polyacrylamide Products Certified by NSF International comply with 40 CFR 141.111 requirements for percent monomer and dose.

[PC] Polyacrylamide Products Certified by NSF International comply with 40 CFR 141.111 requirements for percent monomer and dose.

[WL] These products are designed to be flushed out prior to using the system for drinking

water. The well shall be properly flushed and drained before being placed in service.

Polyamines[PY]

Trade Designation	***Product Function***	***Max Use***
SYSTEM-FLOC 360	Coagulation & Flocculation	10mg/L

[PY] Polyamines Certified by NSF International comply with 40 CFR 141.111 requirements for percent monomer and dose.

Polymer Blends[PY]

Trade Designation	***Product Function***	***Max Use***
Clay-Drill	Drilling Fluid	NA

[PY] Polyamines Certified by NSF International comply with 40 CFR 141.111 requirements for percent monomer and dose.

Sodium Carbonate

Trade Designation	***Product Function***	***Max Use***
SODA ASH	pH Adjustment	100mg/L

Sodium Polyacrylate

Trade Designation	***Product Function***	***Max Use***
AQUA-CLEAR® PFD[2] [4] [5]	Well Cleaning Aid	NA

[2] This product is designed to be used off-line and flushed out prior to using the system for drinking water, following manufacturer's use instructions.

[4] These products are designed to be flushed out prior to using the system for drinking water. Before being placed into service, the well is to be properly flushed according to

the manufacturer's use instructions.

[5] Certification of these products is based on the well drilling model with the following assumptions:

- The amount of well drilling fluid used is 3780 L (1000 U.S. gallons) to which the drilling fluid has been added at the manufacturer's recommended level.
- The aquifer contains 3.1 million liters of water (815,000 gallons) based on a 0.5 acre aquifer of 6.1 meter depth (20 ft.) and 25% porosity.
- The bore hole is 61 meters in total depth (200 ft.), the screen is 6.1 meters in length (20 ft.), and the bore hole is 25.4 cm. in diameter (10 in.).
- The amount of well drilling fluid removed from the well during construction is equal to the combined volumes of the casing and the screen, plus an additional amount removed through the well disinfection and development (90% removed).
- This product should not be used in constructing wells in highly porous formations, such as cavernous limestone.

Facility : Lovell, WY

Bentonite[1]

Trade Designation	***Product Function***	***Max Use***
AQUAGEL®	Drilling Fluid	NA
AQUAGEL® GOLD SEAL	Drilling Fluid	NA
BARA-KADE CHIPS	Well Sealant	NA
BORE-GEL®	Drilling Fluid	NA
CASING SEAL™	Well Sealant	NA
EZ-SEAL®	Well Sealant	NA
HOLEPLUG®	Well Sealant	NA
QUIK-GEL GOLD®	Drilling Fluid	NA
QUIK-GEL®	Drilling Fluid	NA

[1] This product is designed to be used off-line following manufacturer's use instructions. The well is to be flushed until the turbidity of the water is < 1 NTU before the system may be used for drinking water.

Number of matching Manufacturers is 1

Number of matching Products is 66

Processing time was 0 seconds

BAROID
INDUSTRIAL DRILLING PRODUCTS
HALLIBURTON

AQUA-CLEAR® PFD

Phosphate-Free Dispersant

Description

AQUA-CLEAR® PFD concentrated liquid polymer dispersant provides superior mud and sediment removal from the producing formation and gravel pack. This product is also a highly effective mud thinner. AQUA-CLEAR PFD dispersant contains no phosphates.

Applications/Functions

- Can disperse mud, sediment and clay from the producing formation and gravel pack in the screened interval.
- Can reduce viscosity and gel strength of drilling fluids

Advantages

- NSF/ANSI Standard 60 certified
- Helps reduce development time
- Helps increase well yield and capacity
- Safe to use on most plastics, rubber and metals
- Non-fermenting
- Can reduce pumping costs

Typical Properties

• Appearance	straw colored liquid
• Specific gravity	1.2 to 1.4
• pH (neat)	6.5 to 7.5

Recommended Treatment

As a Well Development Aid

- Determine volume of water in screen area and double the calculated volume to account for water in gravel pack and formation interface ***<u>or</u>*** determine the static volume of water and add 50% excess.
- Once the water volume is determined, calculate the required treatment volume of AQUA-CLEAR PFD by the following formula:

AQUA-CLEAR PFD (gal or L) = 0.002 x Water Volume (gal or L)

This equates to one gallon of AQUA-CLEAR PFD for every 500 gallons of water (0.2% by volume) or 2.0 liters of AQUA-CLEAR PFD for every cubic meter of water.

- Mix thoroughly before introducing into well.
- The preferable application method utilizes a tremie line with the product applied into the screened area.
- If necessary, the AQUA-CLEAR PFD/water solution may be poured into the well.
- Mixture should be thoroughly blended in well, then agitated using a surge

Rev. 03/2011

Recommended Treatment (continued)

and swab, jetting, or other developmental technique repeatedly every two hours for a period of up to 24 hours.

- Pump to waste until turbidity clears up and then connect well to distribution system.

As a Mud Thinner

- Start by adding one pint of AQUA-CLEAR® PFD to 500 gallons of mud. Increase concentration until desired viscosity is achieved.

Well Capacity Chart (Gallons per Foot)

Well Diameter (Inches)	Well Capacity in Gallons/ft	Well Diameter (Inches)	Well Capacity in Gallons/ft	Well Diameter (Inches)	Well Capacity in Gallons/ft
2	0.2	12	5.9	24	23.5
4	0.7	14	8.0	26	27.6
6	1.5	18	13.2	30	36.7
8	2.6	20	16.3	36	52.9
10	4.1	22	19.7	48	94.0

Well Capacity Chart (Liters per Meter)

Well Diameter (millimeters)	Well Capacity Liters/meter	Well Diameter (millimeters)	Well Capacity Liters/meter	Well Diameter (millimeters)	Well Capacity Liters/meter
51	2.0	305	73.0	610	292.0
102	8.1	356	99.3	660	342.6
152	18.3	457	164.2	762	456.1
203	32.4	508	202.7	914	656.8
254	50.7	559	245.3	1219	1167.7

Note: The volumes in these tables show only the volume of water in a 1 foot or 1 meter section of a given size of screen. Excess volume must be included to account for water present in the formation interface and gravel pack.

Packaging

AQUA-CLEAR PFD is packaged in 50-lb (22.7-kg) or 25-kg (55-lb) plastic containers or in a case of 4, 1-gal (3.8 liter) plastic containers weighing 43-lbs (19.6-kg).

Availability

AQUA-CLEAR PFD can be purchased through any Baroid Industrial Drilling Products Retailer. To locate the Baroid IDP retailer nearest you contact the Customer Service Department in Houston or your area IDP Sales Representative.

Baroid Industrial Drilling Products
Product Service Line, Halliburton
3000 N. Sam Houston Pkwy E.
Houston, TX 77032

Customer Service	(800) 735-6075 Toll Free	(281) 871-4612
Technical Service	(877) 379-7412 Toll Free	(281) 871-4613

SAFETY DATA SHEET

Product Trade Name: **AQUA-CLEAR® PFD**

Revision Date: 17-Feb-2016 **Revision Number:** 17

1. Identification

1.1. Product Identifier

Product Trade Name:	AQUA-CLEAR® PFD
Synonyms	None
Chemical Family:	Blend
Internal ID Code	HM004116

1.2 Recommended use and restrictions on use

Application:	Additive
Uses advised against	No information available

1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier

Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 575-5000
Emergency Telephone: 1-866-519-4752 (US, Canada, Mexico) or 1-760-476-3962

Halliburton Energy Services
645 - 7th Ave SW Suite 2200
Calgary, AB
T2P 4G8
Canada

Prepared By Chemical Stewardship
Telephone: 1-281-871-6107
e-mail: fdunexchem@halliburton.com

1.4. Emergency telephone number

Emergency Telephone Number 1-866-519-4752 or 1-760-476-3962

2. Hazard(s) Identification

2.1 Classification in accordance with paragraph (d) of §1910.1200

As adopted by the competent authority, this product does not require an SDS or hazard warning label.

Not classified

2.2. Label Elements

Hazard pictograms

Signal Word	Not Classified
Hazard Statements	Not Hazardous

Precautionary Statements

Prevention	None
Response	None
Storage	None
Disposal	None

2.3 Hazards not otherwise classified

None known

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

The exact percentage (concentration) of the composition has been withheld as proprietary.

4. First-Aid Measures

4.1. Description of first aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Ingestion	Under normal conditions, first aid procedures are not required.

4.2 Most important symptoms/effects, acute and delayed

No significant hazards expected.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

5.2 Specific hazards arising from the substance or mixture

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases. Spills produce extremely slippery surfaces.

5.3 Special protective equipment and precautions for fire-fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Spills of this product are very slippery. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.
See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions
Avoid contact with eyes, skin, or clothing. Wash hands after use. Avoid breathing vapors. Ensure adequate ventilation. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information
Store away from oxidizers. Store in a cool, dry location. Product has a shelf life of 24 months.

8. Exposure Controls/Personal Protection

8.1 Occupational Exposure Limits

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

8.2 Appropriate engineering controls

Engineering Controls	Use in a well ventilated area.

8.3 Individual protection measures, such as personal protective equipment

Personal Protective Equipment	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection	Not normally necessary.
Hand Protection	Impervious rubber gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Safety glasses.
Other Precautions	None known.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Yellowish
Odor:	Slight	**Odor**	No information available

Threshold:

Property Remarks/ - Method	Values
pH:	7 - 9
Freezing Point / Range	No data available
Melting Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	> 100 °C / > 212 °F Cleveland Open Cup (COC)
Flammability (solid, gas)	No data available
Upper flammability limit	No data available
Lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.3
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.

10.2. Chemical stability
Stable

10.3. Possibility of hazardous reactions
Will Not Occur

10.4. Conditions to avoid
None anticipated

10.5. Incompatible materials
Strong oxidizers.

10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide.

11. Toxicological Information

11.1 Information on likely routes of exposure

Principle Route of Exposure	Eye or skin contact, inhalation.

11.2 Symptoms related to the physical, chemical and toxicological characteristics

Acute Toxicity

Inhalation	May cause mild respiratory irritation.
Eye Contact	May cause mild eye irritation.

Skin Contact	Prolonged or repeated contact may cause slight skin irritation.
Ingestion	Swallowing a relatively large amount of this material is unlikely to produce serious illness or death.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

11.3 Toxicity data

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

12. Ecological Information

12.1. Toxicity

Ecotoxicity effects

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.5 Other adverse effects

No information available

13. Disposal Considerations

13.1. Waste treatment methods

Disposal methods	Disposal should be made in accordance with federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. Transport Information

US DOT

UN Number	Not restricted
UN proper shipping name	Not restricted
Transport Hazard Class(es)	Not applicable
Packing Group:	Not applicable
Environmental Hazards	Not applicable

Canadian TDG

UN Number	Not restricted
UN proper shipping name	Not restricted
Transport Hazard Class(es)	Not applicable
Packing Group:	Not applicable
Environmental Hazards	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name	Not restricted
Transport Hazard Class(es)	Not applicable
Packing Group:	Not applicable
Environmental Hazards	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name	Not restricted
Transport Hazard Class(es)	Not applicable
Packing Group:	Not applicable
Environmental Hazards	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable

Special Precautions for User None

15. Regulatory Information

US Regulations

US TSCA Inventory All components listed on inventory or are exempt.

TSCA Significant New Use Rules - S5A2

Substances	CAS Number	TSCA Significant New Use Rules - S5A2
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable

EPA SARA Title III Extremely Hazardous Substances

Substances	CAS Number	EPA SARA Title III Extremely Hazardous Substances
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable

EPA SARA (311,312) Hazard Class

None

EPA SARA (313) Chemicals

Substances	CAS Number	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

EPA CERCLA/Superfund Reportable Spill Quantity

Substances	CAS Number	CERCLA RQ
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable

EPA RCRA Hazardous Waste Classification

If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

California Proposition 65	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.
NFPA Ratings:	Health 1, Flammability 1, Reactivity 0
HMIS Ratings:	Health 1, Flammability 0, Physical Hazard 0 , PPE: B

Canadian Regulations

Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

16. Other information

Preparation Information

Prepared By

Chemical Stewardship
Telephone: 1-281-871-6107
e-mail: fdunexchem@halliburton.com

Revision Date: 17-Feb-2016

Reason for Revision SDS sections updated:
7

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key or legend to abbreviations and acronyms used in the safety data sheet

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
ErC50 – Effective Concentration growth rate 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
UN – United Nations
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data

www.ChemADVISOR.com/

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

ATTACHMENT 8

May 4, 2022 letter from EGLE15

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
WARREN DISTRICT OFFICE

GRETCHEN WHITMER
GOVERNOR

EGLE
LIESL EICHLER CLARK
DIRECTOR

May 4, 2022

Scott Detwiler
ZF Active Safety US Inc.
11202 East Germann Road
Mesa, Arizona 85212

Dear Scott Detwiler:

SUBJECT: EGLE Response to ZF Active Safety US Inc. (ZF's) Work Plan Related to Monitoring Well Rehabilitation and Vertical Aquifer Profiling Regarding Former Kelsey-Hayes Company, 101 Oak Street, Milford, Oakland County, Michigan, Facility ID No. 63000952.

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Remediation and Redevelopment Division (RRD) has received your letter on April 22, 2022, providing EGLE with ZF's Work Plan to rehabilitate monitoring well OW-16D2 and installation of three vertical aquifer profiling (VAP) borings.

The RRD has reviewed the Work Plan and has the following recommendations, questions, and concerns:

- The plan calls for a down-well camera survey before rehab activities are preformed but does not require a similar survey at other points such as after cleaning with a nylon brush or after the application of Aqua-Clear PFD. Comparison of the original survey to later surveys would be useful to inform next steps as well as revealing improvements in condition of the well or conditions which were not previously observable and could be a concern.
- Can any additional information be provided regarding what conditions from the well camera survey and chemical/biological results will trigger the use of Aqua-Clear PFD?
- Regarding the process for Aqua-Clear PFD:
    - The work plan states that following introduction of the solution the well will sit for 4 hours. However, the manufacturer recommendation is that the well should be agitated every 2 hours. Why is there a deviation from the manufacturer's recommendations?
    - Will the water level in the well be monitored during this work?
    - If there is insufficient recharge of the well, what measures will be taken to remove and rinse the solution out of the well/gravel pack/formation?
    - Has the manufacturer been contacted regarding potential reactions with vinyl chloride, cis-1,2-DCE, or other chlorinated and PFAS compounds?
- The zone of 'highest contamination" was not defined in EGLE's previous communication with ZF. The zone of "highest contamination" is defined by EGLE as the zone of the highest detected vinyl chloride, or if no vinyl chloride is detected, as the zone with the highest total volatile organic compounds (VOCs). In a scenario where the highest vinyl

chloride detected is in a different zone than highest total VOCs, ZF should meet with EGLE to discuss the placement of the well screen(s).

- The stated maximum depth of VAP borings is 130-feet below grade or to the surface of the clay underlying the aquifer. The VAP borings should be advanced 5 feet into the clay that is encountered at the bottom of the aquifer.
- Slug tests, using a bailer methodology, are to be completed on OW-16D2. A pneumatic displacement method for this well would provide a greater displacement of water in OW-16D2 and therefore improved results. Use of a pneumatic slug test method is recommended.
- What is the reasoning for not collecting VOC samples during the chemical and biological analysis of monitoring well OW-16D2?
- Testing of two water samples mentions microscopic evaluations. What specific microscopic evaluations are to be completed?
- Testing is also being completed for total and E. coli coliform bacterial analysis. The monitoring well is not being disinfected, is bacterial analyses appropriate for OW-16D2?
- What is the reason the VAP drilling is not occurring until June?

If you have any questions regarding this matter, please contact me.

Sincerely,

Kevin Wojciechowski,
Senior Environmental Quality Analyst
Warren District Office
Remediation and Redevelopment Division
586-623-2948
WojciechowskiK@Michigan.gov

cc: Christian Wuerth, Village of Milford
John McInnis, Arcadis
Joost Vant Erve, DHHS
Paul Owens, EGLE
Cheryl Wilson, EGLE
Darren Bowling, EGLE
Lyndsey Hagy, EGLE
Katie Noetzel, EGLE
Tiffany Yusko-Kotimko, EGLE

ATTACHMENT 9

May 15, 2022 Letter from ZF

ZF Active Safety US Inc.
12001 Tech Center Drive, Livonia, Michigan 48150-2122

Department	Environmental, Health & Safety
From	Scott Detwiler
Phone	480-722-4139
Email	scott.detwiler@zf.com
Date	May 15, 2022

VIA E-MAIL TO: WojchiechowskiK@Michigan.gov

Kevin Wojciechowski, Project Manager
Warren District Office Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
27700 Donald Court
Warren, Michigan 48092

RE: ZF Active Safety Systems Inc. (ZF) response to Michigan Department of Environment, Great Lakes, and Energy Comments Regarding ZF's Well Rehabilitation and Vertical Aquifer Profiling Work Plan submitted on April 22, 2022.

Dear Mr. Wojciechowski,

On May 4, 2022, the Department of Environment, Great Lakes, and Energy (EGLE) sent a response to ZF Active Safety Systems Inc. ("EGLE's May 4th Letter") regarding the Well Rehabilitation and Vertical Aquifer Profiling Work Plan submitted by ZF on April 22, 2022 (the "Work Plan"). The Work Plan was submitted by ZF in connection with EGLE's April 14, 2022 Letter in Response to Additional Information for Consideration Related to the Administrative Order for Response Activity, EGLE Docket No. AO-RRD-22-001 ("EGLE's April 14th Letter"). The purpose of this letter is to provide a response to each of the recommendations, comments, or questions included in EGLE's May 4th Letter.

1) EGLE Comment/Recommendation No. 1:

The plan calls for a down-well camera survey before rehab activities are preformed but does not require a similar survey at other points such as after cleaning with a nylon brush or after the application of Aqua-Clear® PFD. Comparison of the original survey to later surveys would be useful to inform next steps as well as revealing improvements in condition of the well or conditions which were not previously observable and could be a concern.

ZF Response:

ZF/Arcadis plans to have a down-well camera onsite during the Monitoring Well OW-16D2 rehabilitation activities and intends to conduct periodic surveys of the well during and after well rehabilitation. ZF/Arcadis will also document the conditions of the well before and after significant steps in the rehabilitation process. ZF/Arcadis will perform a down-well camera survey after the well has been cleaned and, if applicable, after the injection of the Aqua-Clear® PFD. As noted in the work plan, a video recording of each of the down-well camera surveys will be created.

2) EGLE Comment/Recommendation No. 2:

Can any additional information be provided regarding what conditions from the well camera survey and chemical/biological results will trigger the use of Aqua-Clear® PFD?

ZF Response:

As indicated in the Work Plan, the chemical/biological sampling results will be used to assess biological and chemical factors (biofouling, scaling, etc.) for a complete well profile and the down-well camera survey will assess potential damage to the casing or the screen and will help determine if there is scaling, bioaccumulation on the well screen. If the results of the chemical/biological analysis and camera survey indicated that the poor hydraulic connection of OW-16D2 to the aquifer is likely related to mineral scaling/biofouling or deterioration of the well casing and/or screen, the use of Aqua-Clear®PFD would not be recommended and only mechanical redevelopment techniques including a combination of surging, swabbing, brushing and sediment removal via bailing, air lifting, and/or pumping would be utilized to address the condition of the well. However, the use of Aqua-Clear®PFD would be recommended if the poor hydraulic connection of OW-16D2 to the aquifer appears to be related to sediment and clay plugging the well screen/formation. The microscopic evaluation, which is part of the chemical/biological analysis, can help identify the types of sediment (clay/silt/sand) present in a sample and therefore, verify if the use of Aqua-Clear®PFD is appropriate and further guide recommendations on concentration and number of applications.

3) EGLE Comment/Recommendation No. 3:

Regarding the process for Aqua-Clear PFD:

A. The work plan states that following introduction of the solution the well will sit for 4 hours. However, the manufacturer recommendation is that the well should be agitated every 2 hours. Why is there a deviation from the manufacturer's recommendations?
B. Will the water level in the well be monitored during this work?
C. If there is insufficient recharge of the well, what measures will be taken to remove and rinse the solution out of the well/gravel pack/formation?
D. Has the manufacturer been contacted regarding potential reactions with vinyl chloride, cis-1,2-DCE, or other chlorinated and PFAS compounds?

ZF Response:

A. During the initial redevelopment of OW-16D2 that was conducted on April 1, 2022, most of the water was removed from the well during the process and recovery of groundwater into the well was very slow. Because this initial surging did not significantly improve the hydraulic connection of the well to the aquifer, Arcadis's senior hydrogeologist recommended that the Aqua-Clear®PFD sit for approximately 4 hours to provide time for the dispersant to react with the sediment before conducting surging. The manufacturer's recommendations also specify a longer treatment time (up to 24 hours) for mud rotary well installation to disperse drilling mud introduced during the drilling process. OW-16D2 was installed using hollow-stem auger drilling methods without the use of drilling mud. However, the Village of Milford has requested that ZF/Arcadis complete the work on OW-16D2 in less than 8 hours, between 10:00pm and 6:00 am. Therefore, given the slow recovery of OW-16D2 at the time of the initial well rehabilitation work and the time limits on conducting the work, ZF/Arcadis believes that 4 *hours is the minimum amount of time necessary to allow the Aqua-Clear®PFD to react with any sediment that is present and then begin surging. However, if EGLE would prefer that the well be agitated every 2 hours per the manufacturer's recommendation, ZF/Arcadis will implement that procedure.*

B. *ZF/Arcadis plans to monitor the water level in the well during the well rehabilitation process. The water level will also be measured before starting the work to rehabilitate OW-16D2 and after the rehabilitation work is completed.*

C. *According to the manufacturer's specifications and instructions, a well that has been treated with Aqua-Clear®PFD is considered purged of the additive when the water is clear and there is no turbidity. ZF/Arcadis proposes to surge the well and extract the water, while measuring turbidity and field parameters using a multiparameter instrument and a stand-alone turbidity meter. If the recharge is insufficient, redevelopment will be completed in surge and re-charge cycles until the turbidity clears up to pre-additive measurements.*

D. *Arcadis contacted the manufacturer regarding potential reactions of Aqua-Clear®PFD with chlorinated volatile organic compounds (VOCs) and per- and polyfluoroalkyl substances (PFAS). The manufacturer indicated that they do not expect any reactions with chlorinated VOCs or PFAS and also stated that Aqua-Clear®PFD is a dispersant and only reacts with mud, sediment, and clay.*

4) EGLE Comment/Recommendation No. 4:

The zone of 'highest contamination" was not defined in EGLE's previous communication with ZF. The zone of "highest contamination" is defined by EGLE as the zone of the highest detected vinyl chloride, or if no vinyl chloride is detected, as the zone with the highest total VOCs. In a scenario where the highest vinyl chloride detected is in a different zone than highest total VOCs, ZF should meet with EGLE to discuss the placement of the well screen(s).

ZF Response:

Regarding the vertical aquifer profiling (VAP) work, ZF acknowledges and accepts EGLE's definition of "zone of highest contamination" to be the zone of the highest detected vinyl chloride, or if no vinyl chloride is detected, as the zone with the highest total VOCs. If the highest concentration of vinyl chloride detected is in a different zone than the highest total VOCs, ZF will contact EGLE to discuss the placement of well screen(s).

5) EGLE Comment/Recommendation No. 5:

The stated maximum depth of VAP borings is 130-feet below grade or to the surface of the clay underlying the aquifer. The VAP borings should be advanced 5 feet into the clay that is encountered at the bottom of the aquifer.

***ZF Response**:*

ZF acknowledges and accepts EGLE's request and will attempt to advance the VAP borings to 5 feet onto the clay that is encountered at the bottom of the aquifer.

6) EGLE Comment/Recommendation No. 6:

Slug tests, using a bailer methodology, are to be completed on OW-16D2. A pneumatic displacement method for this well would provide a greater displacement of water in OW-16D2 and therefore improved results. Use of a pneumatic slug test method is recommended.

ZF Response:

ZF acknowledges EGLE's recommendation of using a pneumatic displacement method for slug tests at OW-16D2. Although an initial slug test was completed using the bailer methodology, ZF will use a pneumatic slug test method for future testing at OW-16D2.

7) EGLE Comment/Recommendation No. 7:

What is the reasoning for not collecting VOC samples during the chemical and biological analysis of monitoring well OW-16D2?

ZF Response:

The sampling procedures for the chemical and biological analysis do not meet the requirements for low-flow sampling that are required for collecting samples for VOC analysis. In addition, VOC samples were collected from OW-16D2 in April, will be collected again in May, and monthly thereafter, using the low-flow sampling techniques.

8) EGLE Comment/Recommendation No. 8:

Testing of two water samples mentions microscopic evaluations. What specific microscopic evaluations are to be completed?

ZF Response:

The microscopic evaluations include examination of a portion of the water samples (centrifuged to concentrate sediment) using a compound microscope at different magnifications from 100x to 1,000x. As indicated above, the microscopic evaluation, which is part of the chemical/biological analysis can help identify the types of sediment (clay/silt/sand) present in the sample and approximate particle sizing. This evaluation is also useful for identification of the types of bacterial activity (e.g., iron-oxidizing and/or sulfur reducing), scale accumulation (e.g., presence of calcium carbonate), formation influence, and corrosion by-products. The microscopic evaluation is also used to corroborate findings of the chemical/biological laboratory analysis such as oxidation-reduction potential.

9) EGLE Comment/Recommendation No. 9:

Testing is also being completed for total and E. coli coliform bacterial analysis. The monitoring well is not being disinfected, is bacterial analyses appropriate for OW-16D2?

ZF Response:

Total and E. coli coliform bacterial analysis are included in the complete well profile under the chemical/biological analysis, hence it was listed in the Work Plan. However, since OW-16D2 is not a potable water source, this testing is not necessary and will not be included in the analysis.

10) EGLE Comment/Recommendation No. 10:

What is the reason the VAP drilling is not occurring until June?

ZF Response:

The schedule for the VAP drilling is based on the availability of drilling companies. ZF/Arcadis would like to conduct the VAP work as soon as possible and have asked the drilling company to notify us if there are any openings in their schedule prior to June. Recent discussions indicate that the VAP work could start in May. However, this will also be dependent on coordination with the Village of Milford, as certain areas of Milford's Central Park will need to be closed-off during the performance of the work.

The Work Plan outlines the activities that ZF will perform to further investigate and rehabilitate Monitoring Well OW-16D2, conduct VAP, and potentially replace Monitoring Well OW-16D2 with a new well. In consideration of EGLE's comments and recommendations for the Work Plan, ZF's responses contained in this letter, and further discussions with EGLE, the Work Plan will be updated accordingly and resubmitted to EGLE.

Thank you for your attention to these matters and please include this letter in the administrative record for the AO and the Site.

If you have any questions, please contact me at the phone number listed in the header on the first page of this letter, Mr. Robert Bleazard – ZF Sr. EHS Manager, Environmental Remediation at 480-722-4866, or Mr. John McInnis of Arcadis at 248-994-2285.

Sincerely,

Scott Detwiler

Sr. Regional Manager
ZF Environmental, Health and Safety

cc: Christian Wuerth, Village of Milford
John McInnis, Arcadis
Joost Vant Erve, DHHS
Paul Owens, EGLE
Cheryl Wilson, EGLE
Darren Bowling, EGLE
Lyndsey Hagy, EGLE
Katie Noetzel, EGLE
Tiffany Yusko-Kotimko, EGLE

ATTACHMENT 10

Laboratory Analytical Reports (Observation Well OW-16D2)

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Canton
180 S. Van Buren Avenue
Barberton, OH 44203
Tel: (330)497-9396

Laboratory Job ID: 240-164584-1
Client Project/Site: Milford

For:
ZF Active Safety and Electronics LLC
Tech 2
12025 Tech Center Drive
Livonia, Michigan 48150

Attn: Scott Detwiler

Authorized for release by:
4/13/2022 2:44:35 PM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@et.eurofinsus.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-164584-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Job ID: 240-164584-1

Laboratory: Eurofins Canton

Narrative

ob Narrative
240-164584-1

Comments

No additional comments.

Receipt

The samples were received on 4/6/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.9º C.

GC/MS VOA

Method 8260B: The continuing calibration verification (CCV) associated with batch 240-522044 recovered above the upper control limit for Acetone. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The associated samples are impacted: OW-16D2_040422 (240-164584-1), EQUIPMENT BLANK_040422 (240-164584-2), FIELD BLANK_040422 (240-164584-3), TRIP BLANK (240-164584-4), (CCV 240-522044/4), (CCVIS 240-522044/3), (LCS 240-522044/5), (LCS 240-522044/6), (MB 240-522044/9), (240-164634-B-3), (240-164634-B-3 MS) and (240-164634-B-3 MSD).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No additional analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-164584-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Sample Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-164584-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-164584-1	OW-16D2_040422	Water	04/04/22 11:55	04/06/22 08:00
240-164584-2	EQUIPMENT BLANK_040422	Water	04/04/22 12:10	04/06/22 08:00
240-164584-3	FIELD BLANK_040422	Water	04/04/22 11:45	04/06/22 08:00
240-164584-4	TRIP BLANK	Water	04/04/22 00:00	04/06/22 08:00

Detection Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-164584-1

Client Sample ID: OW-16D2_040422 Lab Sample ID: 240-164584-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	3.8		1.0		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	21		1.0		ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	1.7		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: EQUIPMENT BLANK_040422 Lab Sample ID: 240-164584-2

No Detections.

Client Sample ID: FIELD BLANK_040422 Lab Sample ID: 240-164584-3

No Detections.

Client Sample ID: TRIP BLANK Lab Sample ID: 240-164584-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-164584-1

Client Sample ID: OW-16D2_040422

Date Collected: 04/04/22 11:55
Date Received: 04/06/22 08:00

Lab Sample ID: 240-164584-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/07/22 17:02	1
Benzene	1.0	U	1.0		ug/L			04/07/22 17:02	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
Bromoform	1.0	U	1.0		ug/L			04/07/22 17:02	1
Bromomethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
2-Butanone (MEK)	10	U	10		ug/L			04/07/22 17:02	1
Carbon disulfide	1.0	U	1.0		ug/L			04/07/22 17:02	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/07/22 17:02	1
Chlorobenzene	1.0	U	1.0		ug/L			04/07/22 17:02	1
Chloroethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
Chloroform	1.0	U	1.0		ug/L			04/07/22 17:02	1
Chloromethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,1-Dichloroethane	**3.8**		1.0		ug/L			04/07/22 17:02	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/07/22 17:02	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 17:02	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 17:02	1
Ethylbenzene	1.0	U	1.0		ug/L			04/07/22 17:02	1
2-Hexanone	10	U	10		ug/L			04/07/22 17:02	1
Methylene Chloride	5.0	U	5.0		ug/L			04/07/22 17:02	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/07/22 17:02	1
Styrene	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/07/22 17:02	1
Toluene	1.0	U	1.0		ug/L			04/07/22 17:02	1
Trichloroethene	1.0	U	1.0		ug/L			04/07/22 17:02	1
Vinyl chloride	1.0	U	1.0		ug/L			04/07/22 17:02	1
Xylenes, Total	2.0	U	2.0		ug/L			04/07/22 17:02	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/07/22 17:02	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
cis-1,2-Dichloroethene	**21**		1.0		ug/L			04/07/22 17:02	1
trans-1,2-Dichloroethene	**1.7**		1.0		ug/L			04/07/22 17:02	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/07/22 17:02	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 17:02	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 17:02	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/07/22 17:02	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/07/22 17:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*62 - 137*		*04/07/22 17:02*	*1*
4-Bromofluorobenzene (Surr)	*85*		*56 - 136*		*04/07/22 17:02*	*1*
Toluene-d8 (Surr)	*98*		*78 - 122*		*04/07/22 17:02*	*1*

Client Sample Results

Client Sample ID: OW-16D2_040422
Lab Sample ID: 240-164584-1
Date Collected: 04/04/22 11:55
Matrix: Water
Date Received: 04/06/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*93*		*73 - 120*		*04/07/22 17:02*	*1*

Client Sample Results

Client Sample ID: EQUIPMENT BLANK_040422

Lab Sample ID: 240-164584-2

Date Collected: 04/04/22 12:10
Matrix: Water
Date Received: 04/06/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/07/22 15:21	1
Benzene	1.0	U	1.0		ug/L			04/07/22 15:21	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
Bromoform	1.0	U	1.0		ug/L			04/07/22 15:21	1
Bromomethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
2-Butanone (MEK)	10	U	10		ug/L			04/07/22 15:21	1
Carbon disulfide	1.0	U	1.0		ug/L			04/07/22 15:21	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/07/22 15:21	1
Chlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:21	1
Chloroethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
Chloroform	1.0	U	1.0		ug/L			04/07/22 15:21	1
Chloromethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/07/22 15:21	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 15:21	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 15:21	1
Ethylbenzene	1.0	U	1.0		ug/L			04/07/22 15:21	1
2-Hexanone	10	U	10		ug/L			04/07/22 15:21	1
Methylene Chloride	5.0	U	5.0		ug/L			04/07/22 15:21	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/07/22 15:21	1
Styrene	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/07/22 15:21	1
Toluene	1.0	U	1.0		ug/L			04/07/22 15:21	1
Trichloroethene	1.0	U	1.0		ug/L			04/07/22 15:21	1
Vinyl chloride	1.0	U	1.0		ug/L			04/07/22 15:21	1
Xylenes, Total	2.0	U	2.0		ug/L			04/07/22 15:21	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/07/22 15:21	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 15:21	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 15:21	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/07/22 15:21	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:21	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:21	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/07/22 15:21	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/07/22 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*62 - 137*		*04/07/22 15:21*	*1*
4-Bromofluorobenzene (Surr)	*87*		*56 - 136*		*04/07/22 15:21*	*1*
Toluene-d8 (Surr)	*98*		*78 - 122*		*04/07/22 15:21*	*1*

Client Sample ID: EQUIPMENT BLANK_040422
Lab Sample ID: 240-164584-2
Date Collected: 04/04/22 12:10
Matrix: Water
Date Received: 04/06/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*90*		*73 - 120*		*04/07/22 15:21*	*1*

Client Sample Results

Client Sample ID: FIELD BLANK_040422

Date Collected: 04/04/22 11:45
Date Received: 04/06/22 08:00

Lab Sample ID: 240-164584-3

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/07/22 15:46	1
Benzene	1.0	U	1.0		ug/L			04/07/22 15:46	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
Bromoform	1.0	U	1.0		ug/L			04/07/22 15:46	1
Bromomethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
2-Butanone (MEK)	10	U	10		ug/L			04/07/22 15:46	1
Carbon disulfide	1.0	U	1.0		ug/L			04/07/22 15:46	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/07/22 15:46	1
Chlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:46	1
Chloroethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
Chloroform	1.0	U	1.0		ug/L			04/07/22 15:46	1
Chloromethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/07/22 15:46	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 15:46	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 15:46	1
Ethylbenzene	1.0	U	1.0		ug/L			04/07/22 15:46	1
2-Hexanone	10	U	10		ug/L			04/07/22 15:46	1
Methylene Chloride	5.0	U	5.0		ug/L			04/07/22 15:46	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/07/22 15:46	1
Styrene	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/07/22 15:46	1
Toluene	1.0	U	1.0		ug/L			04/07/22 15:46	1
Trichloroethene	1.0	U	1.0		ug/L			04/07/22 15:46	1
Vinyl chloride	1.0	U	1.0		ug/L			04/07/22 15:46	1
Xylenes, Total	2.0	U	2.0		ug/L			04/07/22 15:46	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/07/22 15:46	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 15:46	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 15:46	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/07/22 15:46	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:46	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 15:46	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/07/22 15:46	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/07/22 15:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*62 - 137*		*04/07/22 15:46*	*1*
4-Bromofluorobenzene (Surr)	*85*		*56 - 136*		*04/07/22 15:46*	*1*
Toluene-d8 (Surr)	*97*		*78 - 122*		*04/07/22 15:46*	*1*

Client Sample ID: FIELD BLANK_040422
Lab Sample ID: 240-164584-3
Date Collected: 04/04/22 11:45
Matrix: Water
Date Received: 04/06/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*90*		*73 - 120*		*04/07/22 15:46*	*1*

Client Sample Results

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-164584-4

Date Collected: 04/04/22 00:00
Date Received: 04/06/22 08:00
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/07/22 16:12	1
Benzene	1.0	U	1.0		ug/L			04/07/22 16:12	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
Bromoform	1.0	U	1.0		ug/L			04/07/22 16:12	1
Bromomethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
2-Butanone (MEK)	10	U	10		ug/L			04/07/22 16:12	1
Carbon disulfide	1.0	U	1.0		ug/L			04/07/22 16:12	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/07/22 16:12	1
Chlorobenzene	1.0	U	1.0		ug/L			04/07/22 16:12	1
Chloroethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
Chloroform	1.0	U	1.0		ug/L			04/07/22 16:12	1
Chloromethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/07/22 16:12	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 16:12	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 16:12	1
Ethylbenzene	1.0	U	1.0		ug/L			04/07/22 16:12	1
2-Hexanone	10	U	10		ug/L			04/07/22 16:12	1
Methylene Chloride	5.0	U	5.0		ug/L			04/07/22 16:12	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/07/22 16:12	1
Styrene	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/07/22 16:12	1
Toluene	1.0	U	1.0		ug/L			04/07/22 16:12	1
Trichloroethene	1.0	U	1.0		ug/L			04/07/22 16:12	1
Vinyl chloride	1.0	U	1.0		ug/L			04/07/22 16:12	1
Xylenes, Total	2.0	U	2.0		ug/L			04/07/22 16:12	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/07/22 16:12	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 16:12	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 16:12	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/07/22 16:12	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 16:12	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 16:12	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/07/22 16:12	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/07/22 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*62 - 137*		*04/07/22 16:12*	*1*
4-Bromofluorobenzene (Surr)	*86*		*56 - 136*		*04/07/22 16:12*	*1*
Toluene-d8 (Surr)	*97*		*78 - 122*		*04/07/22 16:12*	*1*

Client Sample ID: TRIP BLANK
Lab Sample ID: 240-164584-4
Date Collected: 04/04/22 00:00
Matrix: Water
Date Received: 04/06/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	92		73 - 120		04/07/22 16:12	1

Surrogate Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-164584-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	**Client Sample ID**	(62-137)	(56-136)	(78-122)	(73-120)
240-164584-1	OW-16D2_040422	105	85	98	93
240-164584-2	EQUIPMENT BLANK_040422	104	87	98	90
240-164584-3	FIELD BLANK_040422	105	85	97	90
240-164584-4	TRIP BLANK	104	86	97	92
LCS 240-522044/5	Lab Control Sample	97	98	97	89
MB 240-522044/9	Method Blank	102	89	97	89

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-522044/9
Matrix: Water
Analysis Batch: 522044

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/07/22 14:06	1
Benzene	1.0	U	1.0		ug/L			04/07/22 14:06	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
Bromoform	1.0	U	1.0		ug/L			04/07/22 14:06	1
Bromomethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
2-Butanone (MEK)	10	U	10		ug/L			04/07/22 14:06	1
Carbon disulfide	1.0	U	1.0		ug/L			04/07/22 14:06	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/07/22 14:06	1
Chlorobenzene	1.0	U	1.0		ug/L			04/07/22 14:06	1
Chloroethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
Chloroform	1.0	U	1.0		ug/L			04/07/22 14:06	1
Chloromethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/07/22 14:06	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 14:06	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/07/22 14:06	1
Ethylbenzene	1.0	U	1.0		ug/L			04/07/22 14:06	1
2-Hexanone	10	U	10		ug/L			04/07/22 14:06	1
Methylene Chloride	5.0	U	5.0		ug/L			04/07/22 14:06	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/07/22 14:06	1
Styrene	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/07/22 14:06	1
Toluene	1.0	U	1.0		ug/L			04/07/22 14:06	1
Trichloroethene	1.0	U	1.0		ug/L			04/07/22 14:06	1
Vinyl chloride	1.0	U	1.0		ug/L			04/07/22 14:06	1
Xylenes, Total	2.0	U	2.0		ug/L			04/07/22 14:06	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/07/22 14:06	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 14:06	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/07/22 14:06	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/07/22 14:06	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 14:06	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/07/22 14:06	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/07/22 14:06	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/07/22 14:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*62 - 137*		*04/07/22 14:06*	*1*

QC Sample Results

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-164584-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-522044/9
Matrix: Water
Analysis Batch: 522044

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*56 - 136*		*04/07/22 14:06*	*1*
Toluene-d8 (Surr)	*97*		*78 - 122*		*04/07/22 14:06*	*1*
Dibromofluoromethane (Surr)	*89*		*73 - 120*		*04/07/22 14:06*	*1*

Lab Sample ID: LCS 240-522044/5
Matrix: Water
Analysis Batch: 522044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetone	50.0	73.4		ug/L		147	50 - 149
Benzene	25.0	25.7		ug/L		103	77 - 123
Bromodichloromethane	25.0	27.4		ug/L		110	69 - 126
Bromoform	25.0	23.4		ug/L		94	57 - 129
Bromomethane	25.0	25.9		ug/L		103	36 - 142
2-Butanone (MEK)	50.0	55.9		ug/L		112	54 - 156
Carbon disulfide	25.0	22.8		ug/L		91	43 - 140
Carbon tetrachloride	25.0	27.3		ug/L		109	55 - 137
Chlorobenzene	25.0	26.1		ug/L		104	80 - 121
Chloroethane	25.0	26.1		ug/L		104	38 - 152
Chloroform	25.0	25.5		ug/L		102	74 - 122
Chloromethane	25.0	27.6		ug/L		110	47 - 143
1,1-Dichloroethane	25.0	25.1		ug/L		101	72 - 127
1,2-Dichloroethane	25.0	26.9		ug/L		108	66 - 128
1,1-Dichloroethene	25.0	23.4		ug/L		94	63 - 134
1,2-Dichloropropane	25.0	27.7		ug/L		111	75 - 133
cis-1,3-Dichloropropene	25.0	27.9		ug/L		111	64 - 130
trans-1,3-Dichloropropene	25.0	29.6		ug/L		118	57 - 129
Ethylbenzene	25.0	27.8		ug/L		111	80 - 121
2-Hexanone	50.0	66.7		ug/L		133	43 - 167
Methylene Chloride	25.0	26.6		ug/L		106	71 - 125
4-Methyl-2-pentanone (MIBK)	50.0	63.5		ug/L		127	46 - 158
Styrene	25.0	28.7		ug/L		115	80 - 135
1,1,2,2-Tetrachloroethane	25.0	30.9		ug/L		123	58 - 157
Tetrachloroethene	25.0	24.0		ug/L		96	76 - 123
Toluene	25.0	26.6		ug/L		106	80 - 123
Trichloroethene	25.0	23.2		ug/L		93	70 - 122
Vinyl chloride	25.0	27.1		ug/L		109	60 - 144
Xylenes, Total	50.0	55.9		ug/L		112	80 - 121
1,1,1-Trichloroethane	25.0	25.8		ug/L		103	64 - 131
1,1,2-Trichloroethane	25.0	27.2		ug/L		109	70 - 138
1,2-Dibromo-3-Chloropropane	25.0	24.7		ug/L		99	53 - 135
1,2-Dibromoethane	25.0	27.1		ug/L		108	71 - 134
Dichlorodifluoromethane	25.0	20.2		ug/L		81	34 - 153
cis-1,2-Dichloroethene	25.0	24.6		ug/L		98	77 - 123
trans-1,2-Dichloroethene	25.0	24.4		ug/L		98	75 - 124
Isopropylbenzene	25.0	28.8		ug/L		115	74 - 128
Methyl tert-butyl ether	25.0	26.4		ug/L		106	65 - 126
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	20.8		ug/L		83	51 - 146

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-522044/5
Matrix: Water
Analysis Batch: 522044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4-Trichlorobenzene	25.0	30.1		ug/L		120	44 - 147
1,2-Dichlorobenzene	25.0	27.6		ug/L		110	78 - 120
1,3-Dichlorobenzene	25.0	27.1		ug/L		108	80 - 120
1,4-Dichlorobenzene	25.0	26.8		ug/L		107	80 - 120
Trichlorofluoromethane	25.0	28.0		ug/L		112	30 - 170
Dibromochloromethane	25.0	27.5		ug/L		110	70 - 124
m-Xylene & p-Xylene	25.0	27.8		ug/L		111	80 - 120
o-Xylene	25.0	28.1		ug/L		112	80 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*62 - 137*
4-Bromofluorobenzene (Surr)	*98*		*56 - 136*
Toluene-d8 (Surr)	*97*		*78 - 122*
Dibromofluoromethane (Surr)	*89*		*73 - 120*

QC Association Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-164584-1

GC/MS VOA

Analysis Batch: 522044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-164584-1	OW-16D2_040422	Total/NA	Water	8260B	
240-164584-2	EQUIPMENT BLANK_040422	Total/NA	Water	8260B	
240-164584-3	FIELD BLANK_040422	Total/NA	Water	8260B	
240-164584-4	TRIP BLANK	Total/NA	Water	8260B	
MB 240-522044/9	Method Blank	Total/NA	Water	8260B	
LCS 240-522044/5	Lab Control Sample	Total/NA	Water	8260B	

Client Sample ID: OW-16D2_040422

Lab Sample ID: 240-164584-1

Date Collected: 04/04/22 11:55

Matrix: Water

Date Received: 04/06/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	522044	04/07/22 17:02	SAM	TAL CAN

Client Sample ID: EQUIPMENT BLANK_040422

Lab Sample ID: 240-164584-2

Date Collected: 04/04/22 12:10

Matrix: Water

Date Received: 04/06/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	522044	04/07/22 15:21	SAM	TAL CAN

Client Sample ID: FIELD BLANK_040422

Lab Sample ID: 240-164584-3

Date Collected: 04/04/22 11:45

Matrix: Water

Date Received: 04/06/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	522044	04/07/22 15:46	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-164584-4

Date Collected: 04/04/22 00:00

Matrix: Water

Date Received: 04/06/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	522044	04/07/22 16:12	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: ZF Active Safety and Electronics LLC
Job ID: 240-164584-1
Project/Site: Milford

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22 *
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22 *
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	11-06-22
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-22-16	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Bob Bleazard	Marina Samp and Sharon Clouse
11202 East Germann Road	28550 Cabot Drive, Suite 500
Mesa, AZ 85212	Novi, MI 48377
bob.bleazard@lsw.com	Marina.Samp@arcadis.com
	sclouse@arcadis-us.com

Analysis Level	Level 1 (Routine Report)	Sampler	Stacey Harmula
TAT	10 Business Days (Standard - Level 1)	Deliverable	EDD/PDF (e-mail)

240-164584 Chain of Custody

Sample Identification and Information

	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	No. of Cont.	Grab or Composite	Field Filtered	VOC 8260
1	OW-16D2	--	--	OW-16D2_040422	4·4·22	1155	GW	WATER	REG	3	G		X
2		--	--										
3	EQUIPMENT BLANK			EQUIPMENT BLANK_040422	↓	1210	QC	WATER	REG	1	G	N	X
4	FIELD BLANK	--	--	FIELD BLANK_040422	↓	1145	QC	WATER	REG	1	G	N	X
5	TRIP BLANK	--	--	TRIP BLANK_	--	--	QC	WATER	REG	1	G	N	X
6		--	--										
7		--	--										
8		--	--										
9		--	--										
10		--	--										
11													

Special Instructions

Relinquished by: Stacey Harmula	Company: Arcadis Date/Time: 4·4·22 2:15	Received by:	Company: EETA Date/Time: 4/4/22 1417	Condition: Cooler Temp:
Relinquished by:	Company: EETA Date/Time: 4/4/22 1420	Received by: Coldstorage	Company: EETA Date/Time: 4-4-22 1700	Condition: Cooler Temp:
Relinquished by: Cold storage to T-Harlin	Company: EETA Date/Time: 4-5-22 1054	Received by: Matt	Company: ETNC Date/Time: 4-6-22 300	Condition: Cooler Temp:
Relinquished by:	Company: Date/Time:	Received by:	Company: Date/Time:	Condition: Cooler Temp:

Preservatives Code: 0 = None; 1 = HCL; 2 = HNO3; 3 = H2SO4; 4 = NaOH; 5 = Zn. Acetate; 6 = MeOH; 7 = NaHSO4; 8 = Other (specify):

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 164584

Client TRW
Site Name
Cooler unpacked by: Matt
Cooler Received on 4-6-22
Opened on 4-6-22
FedEx: 1st Grd Exp UPS FAS [✓ Clipper] Client Drop Off TestAmerica Courier Other
Receipt After-hours: Drop-off Date/Time
Storage Location
TestAmerica Cooler # TA Foam Box Client Cooler Box Other
Packing material used: [✓ Bubble Wrap] Foam Plastic Bag None Other
COOLANT: [✓ Wet Ice] Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
IR GUN# IR-14 (CF -0.2 °C) Observed Cooler Temp. 1.1 °C Corrected Cooler Temp. 0.9 °C
IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp. ______ °C Corrected Cooler Temp. ______ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 [✓ Yes] No
-Were the seals on the outside of the cooler(s) signed & dated? [✓ Yes] No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes [✓ No]
-Were tamper/custody seals intact and uncompromised? [✓ Yes] No NA
3. Shippers' packing slip attached to the cooler(s)? Yes [✓ No]
4. Did custody papers accompany the sample(s)? [✓ Yes] No
5. Were the custody papers relinquished & signed in the appropriate place? [✓ Yes] No
6. Was/were the person(s) who collected the samples clearly identified on the COC? [✓ Yes] No
7. Did all bottles arrive in good condition (Unbroken)? [✓ Yes] No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? [✓ Yes] No
9. For each sample, does the COC specify preservatives ([✓ Y]/N), # of containers ([✓ Y]/N), and sample type of grab/comp ([✓ Y]/N)?
10. Were correct bottle(s) used for the test(s) indicated? [✓ Yes] No
11. Sufficient quantity received to perform indicated analyses? [✓ Yes] No
12. Are these work share samples and all listed on the COC? Yes [✓ No]
If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No [✓ NA] pH Strip Lot# HC157842
14. Were VOAs on the COC? [✓ Yes] No
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this. Yes [✓ No] NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 21042016 [✓ Yes] No
17. Was a LL Hg or Me Hg trip blank present? ______ Yes [✓ No]

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM ______ Date ______ by ______ via Verbal Voice Mail Other

Concerning ______

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION
Sample(s) ______ were received after the recommended holding time had expired.
Sample(s) ______ were received in a broken container.
Sample(s) ______ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) ______ were further preserved in the laboratory.
Time preserved: ______ Preservative(s) added/Lot number(s): ______

VOA Sample Preservation - Date/Time VOAs Frozen: ______

WI-NC-099

1
2
3
4
5
6
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13
14

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Canton
180 S. Van Buren Avenue
Barberton, OH 44203
Tel: (330)497-9396

Laboratory Job ID: 240-164831-1
Client Project/Site: TRW Milford

For:
ZF Active Safety and Electronics LLC
Tech 2
12025 Tech Center Drive
Livonia, Michigan 48150

Attn: Scott Detwiler

Mike DelMonico

Authorized for release by:
4/14/2022 2:32:39 PM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: ZF Active Safety and Electronics LLC
Job ID: 240-164831-1
Project/Site: TRW Milford

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Job ID: 240-164831-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-164831-1

Comments
No additional comments.

Receipt
The samples were received on 4/9/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.1º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-164831-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Sample Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-164831-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-164831-1	OW-16D2_040822	Water	04/08/22 11:35	04/09/22 08:00
240-164831-2	EQUIPMENT BLANK_040822	Water	04/08/22 11:50	04/09/22 08:00
240-164831-3	FIELD BLANK_040822	Water	04/08/22 10:35	04/09/22 08:00
240-164831-4	TRIP BLANK	Water	04/08/22 10:35	04/09/22 08:00

Detection Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-164831-1

Client Sample ID: OW-16D2_040822 Lab Sample ID: 240-164831-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	3.0		1.0		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	18		1.0		ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	1.5		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: EQUIPMENT BLANK_040822 Lab Sample ID: 240-164831-2

No Detections.

Client Sample ID: FIELD BLANK_040822 Lab Sample ID: 240-164831-3

No Detections.

Client Sample ID: TRIP BLANK Lab Sample ID: 240-164831-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client Sample ID: OW-16D2_040822

Lab Sample ID: 240-164831-1

Date Collected: 04/08/22 11:35
Matrix: Water
Date Received: 04/09/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/13/22 15:59	1
Benzene	1.0	U	1.0		ug/L			04/13/22 15:59	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
Bromoform	1.0	U	1.0		ug/L			04/13/22 15:59	1
Bromomethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
2-Butanone (MEK)	10	U	10		ug/L			04/13/22 15:59	1
Carbon disulfide	1.0	U	1.0		ug/L			04/13/22 15:59	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/13/22 15:59	1
Chlorobenzene	1.0	U	1.0		ug/L			04/13/22 15:59	1
Chloroethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
Chloroform	1.0	U	1.0		ug/L			04/13/22 15:59	1
Chloromethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,1-Dichloroethane	**3.0**		1.0		ug/L			04/13/22 15:59	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/13/22 15:59	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 15:59	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 15:59	1
Ethylbenzene	1.0	U	1.0		ug/L			04/13/22 15:59	1
2-Hexanone	10	U	10		ug/L			04/13/22 15:59	1
Methylene Chloride	5.0	U	5.0		ug/L			04/13/22 15:59	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/13/22 15:59	1
Styrene	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/13/22 15:59	1
Toluene	1.0	U	1.0		ug/L			04/13/22 15:59	1
Trichloroethene	1.0	U	1.0		ug/L			04/13/22 15:59	1
Vinyl chloride	1.0	U	1.0		ug/L			04/13/22 15:59	1
Xylenes, Total	2.0	U	2.0		ug/L			04/13/22 15:59	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/13/22 15:59	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
cis-1,2-Dichloroethene	**18**		1.0		ug/L			04/13/22 15:59	1
trans-1,2-Dichloroethene	**1.5**		1.0		ug/L			04/13/22 15:59	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/13/22 15:59	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 15:59	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 15:59	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/13/22 15:59	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/13/22 15:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*62 - 137*		*04/13/22 15:59*	*1*
4-Bromofluorobenzene (Surr)	*79*		*56 - 136*		*04/13/22 15:59*	*1*
Toluene-d8 (Surr)	*85*		*78 - 122*		*04/13/22 15:59*	*1*

Client Sample ID: OW-16D2_040822 **Lab Sample ID: 240-164831-1**
Date Collected: 04/08/22 11:35 **Matrix: Water**
Date Received: 04/09/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*88*		*73 - 120*		*04/13/22 15:59*	*1*

Client Sample Results

Client Sample ID: EQUIPMENT BLANK_040822

Lab Sample ID: 240-164831-2

Date Collected: 04/08/22 11:50

Matrix: Water

Date Received: 04/09/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/13/22 16:24	1
Benzene	1.0	U	1.0		ug/L			04/13/22 16:24	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
Bromoform	1.0	U	1.0		ug/L			04/13/22 16:24	1
Bromomethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
2-Butanone (MEK)	10	U	10		ug/L			04/13/22 16:24	1
Carbon disulfide	1.0	U	1.0		ug/L			04/13/22 16:24	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/13/22 16:24	1
Chlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:24	1
Chloroethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
Chloroform	1.0	U	1.0		ug/L			04/13/22 16:24	1
Chloromethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/13/22 16:24	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 16:24	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 16:24	1
Ethylbenzene	1.0	U	1.0		ug/L			04/13/22 16:24	1
2-Hexanone	10	U	10		ug/L			04/13/22 16:24	1
Methylene Chloride	5.0	U	5.0		ug/L			04/13/22 16:24	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/13/22 16:24	1
Styrene	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/13/22 16:24	1
Toluene	1.0	U	1.0		ug/L			04/13/22 16:24	1
Trichloroethene	1.0	U	1.0		ug/L			04/13/22 16:24	1
Vinyl chloride	1.0	U	1.0		ug/L			04/13/22 16:24	1
Xylenes, Total	2.0	U	2.0		ug/L			04/13/22 16:24	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/13/22 16:24	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 16:24	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 16:24	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/13/22 16:24	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:24	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:24	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/13/22 16:24	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/13/22 16:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*62 - 137*		*04/13/22 16:24*	*1*
4-Bromofluorobenzene (Surr)	*79*		*56 - 136*		*04/13/22 16:24*	*1*
Toluene-d8 (Surr)	*81*		*78 - 122*		*04/13/22 16:24*	*1*

Client Sample ID: EQUIPMENT BLANK_040822   Lab Sample ID: 240-164831-2

Date Collected: 04/08/22 11:50   **Matrix: Water**

Date Received: 04/09/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	82		73 - 120		04/13/22 16:24	1

Client Sample Results

Client Sample ID: FIELD BLANK_040822

Lab Sample ID: 240-164831-3

Date Collected: 04/08/22 10:35

Matrix: Water

Date Received: 04/09/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/13/22 16:49	1
Benzene	1.0	U	1.0		ug/L			04/13/22 16:49	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
Bromoform	1.0	U	1.0		ug/L			04/13/22 16:49	1
Bromomethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
2-Butanone (MEK)	10	U	10		ug/L			04/13/22 16:49	1
Carbon disulfide	1.0	U	1.0		ug/L			04/13/22 16:49	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/13/22 16:49	1
Chlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:49	1
Chloroethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
Chloroform	1.0	U	1.0		ug/L			04/13/22 16:49	1
Chloromethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/13/22 16:49	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 16:49	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 16:49	1
Ethylbenzene	1.0	U	1.0		ug/L			04/13/22 16:49	1
2-Hexanone	10	U	10		ug/L			04/13/22 16:49	1
Methylene Chloride	5.0	U	5.0		ug/L			04/13/22 16:49	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/13/22 16:49	1
Styrene	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/13/22 16:49	1
Toluene	1.0	U	1.0		ug/L			04/13/22 16:49	1
Trichloroethene	1.0	U	1.0		ug/L			04/13/22 16:49	1
Vinyl chloride	1.0	U	1.0		ug/L			04/13/22 16:49	1
Xylenes, Total	2.0	U	2.0		ug/L			04/13/22 16:49	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/13/22 16:49	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 16:49	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 16:49	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/13/22 16:49	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:49	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 16:49	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/13/22 16:49	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/13/22 16:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*62 - 137*		*04/13/22 16:49*	*1*
4-Bromofluorobenzene (Surr)	*79*		*56 - 136*		*04/13/22 16:49*	*1*
Toluene-d8 (Surr)	*84*		*78 - 122*		*04/13/22 16:49*	*1*

Client Sample ID: FIELD BLANK_040822
Lab Sample ID: 240-164831-3
Date Collected: 04/08/22 10:35
Matrix: Water
Date Received: 04/09/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*81*		*73 - 120*		*04/13/22 16:49*	*1*

Client Sample Results

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-164831-4

Date Collected: 04/08/22 10:35

Matrix: Water

Date Received: 04/09/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/13/22 17:14	1
Benzene	1.0	U	1.0		ug/L			04/13/22 17:14	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
Bromoform	1.0	U	1.0		ug/L			04/13/22 17:14	1
Bromomethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
2-Butanone (MEK)	10	U	10		ug/L			04/13/22 17:14	1
Carbon disulfide	1.0	U	1.0		ug/L			04/13/22 17:14	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/13/22 17:14	1
Chlorobenzene	1.0	U	1.0		ug/L			04/13/22 17:14	1
Chloroethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
Chloroform	1.0	U	1.0		ug/L			04/13/22 17:14	1
Chloromethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/13/22 17:14	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 17:14	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 17:14	1
Ethylbenzene	1.0	U	1.0		ug/L			04/13/22 17:14	1
2-Hexanone	10	U	10		ug/L			04/13/22 17:14	1
Methylene Chloride	5.0	U	5.0		ug/L			04/13/22 17:14	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/13/22 17:14	1
Styrene	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/13/22 17:14	1
Toluene	1.0	U	1.0		ug/L			04/13/22 17:14	1
Trichloroethene	1.0	U	1.0		ug/L			04/13/22 17:14	1
Vinyl chloride	1.0	U	1.0		ug/L			04/13/22 17:14	1
Xylenes, Total	2.0	U	2.0		ug/L			04/13/22 17:14	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/13/22 17:14	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 17:14	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 17:14	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/13/22 17:14	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 17:14	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 17:14	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/13/22 17:14	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/13/22 17:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*62 - 137*		*04/13/22 17:14*	*1*
4-Bromofluorobenzene (Surr)	*79*		*56 - 136*		*04/13/22 17:14*	*1*
Toluene-d8 (Surr)	*82*		*78 - 122*		*04/13/22 17:14*	*1*

Client Sample ID: TRIP BLANK
Lab Sample ID: 240-164831-4

Date Collected: 04/08/22 10:35
Matrix: Water
Date Received: 04/09/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*81*		*73 - 120*		*04/13/22 17:14*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	**BFB**	**TOL**	**DBFM**
Lab Sample ID	**Client Sample ID**	**(62-137)**	**(56-136)**	**(78-122)**	**(73-120)**
240-164831-1	OW-16D2_040822	75	79	85	88
240-164831-2	EQUIPMENT BLANK_040822	79	79	81	82
240-164831-3	FIELD BLANK_040822	76	79	84	81
240-164831-4	TRIP BLANK	78	79	82	81
LCS 240-522562/5	Lab Control Sample	74	86	80	87
MB 240-522562/8	Method Blank	78	80	83	84

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-522562/8
Matrix: Water
Analysis Batch: 522562

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/13/22 11:57	1
Benzene	1.0	U	1.0		ug/L			04/13/22 11:57	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
Bromoform	1.0	U	1.0		ug/L			04/13/22 11:57	1
Bromomethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
2-Butanone (MEK)	10	U	10		ug/L			04/13/22 11:57	1
Carbon disulfide	1.0	U	1.0		ug/L			04/13/22 11:57	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/13/22 11:57	1
Chlorobenzene	1.0	U	1.0		ug/L			04/13/22 11:57	1
Chloroethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
Chloroform	1.0	U	1.0		ug/L			04/13/22 11:57	1
Chloromethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/13/22 11:57	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 11:57	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/13/22 11:57	1
Ethylbenzene	1.0	U	1.0		ug/L			04/13/22 11:57	1
2-Hexanone	10	U	10		ug/L			04/13/22 11:57	1
Methylene Chloride	5.0	U	5.0		ug/L			04/13/22 11:57	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/13/22 11:57	1
Styrene	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/13/22 11:57	1
Toluene	1.0	U	1.0		ug/L			04/13/22 11:57	1
Trichloroethene	1.0	U	1.0		ug/L			04/13/22 11:57	1
Vinyl chloride	1.0	U	1.0		ug/L			04/13/22 11:57	1
Xylenes, Total	2.0	U	2.0		ug/L			04/13/22 11:57	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/13/22 11:57	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 11:57	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/13/22 11:57	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/13/22 11:57	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 11:57	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/13/22 11:57	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/13/22 11:57	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/13/22 11:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*62 - 137*		*04/13/22 11:57*	*1*

QC Sample Results

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-164831-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-522562/8
Matrix: Water
Analysis Batch: 522562

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*56 - 136*		*04/13/22 11:57*	*1*
Toluene-d8 (Surr)	*83*		*78 - 122*		*04/13/22 11:57*	*1*
Dibromofluoromethane (Surr)	*84*		*73 - 120*		*04/13/22 11:57*	*1*

Lab Sample ID: LCS 240-522562/5
Matrix: Water
Analysis Batch: 522562

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	**Spike Added**	**LCS Result**	**LCS Qualifier**	**Unit**	**D**	**%Rec**	**%Rec Limits**
Acetone	40.0	28.8		ug/L		72	50 - 149
Benzene	20.0	19.0		ug/L		95	77 - 123
Bromodichloromethane	20.0	16.9		ug/L		84	69 - 126
Bromoform	20.0	14.3		ug/L		72	57 - 129
Bromomethane	20.0	18.0		ug/L		90	36 - 142
2-Butanone (MEK)	40.0	29.3		ug/L		73	54 - 156
Carbon disulfide	20.0	16.9		ug/L		84	43 - 140
Carbon tetrachloride	20.0	18.3		ug/L		91	55 - 137
Chlorobenzene	20.0	18.9		ug/L		95	80 - 121
Chloroethane	20.0	17.3		ug/L		87	38 - 152
Chloroform	20.0	18.4		ug/L		92	74 - 122
Chloromethane	20.0	17.8		ug/L		89	47 - 143
1,1-Dichloroethane	20.0	16.8		ug/L		84	72 - 127
1,2-Dichloroethane	20.0	16.7		ug/L		84	66 - 128
1,1-Dichloroethene	20.0	21.4		ug/L		107	63 - 134
1,2-Dichloropropane	20.0	17.6		ug/L		88	75 - 133
cis-1,3-Dichloropropene	20.0	16.9		ug/L		85	64 - 130
trans-1,3-Dichloropropene	20.0	14.7		ug/L		73	57 - 129
Ethylbenzene	20.0	18.4		ug/L		92	80 - 121
2-Hexanone	40.0	27.0		ug/L		67	43 - 167
Methylene Chloride	20.0	19.7		ug/L		98	71 - 125
4-Methyl-2-pentanone (MIBK)	40.0	28.9		ug/L		72	46 - 158
Styrene	20.0	17.9		ug/L		89	80 - 135
1,1,2,2-Tetrachloroethane	20.0	17.6		ug/L		88	58 - 157
Tetrachloroethene	20.0	19.2		ug/L		96	76 - 123
Toluene	20.0	17.6		ug/L		88	80 - 123
Trichloroethene	20.0	19.9		ug/L		100	70 - 122
Vinyl chloride	20.0	18.8		ug/L		94	60 - 144
Xylenes, Total	40.0	36.7		ug/L		92	80 - 121
1,1,1-Trichloroethane	20.0	17.9		ug/L		90	64 - 131
1,1,2-Trichloroethane	20.0	17.4		ug/L		87	70 - 138
1,2-Dibromo-3-Chloropropane	20.0	13.3		ug/L		67	53 - 135
1,2-Dibromoethane	20.0	17.6		ug/L		88	71 - 134
Dichlorodifluoromethane	20.0	22.4		ug/L		112	34 - 153
cis-1,2-Dichloroethene	20.0	19.6		ug/L		98	77 - 123
trans-1,2-Dichloroethene	20.0	19.1		ug/L		96	75 - 124
Isopropylbenzene	20.0	18.4		ug/L		92	74 - 128
Methyl tert-butyl ether	20.0	16.7		ug/L		84	65 - 126
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	21.5		ug/L		108	51 - 146

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-522562/5 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 522562

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4-Trichlorobenzene	20.0	17.2		ug/L		86	44 - 147
1,2-Dichlorobenzene	20.0	19.1		ug/L		96	78 - 120
1,3-Dichlorobenzene	20.0	18.2		ug/L		91	80 - 120
1,4-Dichlorobenzene	20.0	18.4		ug/L		92	80 - 120
Trichlorofluoromethane	20.0	20.1		ug/L		101	30 - 170
Dibromochloromethane	20.0	15.8		ug/L		79	70 - 124
m-Xylene & p-Xylene	20.0	18.3		ug/L		92	80 - 120
o-Xylene	20.0	18.4		ug/L		92	80 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*74*		*62 - 137*
4-Bromofluorobenzene (Surr)	*86*		*56 - 136*
Toluene-d8 (Surr)	*80*		*78 - 122*
Dibromofluoromethane (Surr)	*87*		*73 - 120*

QC Association Summary

GC/MS VOA

Analysis Batch: 522562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-164831-1	OW-16D2_040822	Total/NA	Water	8260B	
240-164831-2	EQUIPMENT BLANK_040822	Total/NA	Water	8260B	
240-164831-3	FIELD BLANK_040822	Total/NA	Water	8260B	
240-164831-4	TRIP BLANK	Total/NA	Water	8260B	
MB 240-522562/8	Method Blank	Total/NA	Water	8260B	
LCS 240-522562/5	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-164831-1

Client Sample ID: OW-16D2_040822

Lab Sample ID: 240-164831-1

Date Collected: 04/08/22 11:35
Date Received: 04/09/22 08:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	522562	04/13/22 15:59	LEE	TAL CAN

Client Sample ID: EQUIPMENT BLANK_040822

Lab Sample ID: 240-164831-2

Date Collected: 04/08/22 11:50
Date Received: 04/09/22 08:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	522562	04/13/22 16:24	LEE	TAL CAN

Client Sample ID: FIELD BLANK_040822

Lab Sample ID: 240-164831-3

Date Collected: 04/08/22 10:35
Date Received: 04/09/22 08:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	522562	04/13/22 16:49	LEE	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-164831-4

Date Collected: 04/08/22 10:35
Date Received: 04/09/22 08:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	522562	04/13/22 17:14	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-164831-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22 *
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22 *
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	11-06-22
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-22-16	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

240-164831 Chain of Custody

Bob Bleazard	Marina Samp and Sharon Clouse
11202 East Germann Road	28550 Cabot Drive, Suite 500
Mesa, AZ 85212	Novi, MI 48377
[illegible]	Marina.Samp@arcadis.com
	[illegible]

Analysis Level	**Level 1 (Routine Report)**	**Sampler**	Stacey Hannula
TAT	**10 Business Days (Standard - Level 1)**	**Deliverable**	EDD/PDF (e-mail)

Sample Identification and Information

	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	No. of Cont.	Grab or Composite	Field Filtered	VOC 8260
1	OW-16D2	--	--	OW-16D2_040822	4·8·22	1135	GW	WATER	REG	3	G		X
2		--	--										
3	EQUIPMENT BLANK			EQUIPMENT BLANK_040822	↓	1150	QC	WATER	REG	1	G	N	X
4	FIELD BLANK	--	--	FIELD BLANK_040822	↓	1035	QC	WATER	REG	1	G	N	X
5	TRIP BLANK	--	--	TRIP BLANK_	--	--	QC	WATER	REG	1	G	N	X
6		--	--										
7		--	--										
8		--	--										
9		--	--										
10		--	--										
11													

Special Instructions:

Relinquished by: Stacey Hannula	Company: Arcadis		Received by:	Company: EETA		Condition	
	Date/Time: 4·8·22 1245			Date/Time: 4/8/22 1244		Cooler Temp	
Relinquished by:	Company: ~~EETA~~		Received by: Matt	Company: EETNC		Condition	
	Date/Time: 4/8/22 1241			Date/Time: 4-9-22 830		Cooler Temp	
Relinquished by:	Company		Received by:	Company		Condition	
	Date/Time			Date/Time		Cooler Temp	
Relinquished by:	Company		Received by:	Company		Condition	
	Date/Time			Date/Time		Cooler Temp	

Preservatives Code: 0 = None; 1 = HCL; 2 = HNO3; 3 = H2SO4; 4 = NaOH; 5 = Zn. Acetate; 6 = MeOH; 7 = NaHSO4; 8 = Other (specify)

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login # : 164831
Canton Facility

Client TRW Site Name ________ Cooler unpacked by: Matt

Cooler Received on 4-9-22 Opened on 4-9-22

FedEx: 1st Grd Exp UPS FAS [✓ Clipper] Client Drop Off TestAmerica Courier Other ________

Receipt After-hours: Drop-off Date/Time ________ Storage Location ________

TestAmerica Cooler # TA Foam Box Client Cooler Box Other ________

Packing material used: [✓ Bubble Wrap] Foam Plastic Bag None Other ________

COOLANT: [✓ Wet Ice] Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-14 (CF -0.2 °C) Observed Cooler Temp. 3.3 °C Corrected Cooler Temp. 3.1 °C
   IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 [✓ Yes] No
   -Were the seals on the outside of the cooler(s) signed & dated? [✓ Yes] No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes [✓ No]
   -Were tamper/custody seals intact and uncompromised? [✓ Yes] No NA
3. Shippers' packing slip attached to the cooler(s)? Yes [✓ No]
4. Did custody papers accompany the sample(s)? [✓ Yes] No
5. Were the custody papers relinquished & signed in the appropriate place? [✓ Yes] No
6. Was/were the person(s) who collected the samples clearly identified on the COC? [✓ Yes] No
7. Did all bottles arrive in good condition (Unbroken)? [✓ Yes] No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? [✓ Yes] [✓ No] TR
9. For each sample, does the COC specify preservatives (Y/[✓ N]), # of containers ([✓ Y]/N), and sample type of grab/comp ([✓ Y]/N)?
10. Were correct bottle(s) used for the test(s) indicated? [✓ Yes] No
11. Sufficient quantity received to perform indicated analyses? [✓ Yes] No
12. Are these work share samples and all listed on the COC? Yes [✓ No]
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No [✓ NA] pH Strip Lot# HC157842
14. Were VOAs on the COC? [✓ Yes] No
15. Were air bubbles >6 mm in any VOA vials? ● ⇐ Larger than this. Yes [✓ No] NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # D1042016 [✓ Yes] No
17. Was a LL Hg or Me Hg trip blank present? ________ Yes [✓ No]

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM ________ Date ________ by ________ via Verbal Voice Mail Other

Concerning ________

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page Samples processed by:

Equipment Blank - 3 VOA'S
Field Blank - 3 VOA'S
Trip blanks - 2 VOA'S

19. SAMPLE CONDITION

Sample(s) ________ were received after the recommended holding time had expired.
Sample(s) ________ were received in a broken container.
Sample(s) ________ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) ________ were further preserved in the laboratory.
Time preserved: ________ Preservative(s) added/Lot number(s): ________

VOA Sample Preservation - Date/Time VOAs Frozen: ________

WI-NC-099

eurofins | Environment Testing
America

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ANALYTICAL REPORT

Eurofins Canton
180 S. Van Buren Avenue
Barberton, OH 44203
Tel: (330)497-9396

Laboratory Job ID: 240-165203-1
Client Project/Site: Milford

For:
ZF Active Safety and Electronics LLC
Tech 2
12025 Tech Center Drive
Livonia, Michigan 48150

Attn: Scott Detwiler

Mike DelMonico

Authorized for release by:
4/26/2022 9:29:11 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@et.eurofinsus.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 240-165203-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-165203-1

Comments
No additional comments.

Receipt
The samples were received on 4/19/2022 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.5º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-165203-1	OW-16D2_041822	Water	04/18/22 10:55	04/19/22 10:00
240-165203-2	EQUIPMENT BLANK_041822	Water	04/18/22 11:20	04/19/22 10:00
240-165203-3	FIELD BLANK_041822	Water	04/18/22 10:35	04/19/22 10:00
240-165203-4	TRIP BLANK	Water	04/18/22 00:00	04/19/22 10:00

Detection Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-165203-1

Client Sample ID: OW-16D2_041822 Lab Sample ID: 240-165203-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	2.4		1.0		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	16		1.0		ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	1.2		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: EQUIPMENT BLANK_041822 Lab Sample ID: 240-165203-2

No Detections.

Client Sample ID: FIELD BLANK_041822 Lab Sample ID: 240-165203-3

No Detections.

Client Sample ID: TRIP BLANK Lab Sample ID: 240-165203-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: OW-16D2_041822

Lab Sample ID: 240-165203-1

Date Collected: 04/18/22 10:55
Matrix: Water
Date Received: 04/19/22 10:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/21/22 15:37	1
Benzene	1.0	U	1.0		ug/L			04/21/22 15:37	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
Bromoform	1.0	U	1.0		ug/L			04/21/22 15:37	1
Bromomethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
2-Butanone (MEK)	10	U	10		ug/L			04/21/22 15:37	1
Carbon disulfide	1.0	U	1.0		ug/L			04/21/22 15:37	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/21/22 15:37	1
Chlorobenzene	1.0	U	1.0		ug/L			04/21/22 15:37	1
Chloroethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
Chloroform	1.0	U	1.0		ug/L			04/21/22 15:37	1
Chloromethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,1-Dichloroethane	**2.4**		1.0		ug/L			04/21/22 15:37	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/21/22 15:37	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 15:37	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 15:37	1
Ethylbenzene	1.0	U	1.0		ug/L			04/21/22 15:37	1
2-Hexanone	10	U	10		ug/L			04/21/22 15:37	1
Methylene Chloride	5.0	U	5.0		ug/L			04/21/22 15:37	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/21/22 15:37	1
Styrene	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/21/22 15:37	1
Toluene	1.0	U	1.0		ug/L			04/21/22 15:37	1
Trichloroethene	1.0	U	1.0		ug/L			04/21/22 15:37	1
Vinyl chloride	1.0	U	1.0		ug/L			04/21/22 15:37	1
Xylenes, Total	2.0	U	2.0		ug/L			04/21/22 15:37	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/21/22 15:37	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
cis-1,2-Dichloroethene	**16**		1.0		ug/L			04/21/22 15:37	1
trans-1,2-Dichloroethene	**1.2**		1.0		ug/L			04/21/22 15:37	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/21/22 15:37	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 15:37	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 15:37	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/21/22 15:37	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/21/22 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*62 - 137*		*04/21/22 15:37*	*1*
4-Bromofluorobenzene (Surr)	*78*		*56 - 136*		*04/21/22 15:37*	*1*
Toluene-d8 (Surr)	*82*		*78 - 122*		*04/21/22 15:37*	*1*

Client Sample ID: OW-16D2_041822

Lab Sample ID: 240-165203-1

Date Collected: 04/18/22 10:55
Matrix: Water
Date Received: 04/19/22 10:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*91*		*73 - 120*		*04/21/22 15:37*	*1*

Client Sample ID: EQUIPMENT BLANK_041822

Lab Sample ID: 240-165203-2

Date Collected: 04/18/22 11:20

Matrix: Water

Date Received: 04/19/22 10:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/21/22 16:02	1
Benzene	1.0	U	1.0		ug/L			04/21/22 16:02	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
Bromoform	1.0	U	1.0		ug/L			04/21/22 16:02	1
Bromomethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
2-Butanone (MEK)	10	U	10		ug/L			04/21/22 16:02	1
Carbon disulfide	1.0	U	1.0		ug/L			04/21/22 16:02	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/21/22 16:02	1
Chlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:02	1
Chloroethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
Chloroform	1.0	U	1.0		ug/L			04/21/22 16:02	1
Chloromethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/21/22 16:02	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 16:02	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 16:02	1
Ethylbenzene	1.0	U	1.0		ug/L			04/21/22 16:02	1
2-Hexanone	10	U	10		ug/L			04/21/22 16:02	1
Methylene Chloride	5.0	U	5.0		ug/L			04/21/22 16:02	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/21/22 16:02	1
Styrene	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/21/22 16:02	1
Toluene	1.0	U	1.0		ug/L			04/21/22 16:02	1
Trichloroethene	1.0	U	1.0		ug/L			04/21/22 16:02	1
Vinyl chloride	1.0	U	1.0		ug/L			04/21/22 16:02	1
Xylenes, Total	2.0	U	2.0		ug/L			04/21/22 16:02	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/21/22 16:02	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 16:02	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 16:02	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/21/22 16:02	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:02	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:02	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/21/22 16:02	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/21/22 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*62 - 137*		*04/21/22 16:02*	*1*
4-Bromofluorobenzene (Surr)	*82*		*56 - 136*		*04/21/22 16:02*	*1*
Toluene-d8 (Surr)	*82*		*78 - 122*		*04/21/22 16:02*	*1*

Client Sample ID: EQUIPMENT BLANK_041822
Date Collected: 04/18/22 11:20
Date Received: 04/19/22 10:00

Lab Sample ID: 240-165203-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	88		73 - 120		04/21/22 16:02	1

Client Sample Results

Client Sample ID: FIELD BLANK_041822

Lab Sample ID: 240-165203-3

Date Collected: 04/18/22 10:35

Matrix: Water

Date Received: 04/19/22 10:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/21/22 16:27	1
Benzene	1.0	U	1.0		ug/L			04/21/22 16:27	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
Bromoform	1.0	U	1.0		ug/L			04/21/22 16:27	1
Bromomethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
2-Butanone (MEK)	10	U	10		ug/L			04/21/22 16:27	1
Carbon disulfide	1.0	U	1.0		ug/L			04/21/22 16:27	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/21/22 16:27	1
Chlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:27	1
Chloroethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
Chloroform	1.0	U	1.0		ug/L			04/21/22 16:27	1
Chloromethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/21/22 16:27	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 16:27	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 16:27	1
Ethylbenzene	1.0	U	1.0		ug/L			04/21/22 16:27	1
2-Hexanone	10	U	10		ug/L			04/21/22 16:27	1
Methylene Chloride	5.0	U	5.0		ug/L			04/21/22 16:27	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/21/22 16:27	1
Styrene	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/21/22 16:27	1
Toluene	1.0	U	1.0		ug/L			04/21/22 16:27	1
Trichloroethene	1.0	U	1.0		ug/L			04/21/22 16:27	1
Vinyl chloride	1.0	U	1.0		ug/L			04/21/22 16:27	1
Xylenes, Total	2.0	U	2.0		ug/L			04/21/22 16:27	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/21/22 16:27	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 16:27	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 16:27	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/21/22 16:27	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:27	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:27	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/21/22 16:27	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/21/22 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*62 - 137*		*04/21/22 16:27*	*1*
4-Bromofluorobenzene (Surr)	*80*		*56 - 136*		*04/21/22 16:27*	*1*
Toluene-d8 (Surr)	*85*		*78 - 122*		*04/21/22 16:27*	*1*

Client Sample ID: FIELD BLANK_041822

Lab Sample ID: 240-165203-3

Date Collected: 04/18/22 10:35

Matrix: Water

Date Received: 04/19/22 10:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*88*		*73 - 120*		*04/21/22 16:27*	*1*

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-165203-4

Date Collected: 04/18/22 00:00
Date Received: 04/19/22 10:00

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/21/22 16:52	1
Benzene	1.0	U	1.0		ug/L			04/21/22 16:52	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
Bromoform	1.0	U	1.0		ug/L			04/21/22 16:52	1
Bromomethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
2-Butanone (MEK)	10	U	10		ug/L			04/21/22 16:52	1
Carbon disulfide	1.0	U	1.0		ug/L			04/21/22 16:52	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/21/22 16:52	1
Chlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:52	1
Chloroethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
Chloroform	1.0	U	1.0		ug/L			04/21/22 16:52	1
Chloromethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/21/22 16:52	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 16:52	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 16:52	1
Ethylbenzene	1.0	U	1.0		ug/L			04/21/22 16:52	1
2-Hexanone	10	U	10		ug/L			04/21/22 16:52	1
Methylene Chloride	5.0	U	5.0		ug/L			04/21/22 16:52	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/21/22 16:52	1
Styrene	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/21/22 16:52	1
Toluene	1.0	U	1.0		ug/L			04/21/22 16:52	1
Trichloroethene	1.0	U	1.0		ug/L			04/21/22 16:52	1
Vinyl chloride	1.0	U	1.0		ug/L			04/21/22 16:52	1
Xylenes, Total	2.0	U	2.0		ug/L			04/21/22 16:52	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/21/22 16:52	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 16:52	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 16:52	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/21/22 16:52	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:52	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 16:52	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/21/22 16:52	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/21/22 16:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*62 - 137*		*04/21/22 16:52*	*1*
4-Bromofluorobenzene (Surr)	*79*		*56 - 136*		*04/21/22 16:52*	*1*
Toluene-d8 (Surr)	*82*		*78 - 122*		*04/21/22 16:52*	*1*

Client Sample Results

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-165203-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-165203-4

Date Collected: 04/18/22 00:00
Date Received: 04/19/22 10:00

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*86*		*73 - 120*		*04/21/22 16:52*	*1*

Surrogate Summary

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-165203-1	OW-16D2_041822	76	78	82	91
240-165203-2	EQUIPMENT BLANK_041822	77	82	82	88
240-165203-3	FIELD BLANK_041822	76	80	85	88
240-165203-4	TRIP BLANK	74	79	82	86
LCS 240-523444/5	Lab Control Sample	73	86	81	90
MB 240-523444/8	Method Blank	78	78	81	89

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-523444/8
Matrix: Water
Analysis Batch: 523444

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			04/21/22 11:01	1
Benzene	1.0	U	1.0		ug/L			04/21/22 11:01	1
Bromodichloromethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
Bromoform	1.0	U	1.0		ug/L			04/21/22 11:01	1
Bromomethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
2-Butanone (MEK)	10	U	10		ug/L			04/21/22 11:01	1
Carbon disulfide	1.0	U	1.0		ug/L			04/21/22 11:01	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/21/22 11:01	1
Chlorobenzene	1.0	U	1.0		ug/L			04/21/22 11:01	1
Chloroethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
Chloroform	1.0	U	1.0		ug/L			04/21/22 11:01	1
Chloromethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/21/22 11:01	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 11:01	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/21/22 11:01	1
Ethylbenzene	1.0	U	1.0		ug/L			04/21/22 11:01	1
2-Hexanone	10	U	10		ug/L			04/21/22 11:01	1
Methylene Chloride	5.0	U	5.0		ug/L			04/21/22 11:01	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/21/22 11:01	1
Styrene	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/21/22 11:01	1
Toluene	1.0	U	1.0		ug/L			04/21/22 11:01	1
Trichloroethene	1.0	U	1.0		ug/L			04/21/22 11:01	1
Vinyl chloride	1.0	U	1.0		ug/L			04/21/22 11:01	1
Xylenes, Total	2.0	U	2.0		ug/L			04/21/22 11:01	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/21/22 11:01	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 11:01	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/21/22 11:01	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/21/22 11:01	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 11:01	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/21/22 11:01	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/21/22 11:01	1
Dibromochloromethane	1.0	U	1.0		ug/L			04/21/22 11:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*62 - 137*		*04/21/22 11:01*	*1*

QC Sample Results

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-523444/8
Matrix: Water
Analysis Batch: 523444

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*78*		*56 - 136*		*04/21/22 11:01*	*1*
Toluene-d8 (Surr)	*81*		*78 - 122*		*04/21/22 11:01*	*1*
Dibromofluoromethane (Surr)	*89*		*73 - 120*		*04/21/22 11:01*	*1*

Lab Sample ID: LCS 240-523444/5
Matrix: Water
Analysis Batch: 523444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetone	40.0	21.8		ug/L		54	50 - 149
Benzene	20.0	18.3		ug/L		91	77 - 123
Bromodichloromethane	20.0	15.2		ug/L		76	69 - 126
Bromoform	20.0	13.2		ug/L		66	57 - 129
Bromomethane	20.0	16.9		ug/L		84	36 - 142
2-Butanone (MEK)	40.0	27.3		ug/L		68	54 - 156
Carbon disulfide	20.0	15.0		ug/L		75	43 - 140
Carbon tetrachloride	20.0	16.6		ug/L		83	55 - 137
Chlorobenzene	20.0	19.2		ug/L		96	80 - 121
Chloroethane	20.0	16.0		ug/L		80	38 - 152
Chloroform	20.0	17.5		ug/L		88	74 - 122
Chloromethane	20.0	14.8		ug/L		74	47 - 143
1,1-Dichloroethane	20.0	15.4		ug/L		77	72 - 127
1,2-Dichloroethane	20.0	15.6		ug/L		78	66 - 128
1,1-Dichloroethene	20.0	18.8		ug/L		94	63 - 134
1,2-Dichloropropane	20.0	16.1		ug/L		81	75 - 133
cis-1,3-Dichloropropene	20.0	14.9		ug/L		75	64 - 130
trans-1,3-Dichloropropene	20.0	12.6		ug/L		63	57 - 129
Ethylbenzene	20.0	18.7		ug/L		94	80 - 121
2-Hexanone	40.0	23.1		ug/L		58	43 - 167
Methylene Chloride	20.0	17.2		ug/L		86	71 - 125
4-Methyl-2-pentanone (MIBK)	40.0	24.2		ug/L		60	46 - 158
Styrene	20.0	17.9		ug/L		89	80 - 135
1,1,2,2-Tetrachloroethane	20.0	16.0		ug/L		80	58 - 157
Tetrachloroethene	20.0	21.1		ug/L		105	76 - 123
Toluene	20.0	17.9		ug/L		90	80 - 123
Trichloroethene	20.0	21.1		ug/L		105	70 - 122
Vinyl chloride	20.0	17.1		ug/L		86	60 - 144
Xylenes, Total	40.0	38.0		ug/L		95	80 - 121
1,1,1-Trichloroethane	20.0	16.7		ug/L		84	64 - 131
1,1,2-Trichloroethane	20.0	17.8		ug/L		89	70 - 138
1,2-Dibromo-3-Chloropropane	20.0	11.2		ug/L		56	53 - 135
1,2-Dibromoethane	20.0	17.3		ug/L		86	71 - 134
Dichlorodifluoromethane	20.0	21.0		ug/L		105	34 - 153
cis-1,2-Dichloroethene	20.0	19.0		ug/L		95	77 - 123
trans-1,2-Dichloroethene	20.0	18.2		ug/L		91	75 - 124
Isopropylbenzene	20.0	19.0		ug/L		95	74 - 128
Methyl tert-butyl ether	20.0	14.8		ug/L		74	65 - 126
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	20.4		ug/L		102	51 - 146

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-523444/5
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 523444

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4-Trichlorobenzene	20.0	17.8		ug/L		89	44 - 147
1,2-Dichlorobenzene	20.0	20.1		ug/L		100	78 - 120
1,3-Dichlorobenzene	20.0	19.2		ug/L		96	80 - 120
1,4-Dichlorobenzene	20.0	19.1		ug/L		95	80 - 120
Trichlorofluoromethane	20.0	18.7		ug/L		94	30 - 170
Dibromochloromethane	20.0	14.8		ug/L		74	70 - 124
m-Xylene & p-Xylene	20.0	19.0		ug/L		95	80 - 120
o-Xylene	20.0	19.0		ug/L		95	80 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*73*		*62 - 137*
4-Bromofluorobenzene (Surr)	*86*		*56 - 136*
Toluene-d8 (Surr)	*81*		*78 - 122*
Dibromofluoromethane (Surr)	*90*		*73 - 120*

QC Association Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-165203-1

GC/MS VOA

Analysis Batch: 523444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-165203-1	OW-16D2_041822	Total/NA	Water	8260B	
240-165203-2	EQUIPMENT BLANK_041822	Total/NA	Water	8260B	
240-165203-3	FIELD BLANK_041822	Total/NA	Water	8260B	
240-165203-4	TRIP BLANK	Total/NA	Water	8260B	
MB 240-523444/8	Method Blank	Total/NA	Water	8260B	
LCS 240-523444/5	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-165203-1

Client Sample ID: OW-16D2_041822

Date Collected: 04/18/22 10:55
Date Received: 04/19/22 10:00

Lab Sample ID: 240-165203-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	523444	04/21/22 15:37	LEE	TAL CAN

Client Sample ID: EQUIPMENT BLANK_041822

Date Collected: 04/18/22 11:20
Date Received: 04/19/22 10:00

Lab Sample ID: 240-165203-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	523444	04/21/22 16:02	LEE	TAL CAN

Client Sample ID: FIELD BLANK_041822

Date Collected: 04/18/22 10:35
Date Received: 04/19/22 10:00

Lab Sample ID: 240-165203-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	523444	04/21/22 16:27	LEE	TAL CAN

Client Sample ID: TRIP BLANK

Date Collected: 04/18/22 00:00
Date Received: 04/19/22 10:00

Lab Sample ID: 240-165203-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	523444	04/21/22 16:52	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: Milford

Job ID: 240-165203-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22 *
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22 *
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	11-06-22
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	04-24-22
Texas	NELAP	T104704517-22-16	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

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* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Bob Bleazard	Marina Samp and Sharon Clouse
11202 East Germann Road	28550 Cabot Drive, Suite 500
Mesa, AZ 85212	Novi, MI 48377
bob.bleazard@trw.com	Marina.Samp@arcadis.com
	sclouse@arcadis-us.com

Analysis Level	**Level 1 (Routine Report)**	**Sampler**	Stacey Hannula
TAT	**10 Business Days (Standard - Level 1)**	**Deliverable**	EDD/PDF (e-mail)

Sample Identification and Information

	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	No. of Cont.	Grab or Composite	Field Filtered	VOC 8260
1	OW-16D2	--	--	OW-16D2_041822	4·18·22	1055	GW	WATER	REG	3	G		X
2		--	--										
3	EQUIPMENT BLANK			EQUIPMENT BLANK_041822	↓	1120	QC	WATER	REG	1	G	N	X
4	FIELD BLANK	--	--	FIELD BLANK_041822	↓	1035	QC	WATER	REG	1	G	N	X
5	TRIP BLANK	--	--	TRIP BLANK_	--	--	QC	WATER	REG	1	G	N	X
6		--	--										
7		--	--										
8		--	--										
9		--	--										
10		--	--										
11													

240-165203 Chain of Custody

Special Instructions

Relinquished by Stacey Hannula	Company Arcadis	Received by:	Company FETA	Condition	
	Date/Time 4.18.22 1215		Date/Time 1215 4/18/22	Cooler Temp	
Relinquished by	Company FETA	Received by	Company FETA	Condition	
	Date/Time 4/18/22 1218		Date/Time 4-19-22 1000	Cooler Temp	
Relinquished by:	Company	Received by:	Company	Condition	
	Date/Time		Date/Time	Cooler Temp.	
Relinquished by:	Company	Received by:	Company	Condition	
	Date/Time		Date/Time	Cooler Temp.	

Preservatives Code: 0 = None; 1 = HCL; 2 = HNO3; 3 = H2SO4; 4 = NaOH; 5 = Zn. Acetate; 6 = MeOH; 7 = NaHSO4; 8 = Other (specify):

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 165203
Canton Facility

Client TRW Site Name ____

Cooler Received on 4-19-22 Opened on 4-19-22

Cooler unpacked by:

FedEx: 1st Grd [✓ Exp] UPS FAS Clipper Client Drop Off TestAmerica Courier Other ____

Receipt After-hours: Drop-off Date/Time ____ Storage Location ____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other ____

Packing material used: [✓ Bubble Wrap] Foam Plastic Bag None Other ____

COOLANT: [✓ Wet Ice] Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-13 (CF **0.0** °C) Observed Cooler Temp. 1.5 °C Corrected Cooler Temp. 1.5 °C
   IR GUN #IR-15 (CF **-0.7**°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 [✓ Yes] No
   -Were the seals on the outside of the cooler(s) signed & dated? [✓ Yes] No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes [✓ No]
   -Were tamper/custody seals intact and uncompromised? [✓ Yes] No NA
3. Shippers' packing slip attached to the cooler(s)? [✓ Yes] No
4. Did custody papers accompany the sample(s)? [✓ Yes] No
5. Were the custody papers relinquished & signed in the appropriate place? [✓ Yes] No
6. Was/were the person(s) who collected the samples clearly identified on the COC? [✓ Yes] No
7. Did all bottles arrive in good condition (Unbroken)? [✓ Yes] No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? [✓ Yes] No
9. For each sample, does the COC specify preservatives ([✓ Y]/N), # of containers ([✓ Y]/N), and sample type of grab/comp ([✓ Y]/N)?
10. Were correct bottle(s) used for the test(s) indicated? [✓ Yes] No
11. Sufficient quantity received to perform indicated analyses? [✓ Yes] No
12. Are these work share samples and all listed on the COC? Yes [✓ No]
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No [✓ NA] pH Strip Lot# **HC157842**
14. Were VOAs on the COC? [✓ Yes] No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes [✓ No] NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 61109 [✓ Yes] No
17. Was a LL Hg or Me Hg trip blank present? ____ Yes [✓ No]

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.
Sample(s) ____ were received in a broken container.
Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.
Time preserved: ____ Preservative(s) added/Lot number(s): ____

VOA Sample Preservation - Date/Time VOAs Frozen: ____

WI-NC-099

1 2 3 4 5 6 7 8 9 10 11 12 13 14

eurofins | Environment Testing America

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ANALYTICAL REPORT

Eurofins Canton
180 S. Van Buren Avenue
Barberton, OH 44203
Tel: (330)497-9396

Laboratory Job ID: 240-163988-1
Client Project/Site: TRW Milford

For:
ZF Active Safety and Electronics LLC
Tech 2
12025 Tech Center Drive
Livonia, Michigan 48150

Attn: Scott Detwiler

Authorized for release by:
3/30/2022 11:25:37 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-163988-1

Job ID: 240-163988-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-163988-1

Comments
No additional comments.

Receipt
The samples were received on 3/23/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.9º C and 1.0º C.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No additional analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Sample Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-163988-1	OW-16D2_032122	Water	03/21/22 10:30	03/23/22 08:00
240-163988-2	EQUIPMENT BLANK	Water	03/21/22 10:30	03/23/22 08:00
240-163988-3	FIELD BLANK	Water	03/21/22 10:30	03/23/22 08:00
240-163988-4	TRIP BLANK	Water	03/21/22 00:00	03/23/22 08:00

Detection Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-163988-1

Client Sample ID: OW-16D2_032122 Lab Sample ID: 240-163988-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	3.7		1.0		ug/L	1		8260B	Total/NA
Vinyl chloride	2.3		1.0		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	18		1.0		ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	1.6		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: EQUIPMENT BLANK Lab Sample ID: 240-163988-2

No Detections.

Client Sample ID: FIELD BLANK Lab Sample ID: 240-163988-3

No Detections.

Client Sample ID: TRIP BLANK Lab Sample ID: 240-163988-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-163988-1

Client Sample ID: OW-16D2_032122

Date Collected: 03/21/22 10:30
Date Received: 03/23/22 08:00

Lab Sample ID: 240-163988-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			03/28/22 17:24	1
Benzene	1.0	U	1.0		ug/L			03/28/22 17:24	1
Bromodichloromethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
Bromoform	1.0	U	1.0		ug/L			03/28/22 17:24	1
Bromomethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
2-Butanone (MEK)	10	U	10		ug/L			03/28/22 17:24	1
Carbon disulfide	1.0	U	1.0		ug/L			03/28/22 17:24	1
Carbon tetrachloride	1.0	U	1.0		ug/L			03/28/22 17:24	1
Chlorobenzene	1.0	U	1.0		ug/L			03/28/22 17:24	1
Chloroethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
Chloroform	1.0	U	1.0		ug/L			03/28/22 17:24	1
Chloromethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,1-Dichloroethane	**3.7**		1.0		ug/L			03/28/22 17:24	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			03/28/22 17:24	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 17:24	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 17:24	1
Ethylbenzene	1.0	U	1.0		ug/L			03/28/22 17:24	1
2-Hexanone	10	U	10		ug/L			03/28/22 17:24	1
Methylene Chloride	5.0	U	5.0		ug/L			03/28/22 17:24	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			03/28/22 17:24	1
Styrene	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
Tetrachloroethene	1.0	U	1.0		ug/L			03/28/22 17:24	1
Toluene	1.0	U	1.0		ug/L			03/28/22 17:24	1
Trichloroethene	1.0	U	1.0		ug/L			03/28/22 17:24	1
Vinyl chloride	**2.3**		1.0		ug/L			03/28/22 17:24	1
Xylenes, Total	2.0	U	2.0		ug/L			03/28/22 17:24	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			03/28/22 17:24	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
cis-1,2-Dichloroethene	**18**		1.0		ug/L			03/28/22 17:24	1
trans-1,2-Dichloroethene	**1.6**		1.0		ug/L			03/28/22 17:24	1
Isopropylbenzene	1.0	U	1.0		ug/L			03/28/22 17:24	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 17:24	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 17:24	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			03/28/22 17:24	1
Dibromochloromethane	1.0	U	1.0		ug/L			03/28/22 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*62 - 137*		*03/28/22 17:24*	*1*
4-Bromofluorobenzene (Surr)	*90*		*56 - 136*		*03/28/22 17:24*	*1*
Toluene-d8 (Surr)	*92*		*78 - 122*		*03/28/22 17:24*	*1*

Client Sample ID: OW-16D2_032122

Date Collected: 03/21/22 10:30
Date Received: 03/23/22 08:00

Lab Sample ID: 240-163988-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	98		73 - 120		03/28/22 17:24	1

Client Sample Results

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 240-163988-2

Date Collected: 03/21/22 10:30

Matrix: Water

Date Received: 03/23/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			03/28/22 15:44	1
Benzene	1.0	U	1.0		ug/L			03/28/22 15:44	1
Bromodichloromethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
Bromoform	1.0	U	1.0		ug/L			03/28/22 15:44	1
Bromomethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
2-Butanone (MEK)	10	U	10		ug/L			03/28/22 15:44	1
Carbon disulfide	1.0	U	1.0		ug/L			03/28/22 15:44	1
Carbon tetrachloride	1.0	U	1.0		ug/L			03/28/22 15:44	1
Chlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:44	1
Chloroethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
Chloroform	1.0	U	1.0		ug/L			03/28/22 15:44	1
Chloromethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			03/28/22 15:44	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 15:44	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 15:44	1
Ethylbenzene	1.0	U	1.0		ug/L			03/28/22 15:44	1
2-Hexanone	10	U	10		ug/L			03/28/22 15:44	1
Methylene Chloride	5.0	U	5.0		ug/L			03/28/22 15:44	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			03/28/22 15:44	1
Styrene	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
Tetrachloroethene	1.0	U	1.0		ug/L			03/28/22 15:44	1
Toluene	1.0	U	1.0		ug/L			03/28/22 15:44	1
Trichloroethene	1.0	U	1.0		ug/L			03/28/22 15:44	1
Vinyl chloride	1.0	U	1.0		ug/L			03/28/22 15:44	1
Xylenes, Total	2.0	U	2.0		ug/L			03/28/22 15:44	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			03/28/22 15:44	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 15:44	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 15:44	1
Isopropylbenzene	1.0	U	1.0		ug/L			03/28/22 15:44	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:44	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:44	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			03/28/22 15:44	1
Dibromochloromethane	1.0	U	1.0		ug/L			03/28/22 15:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*62 - 137*		*03/28/22 15:44*	*1*
4-Bromofluorobenzene (Surr)	*90*		*56 - 136*		*03/28/22 15:44*	*1*
Toluene-d8 (Surr)	*92*		*78 - 122*		*03/28/22 15:44*	*1*

Client Sample ID: EQUIPMENT BLANK

Date Collected: 03/21/22 10:30

Date Received: 03/23/22 08:00

Lab Sample ID: 240-163988-2

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	94		73 - 120		03/28/22 15:44	1

Client Sample ID: FIELD BLANK

Lab Sample ID: 240-163988-3

Date Collected: 03/21/22 10:30
Matrix: Water
Date Received: 03/23/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			03/28/22 16:08	1
Benzene	1.0	U	1.0		ug/L			03/28/22 16:08	1
Bromodichloromethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
Bromoform	1.0	U	1.0		ug/L			03/28/22 16:08	1
Bromomethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
2-Butanone (MEK)	10	U	10		ug/L			03/28/22 16:08	1
Carbon disulfide	1.0	U	1.0		ug/L			03/28/22 16:08	1
Carbon tetrachloride	1.0	U	1.0		ug/L			03/28/22 16:08	1
Chlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:08	1
Chloroethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
Chloroform	1.0	U	1.0		ug/L			03/28/22 16:08	1
Chloromethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			03/28/22 16:08	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 16:08	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 16:08	1
Ethylbenzene	1.0	U	1.0		ug/L			03/28/22 16:08	1
2-Hexanone	10	U	10		ug/L			03/28/22 16:08	1
Methylene Chloride	5.0	U	5.0		ug/L			03/28/22 16:08	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			03/28/22 16:08	1
Styrene	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
Tetrachloroethene	1.0	U	1.0		ug/L			03/28/22 16:08	1
Toluene	1.0	U	1.0		ug/L			03/28/22 16:08	1
Trichloroethene	1.0	U	1.0		ug/L			03/28/22 16:08	1
Vinyl chloride	1.0	U	1.0		ug/L			03/28/22 16:08	1
Xylenes, Total	2.0	U	2.0		ug/L			03/28/22 16:08	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			03/28/22 16:08	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 16:08	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 16:08	1
Isopropylbenzene	1.0	U	1.0		ug/L			03/28/22 16:08	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:08	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:08	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			03/28/22 16:08	1
Dibromochloromethane	1.0	U	1.0		ug/L			03/28/22 16:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*62 - 137*		*03/28/22 16:08*	*1*
4-Bromofluorobenzene (Surr)	*91*		*56 - 136*		*03/28/22 16:08*	*1*
Toluene-d8 (Surr)	*92*		*78 - 122*		*03/28/22 16:08*	*1*

Client Sample ID: FIELD BLANK
Lab Sample ID: 240-163988-3
Date Collected: 03/21/22 10:30
Matrix: Water
Date Received: 03/23/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*73 - 120*		*03/28/22 16:08*	*1*

Client Sample ID: TRIP BLANK

Date Collected: 03/21/22 00:00
Date Received: 03/23/22 08:00

Lab Sample ID: 240-163988-4

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			03/28/22 16:33	1
Benzene	1.0	U	1.0		ug/L			03/28/22 16:33	1
Bromodichloromethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
Bromoform	1.0	U	1.0		ug/L			03/28/22 16:33	1
Bromomethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
2-Butanone (MEK)	10	U	10		ug/L			03/28/22 16:33	1
Carbon disulfide	1.0	U	1.0		ug/L			03/28/22 16:33	1
Carbon tetrachloride	1.0	U	1.0		ug/L			03/28/22 16:33	1
Chlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:33	1
Chloroethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
Chloroform	1.0	U	1.0		ug/L			03/28/22 16:33	1
Chloromethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			03/28/22 16:33	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 16:33	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 16:33	1
Ethylbenzene	1.0	U	1.0		ug/L			03/28/22 16:33	1
2-Hexanone	10	U	10		ug/L			03/28/22 16:33	1
Methylene Chloride	5.0	U	5.0		ug/L			03/28/22 16:33	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			03/28/22 16:33	1
Styrene	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
Tetrachloroethene	1.0	U	1.0		ug/L			03/28/22 16:33	1
Toluene	1.0	U	1.0		ug/L			03/28/22 16:33	1
Trichloroethene	1.0	U	1.0		ug/L			03/28/22 16:33	1
Vinyl chloride	1.0	U	1.0		ug/L			03/28/22 16:33	1
Xylenes, Total	2.0	U	2.0		ug/L			03/28/22 16:33	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			03/28/22 16:33	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 16:33	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 16:33	1
Isopropylbenzene	1.0	U	1.0		ug/L			03/28/22 16:33	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:33	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 16:33	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			03/28/22 16:33	1
Dibromochloromethane	1.0	U	1.0		ug/L			03/28/22 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*62 - 137*		*03/28/22 16:33*	*1*
4-Bromofluorobenzene (Surr)	*89*		*56 - 136*		*03/28/22 16:33*	*1*
Toluene-d8 (Surr)	*92*		*78 - 122*		*03/28/22 16:33*	*1*

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-163988-4

Date Collected: 03/21/22 00:00

Matrix: Water

Date Received: 03/23/22 08:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*73 - 120*		*03/28/22 16:33*	*1*

Surrogate Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-163988-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	**BFB**	**TOL**	**DBFM**
Lab Sample ID	**Client Sample ID**	**(62-137)**	**(56-136)**	**(78-122)**	**(73-120)**
240-163988-1	OW-16D2_032122	98	90	92	98
240-163988-2	EQUIPMENT BLANK	98	90	92	94
240-163988-3	FIELD BLANK	99	91	92	97
240-163988-4	TRIP BLANK	101	89	92	98
LCS 240-521043/4	Lab Control Sample	92	100	96	95
MB 240-521043/7	Method Blank	103	92	93	99

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-163988-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-521043/7
Matrix: Water
Analysis Batch: 521043

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10		ug/L			03/28/22 15:18	1
Benzene	1.0	U	1.0		ug/L			03/28/22 15:18	1
Bromodichloromethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
Bromoform	1.0	U	1.0		ug/L			03/28/22 15:18	1
Bromomethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
2-Butanone (MEK)	10	U	10		ug/L			03/28/22 15:18	1
Carbon disulfide	1.0	U	1.0		ug/L			03/28/22 15:18	1
Carbon tetrachloride	1.0	U	1.0		ug/L			03/28/22 15:18	1
Chlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:18	1
Chloroethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
Chloroform	1.0	U	1.0		ug/L			03/28/22 15:18	1
Chloromethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			03/28/22 15:18	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 15:18	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			03/28/22 15:18	1
Ethylbenzene	1.0	U	1.0		ug/L			03/28/22 15:18	1
2-Hexanone	10	U	10		ug/L			03/28/22 15:18	1
Methylene Chloride	5.0	U	5.0		ug/L			03/28/22 15:18	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			03/28/22 15:18	1
Styrene	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
Tetrachloroethene	1.0	U	1.0		ug/L			03/28/22 15:18	1
Toluene	1.0	U	1.0		ug/L			03/28/22 15:18	1
Trichloroethene	1.0	U	1.0		ug/L			03/28/22 15:18	1
Vinyl chloride	1.0	U	1.0		ug/L			03/28/22 15:18	1
Xylenes, Total	2.0	U	2.0		ug/L			03/28/22 15:18	1
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			03/28/22 15:18	1
1,2-Dibromoethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 15:18	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			03/28/22 15:18	1
Isopropylbenzene	1.0	U	1.0		ug/L			03/28/22 15:18	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:18	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			03/28/22 15:18	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			03/28/22 15:18	1
Dibromochloromethane	1.0	U	1.0		ug/L			03/28/22 15:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*62 - 137*		*03/28/22 15:18*	*1*

QC Sample Results

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-521043/7
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 521043

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*56 - 136*		*03/28/22 15:18*	*1*
Toluene-d8 (Surr)	*93*		*78 - 122*		*03/28/22 15:18*	*1*
Dibromofluoromethane (Surr)	*99*		*73 - 120*		*03/28/22 15:18*	*1*

Lab Sample ID: LCS 240-521043/4
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 521043

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	50.0	52.1		ug/L		104	50 - 149
Benzene	25.0	25.3		ug/L		101	77 - 123
Bromodichloromethane	25.0	26.7		ug/L		107	69 - 126
Bromoform	25.0	23.9		ug/L		96	57 - 129
Bromomethane	25.0	24.8		ug/L		99	36 - 142
2-Butanone (MEK)	50.0	50.0		ug/L		100	54 - 156
Carbon disulfide	25.0	27.6		ug/L		111	43 - 140
Carbon tetrachloride	25.0	29.7		ug/L		119	55 - 137
Chlorobenzene	25.0	25.1		ug/L		100	80 - 121
Chloroethane	25.0	24.6		ug/L		98	38 - 152
Chloroform	25.0	25.7		ug/L		103	74 - 122
Chloromethane	25.0	25.8		ug/L		103	47 - 143
1,1-Dichloroethane	25.0	25.3		ug/L		101	72 - 127
1,2-Dichloroethane	25.0	25.5		ug/L		102	66 - 128
1,1-Dichloroethene	25.0	27.4		ug/L		110	63 - 134
1,2-Dichloropropane	25.0	25.4		ug/L		102	75 - 133
cis-1,3-Dichloropropene	25.0	25.8		ug/L		103	64 - 130
trans-1,3-Dichloropropene	25.0	26.9		ug/L		108	57 - 129
Ethylbenzene	25.0	27.1		ug/L		108	80 - 121
2-Hexanone	50.0	57.4		ug/L		115	43 - 167
Methylene Chloride	25.0	26.6		ug/L		106	71 - 125
4-Methyl-2-pentanone (MIBK)	50.0	53.5		ug/L		107	46 - 158
Styrene	25.0	27.4		ug/L		109	80 - 135
1,1,2,2-Tetrachloroethane	25.0	27.2		ug/L		109	58 - 157
Tetrachloroethene	25.0	25.6		ug/L		102	76 - 123
Toluene	25.0	25.3		ug/L		101	80 - 123
Trichloroethene	25.0	24.7		ug/L		99	70 - 122
Vinyl chloride	25.0	26.6		ug/L		106	60 - 144
Xylenes, Total	50.0	55.3		ug/L		111	80 - 121
1,1,1-Trichloroethane	25.0	27.3		ug/L		109	64 - 131
1,1,2-Trichloroethane	25.0	25.4		ug/L		101	70 - 138
1,2-Dibromo-3-Chloropropane	25.0	22.1		ug/L		88	53 - 135
1,2-Dibromoethane	25.0	25.5		ug/L		102	71 - 134
Dichlorodifluoromethane	25.0	24.3		ug/L		97	34 - 153
cis-1,2-Dichloroethene	25.0	25.9		ug/L		104	77 - 123
trans-1,2-Dichloroethene	25.0	26.1		ug/L		104	75 - 124
Isopropylbenzene	25.0	27.9		ug/L		112	74 - 128
Methyl tert-butyl ether	25.0	25.8		ug/L		103	65 - 126
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	28.7		ug/L		115	51 - 146

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-521043/4 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 521043

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	25.0	25.9		ug/L		103	44 - 147
1,2-Dichlorobenzene	25.0	25.6		ug/L		103	78 - 120
1,3-Dichlorobenzene	25.0	25.7		ug/L		103	80 - 120
1,4-Dichlorobenzene	25.0	25.1		ug/L		100	80 - 120
Trichlorofluoromethane	25.0	29.6		ug/L		118	30 - 170
Dibromochloromethane	25.0	27.4		ug/L		109	70 - 124
m-Xylene & p-Xylene	25.0	27.2		ug/L		109	80 - 120
o-Xylene	25.0	28.1		ug/L		112	80 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*62 - 137*
4-Bromofluorobenzene (Surr)	*100*		*56 - 136*
Toluene-d8 (Surr)	*96*		*78 - 122*
Dibromofluoromethane (Surr)	*95*		*73 - 120*

GC/MS VOA

Analysis Batch: 521043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163988-1	OW-16D2_032122	Total/NA	Water	8260B	
240-163988-2	EQUIPMENT BLANK	Total/NA	Water	8260B	
240-163988-3	FIELD BLANK	Total/NA	Water	8260B	
240-163988-4	TRIP BLANK	Total/NA	Water	8260B	
MB 240-521043/7	Method Blank	Total/NA	Water	8260B	
LCS 240-521043/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client Sample ID: OW-16D2_032122

Lab Sample ID: 240-163988-1

Date Collected: 03/21/22 10:30

Matrix: Water

Date Received: 03/23/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	521043	03/28/22 17:24	SAM	TAL CAN

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 240-163988-2

Date Collected: 03/21/22 10:30

Matrix: Water

Date Received: 03/23/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	521043	03/28/22 15:44	SAM	TAL CAN

Client Sample ID: FIELD BLANK

Lab Sample ID: 240-163988-3

Date Collected: 03/21/22 10:30

Matrix: Water

Date Received: 03/23/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	521043	03/28/22 16:08	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-163988-4

Date Collected: 03/21/22 00:00

Matrix: Water

Date Received: 03/23/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	521043	03/28/22 16:33	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: ZF Active Safety and Electronics LLC
Project/Site: TRW Milford

Job ID: 240-163988-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-22 *
Connecticut	State	PH-0590	12-31-21 *
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22 *
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22 *
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	11-06-22
New York	NELAP	10975	03-31-22
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-21-14	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Mesa, AZ 85212	Novi, MI 48377
bob.bleazard@trw.com	Marina.Samp@arcadis.com
	sclouse@arcadis-us.com

Analysis Level	**Level 1 (Routine Report)**	**Sampler**	Allyson Hartz
TAT	**10 Business Days (Standard - Level 1)**	**Deliverable**	EDD/PDF (e-mail)

Sample Identification and Information

	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	No. of Cont.	Grab or Composite	Field Filtered	VOC 8260
1	OW-16D2	--	--	OW-16D2_032122	3/21/22	10:30	GW	WATER	REG	3	G	N	X
2	EQUIPMENT BLANK	--	--	EQUIPMENT BLANK_032122	↓	10:35	GW	WATER	REG	1 ~~1~~ AH	G	N	X
3	FIELD BLANK	--	--	FIELD BLANK_032122		10:03	QC	WATER	REG	1	G	N	X
4	TRIP BLANK	--	--	TRIP BLANK_032122		—	QC	WATER	REG	1	G	N	X
5		--	--		--	--	QC	WATER	REG	1	G	N	X
6		--	--										
7		--	--										
8		--	--										
9		--	--										
10		--	--										
11													

Special Instructions:

Relinquished by: AHartz	Company Arcadis		Received by:	Company EETA		Condition
	Date/Time 3/21/22 1140			Date/Time 3/21/22		Cooler Temp.
Relinquished by:	Company EETA		Received by: Cold storage	Company EETA		Condition
	Date/Time 3/21/22	1145		Date/Time 3/21/22 1300		Cooler Temp.
Relinquished by: Cold storage 190	Company EETA		Received by:	Company EETNC		Condition
	Date/Time 3/22/22 11:19			Date/Time 3-23-22 800		Cooler Temp.
Relinquished by:	Company		Received by:	Company		Condition
	Date/Time			Date/Time		Cooler Temp.

Preservatives Code: 0 = None; 1 = HCL; 2 = HNO3; 3 = H2SO4; 4 = NaOH; 5 = Zn. Acetate; 6 = MeOH; 7 = NaHSO4; 8 = Other (specify):

240-163988 Chain of Custody

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 163988
Canton Facility

Client TRW Site Name ____________

Cooler unpacked by: Tammy [illegible]

Cooler Received on 3-23-22 Opened on 3-23-22

FedEx: 1st Grd Exp UPS FAS [✓ Clipper] Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time ____________ Storage Location ____________

TestAmerica Cooler # 1A Foam Box Client Cooler Box Other ____________

Packing material used: [✓ Bubble Wrap] Foam Plastic Bag None Other ____________

COOLANT: [✓ Wet Ice] Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-14 (CF **-0.2** °C) Observed Cooler Temp.______°C Corrected Cooler Temp.______°C
   IR GUN #IR-15 (CF **-0.7**°C) Observed Cooler Temp.______°C Corrected Cooler Temp.______°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 each [✓ Yes] No
   -Were the seals on the outside of the cooler(s) signed & dated? [✓ Yes] No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes [✓ No]
   -Were tamper/custody seals intact and uncompromised? [✓ Yes] No NA
3. Shippers' packing slip attached to the cooler(s)? [✓ Yes] No
4. Did custody papers accompany the sample(s)? [✓ Yes] No
5. Were the custody papers relinquished & signed in the appropriate place? [✓ Yes] No
6. Was/were the person(s) who collected the samples clearly identified on the COC? [✓ Yes] No
7. Did all bottles arrive in good condition (Unbroken)? [✓ Yes] No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? [✓ Yes] No
9. For each sample, does the COC specify preservatives ([✓ Y]/N), # of containers ([✓ Y]/N), and sample type of grab/comp([✓ Y]/N)?
10. Were correct bottle(s) used for the test(s) indicated? [✓ Yes] No
11. Sufficient quantity received to perform indicated analyses? [✓ Yes] No
12. Are these work share samples and all listed on the COC? Yes [✓ No]
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No [✓ NA] pH Strip Lot# **HC157842**
14. Were VOAs on the COC? [✓ Yes] No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes [✓ No] NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 61109 [✓ Yes] No
17. Was a LL Hg or Me Hg trip blank present? ____________ Yes [✓ No]

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM ____________ Date ____________ by ____________ via Verbal Voice Mail Other

Concerning ____________

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) ____________ were received after the recommended holding time had expired.
Sample(s) ____________ were received in a broken container.
Sample(s) ____________ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) ____________ were further preserved in the laboratory.
Time preserved: ____________ Preservative(s) added/Lot number(s): ____________

VOA Sample Preservation - Date/Time VOAs Frozen: ____________

Login # : ______________

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
[✓ TA] Client Box Other	[✓ IR-14] IR-15	1.2	1.0	[✓ Wet Ice] Blue Ice Dry Ice Water None
[✓ TA] Client Box Other	[✓ IR-14] IR-15	1.1	0.9	[✓ Wet Ice] Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None

☐ See Temperature Excursion Form

WI-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers

Fibertec
environmental
services

Wednesday, April 06, 2022

Fibertec Project Number:	A07755
Project Identification:	TRW Milford ZF Active Safety (30046730) /30046730
Submittal Date:	04/04/2022

Mrs. Marina Samp
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Mrs. Samp,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Sue Ricketts

By Sue Ricketts at 12:26 PM, Apr 06, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**FIELDBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**11:45**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-001** **Matrix: Blank: Field**

Method: EPA 5030C/EPA 8260D **Description: FIELDBLANK_040422**

							Preparation		Analysis		
	Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
	1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡	2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡	20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
	36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF

Client Identification: **Arcadis U.S., Inc. - Novi**
Client Project Name: **TRW Milford ZF Active Safety (30046730)**
Client Project No: **30046730**

Sample Description: **FIELDBLANK_040422**
Sample No:
Sample Matrix: **Blank: Field**

Chain of Custody: **201041**
Collect Date: **04/04/22**
Collect Time: **11:45**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-001** **Matrix: Blank: Field**
Method: EPA 5030C/EPA 8260D **Description: FIELDBLANK_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 00:21	VI22D05B	JMF

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Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-002

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:55**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-002** **Matrix: Ground Water**

Method: EPA 5030C/EPA 8260D **Description: OW-16D2_040422**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
27. 1,1-Dichloroethane	**3.5**		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
30. cis-1,2-Dichloroethene	**19**		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
31. trans-1,2-Dichloroethene	**1.7**		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-002

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:55**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-002** **Matrix: Ground Water**

Method: EPA 5030C/EPA 8260D **Description: OW-16D2_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 02:59	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-003

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**EQUIPMENTBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Equipment**	Collect Time:	**12:10**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-003** **Matrix: Blank: Equipment**

Method: EPA 5030C/EPA 8260D **Description: EQUIPMENTBLANK_040422**

							Preparation		Analysis		
	Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
	1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡	2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡	20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
	36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-003

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**EQUIPMENTBLANK_040422**	Chain of Custody:	**201041**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Equipment**	Collect Time:	**12:10**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-003** **Matrix: Blank: Equipment**
Method: EPA 5030C/EPA 8260D **Description: EQUIPMENTBLANK_040422**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 00:48	VI22D05B	JMF

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07755
Laboratory Sample Number: A07755-004

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**TRIP BLANK**	Chain of Custody:	**N/A**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/04/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07755-004** **Matrix: Blank: Trip**
Method: EPA 5030C/EPA 8260D **Description: TRIP BLANK**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
3. Benzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
4. Bromobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
5. Bromochloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
7. Bromoform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
8. Bromomethane	U	V- L-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
9. 2-Butanone	U		µg/L	25	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
15. Chlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
16. Chloroethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
17. Chloroform	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
18. Chloromethane	U	V-	µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
22. Dibromomethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
35. Ethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF

Client Identification: **Arcadis U.S., Inc. - Novi**
Client Project Name: **TRW Milford ZF Active Safety (30046730)**
Client Project No: **30046730**

Sample Description: **TRIP BLANK**
Sample No:
Sample Matrix: **Blank: Trip**

Chain of Custody: **N/A**
Collect Date: **04/04/22**
Collect Time: **NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS
Method: EPA 5030C/EPA 8260D

Aliquot ID: **A07755-004** **Matrix: Blank: Trip**
Description: **TRIP BLANK**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
40. Methylene Chloride	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
42. MTBE	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
43. Naphthalene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
45. Styrene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
49. Toluene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
53. Trichloroethene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
60. m&p-Xylene	U		µg/L	2.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
61. o-Xylene	U		µg/L	1.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/05/22	VI22D05B	04/06/22 01:14	VI22D05B	JMF

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

L- : Recovery in the associated laboratory sample (LCS) exceeds the lower control limit. Results may be biased low.
V- : Recovery in the associated continuing calibration verification sample (CCV) exceeds the lower control limit. Results may be biased low.

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

VI22D05B: Method Blank (MB) EPA 8260D

Run Time: VI22D05B.MB 04/05/2022 23:54 [VI22D05B]

Analyte	**MB Result** µg/L	**MB Qualifier**	**MB RDL** µg/L
Acetone	U		50
Acrylonitrile	U		2.0
Benzene	U		1.0
Bromobenzene	U		1.0
Bromochloromethane	U		1.0
Bromodichloromethane	U		1.0
Bromoform	U		1.0
Bromomethane	U		5.0
2-Butanone	U		25
n-Butylbenzene	U		1.0
sec-Butylbenzene	U		1.0
tert-Butylbenzene	U		1.0
Carbon Disulfide	U		5.0
Carbon Tetrachloride	U		1.0
Chlorobenzene	U		1.0
Chloroethane	U		5.0
Chloroform	U		1.0
Chloromethane	U		5.0
2-Chlorotoluene	U		5.0
1,2-Dibromo-3-chloropropane (SIM)	U		1.0
Dibromochloromethane	U		5.0
Dibromomethane	U		5.0
1,2-Dichlorobenzene	U		1.0
1,3-Dichlorobenzene	U		1.0
1,4-Dichlorobenzene	U		1.0
Dichlorodifluoromethane	U		5.0
1,1-Dichloroethane	U		1.0
1,2-Dichloroethane	U		1.0
1,1-Dichloroethene	U		1.0
cis-1,2-Dichloroethene	U		1.0
trans-1,2-Dichloroethene	U		1.0
1,2-Dichloropropane	U		1.0
cis-1,3-Dichloropropene	U		0.50

VI22D05B: Method Blank (MB) EPA 8260D

Run Time: VI22D05B.MB 04/05/2022 23:54 [VI22D05B]

Analyte	MB Result µg/L	MB Qualifier	MB RDL µg/L
trans-1,3-Dichloropropene	U		0.50
Ethylbenzene	U		1.0
Ethylene Dibromide	U		1.0
2-Hexanone	U		50
Isopropylbenzene	U		5.0
4-Methyl-2-pentanone	U		50
Methylene Chloride	U		5.0
2-Methylnaphthalene	U		5.0
MTBE	U		5.0
Naphthalene	U		5.0
n-Propylbenzene	U		1.0
Styrene	U		1.0
1,1,1,2-Tetrachloroethane	U		1.0
1,1,2,2-Tetrachloroethane	U		1.0
Tetrachloroethene	U		1.0
Toluene	U		1.0
1,2,4-Trichlorobenzene	U		5.0
1,1,1-Trichloroethane	U		1.0
1,1,2-Trichloroethane	U		1.0
Trichloroethene	U		1.0
Trichlorofluoromethane	U		1.0
1,2,3-Trichloropropane	U		1.0
1,2,3-Trimethylbenzene	U		1.0
1,2,4-Trimethylbenzene	U		1.0
1,3,5-Trimethylbenzene	U		1.0
Vinyl Chloride	U		1.0
m&p-Xylene	U		2.0
o-Xylene	U		1.0
4-Bromofluorobenzene(S)	*100*		*80-120*
Dibromofluoromethane(S)	*101*		*80-120*
1,2-Dichloroethane-d4(S)	*94*		*80-120*
Toluene-d8(S)	*99*		*80-120*

VI22D05B: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) EPA 8260D

Run Time: VI22D05B.LCS: 04/05/2022 22:09 [VI22D05B] VI22D05B.LCSD: 04/05/2022 22:35 [VI22D05B]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
Acetone	50.0	30.6	61	54-140		50.0	31.1	62		2	20	
Acrylonitrile	50.0	52.7	105	70-130		50.0	53.7	107		2	20	
Benzene	50.0	46.5	93	80-120		50.0	45.1	90		3	20	
Bromobenzene	50.0	44.7	89	75-125		50.0	44.2	88		1	20	
Bromochloromethane	50.0	40.7	81	70-130		50.0	40.1	80		1	20	
Bromodichloromethane	50.0	44.5	89	75-120		50.0	43.5	87		2	20	
Bromoform	50.0	45.8	92	70-130		50.0	45.4	91		1	20	
Bromomethane	50.0	27.5	55	68-135	*	50.0	29.1	58	*	5	20	
2-Butanone	50.0	40.1	80	70-148		50.0	40.5	81		1	20	
n-Butylbenzene	50.0	52.8	106	70-133		50.0	51.9	104		2	20	
sec-Butylbenzene	50.0	50.2	100	70-125		50.0	49.4	99		1	20	
tert-Butylbenzene	50.0	49.5	99	70-130		50.0	48.6	97		2	20	
Carbon Disulfide	50.0	44.6	89	70-130		50.0	42.8	86		3	20	
Carbon Tetrachloride	50.0	44.5	89	70-130		50.0	43.3	87		2	20	
Chlorobenzene	50.0	45.9	92	80-120		50.0	44.8	90		2	20	
Chloroethane	50.0	40.5	81	61-130		50.0	39.1	78		4	20	
Chloroform	50.0	44.2	88	80-120		50.0	43.4	87		1	20	
Chloromethane	50.0	38.4	77	67-125		50.0	38.9	78		1	20	
2-Chlorotoluene	50.0	47.3	95	75-125		50.0	46.6	93		2	20	
1,2-Dibromo-3-chloropropane (SIM)	50.0	48.5	97	70-130		50.0	49.6	99		2	20	
Dibromochloromethane	50.0	44.6	89	70-130		50.0	43.3	87		2	20	
Dibromomethane	50.0	41.6	83	75-125		50.0	40.4	81		2	20	
1,2-Dichlorobenzene	50.0	46.9	94	70-120		50.0	46.2	92		2	20	
1,3-Dichlorobenzene	50.0	45.8	92	75-125		50.0	45.0	90		2	20	
1,4-Dichlorobenzene	50.0	43.3	87	75-125		50.0	42.5	85		2	20	
Dichlorodifluoromethane	50.0	53.5	107	70-136		50.0	51.0	102		5	20	
1,1-Dichloroethane	50.0	45.9	92	70-130		50.0	44.5	89		3	20	
1,2-Dichloroethane	50.0	40.9	82	70-130		50.0	39.7	79		4	20	
1,1-Dichloroethene	50.0	43.8	88	78-120		50.0	42.1	84		5	20	
cis-1,2-Dichloroethene	50.0	44.8	90	70-125		50.0	43.2	86		5	20	
trans-1,2-Dichloroethene	50.0	44.5	89	70-130		50.0	43.5	87		2	20	
1,2-Dichloropropane	50.0	49.1	98	80-121		50.0	47.4	95		3	20	
cis-1,3-Dichloropropene	50.0	43.4	87	70-130		50.0	42.2	84		4	20	

VI22D05B: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) EPA 8260D

Run Time: VI22D05B.LCS: 04/05/2022 22:09 [VI22D05B] VI22D05B.LCSD: 04/05/2022 22:35 [VI22D05B]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
trans-1,3-Dichloropropene	50.0	48.2	96	70-132		50.0	46.7	93		3	20	
Ethylbenzene	50.0	48.4	97	80-120		50.0	47.0	94		3	20	
Ethylene Dibromide	50.0	45.2	90	80-120		50.0	44.4	89		1	20	
2-Hexanone	50.0	39.4	79	70-130		50.0	40.5	81		3	20	
Isopropylbenzene	50.0	48.7	97	75-125		50.0	47.5	95		2	20	
4-Methyl-2-pentanone	50.0	55.2	110	70-130		50.0	54.7	109		1	20	
Methylene Chloride	50.0	43.8	88	70-130		50.0	42.7	85		3	20	
2-Methylnaphthalene	50.0	46.0	92	70-130		50.0	46.5	93		1	20	
MTBE	50.0	48.3	97	70-125		50.0	47.3	95		2	20	
Naphthalene	50.0	46.7	93	70-130		50.0	47.5	95		2	20	
n-Propylbenzene	50.0	49.4	99	70-130		50.0	48.8	98		1	20	
Styrene	50.0	41.0	82	70-130		50.0	39.7	79		4	20	
1,1,1,2-Tetrachloroethane	50.0	46.7	93	80-130		50.0	45.2	90		3	20	
1,1,2,2-Tetrachloroethane	50.0	59.4	119	70-130		50.0	60.5	121		2	20	
Tetrachloroethene	50.0	48.5	97	70-130		50.0	46.9	94		3	20	
Toluene	50.0	47.9	96	80-120		50.0	46.4	93		3	20	
1,2,4-Trichlorobenzene	50.0	45.9	92	70-130		50.0	46.0	92		0	20	
1,1,1-Trichloroethane	50.0	45.5	91	70-130		50.0	44.3	89		2	20	
1,1,2-Trichloroethane	50.0	47.6	95	75-125		50.0	47.1	94		1	20	
Trichloroethene	50.0	41.6	83	71-125		50.0	39.9	80		4	20	
Trichlorofluoromethane	50.0	48.2	96	70-133		50.0	46.6	93		3	20	
1,2,3-Trichloropropane	50.0	49.9	100	75-125		50.0	49.3	99		1	20	
1,2,3-Trimethylbenzene	50.0	47.0	94	70-130		50.0	46.2	92		2	20	
1,2,4-Trimethylbenzene	50.0	49.1	98	75-130		50.0	48.7	97		1	20	
1,3,5-Trimethylbenzene	50.0	49.1	98	75-130		50.0	48.1	96		2	20	
Vinyl Chloride	50.0	43.9	88	74-125		50.0	42.2	84		5	20	
m&p-Xylene	100	95.1	95	75-130		100	92.8	93		2	20	
o-Xylene	50.0	47.9	96	80-120		50.0	46.3	93		3	20	
4-Bromofluorobenzene(S)			*100*	*80-120*				*101*				
Dibromofluoromethane(S)			*99*	*80-120*				*98*				
1,2-Dichloroethane-d4(S)			*91*	*80-120*				*90*				
Toluene-d8(S)			*100*	*80-120*				*100*				

Quality Control Report
Laboratory Project Number: A07755

Definitions/ Qualifiers:

U: The analyte was not detected at or above the Reporting Limit (RL).
***:** Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:

Sue Ricketts

By Sue Ricketts at 12:32 PM, Apr 06, 2022

Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 201041
PAGE 1 of 1

Client Name: Arcadis
Contact Person: Marina Samp
Project Name/ Number: TRW Milford 30046730
Email distribution list: marina.samp@arcadis.com john.mcinnis@arcadis.com
Quote#
Purchase Order# 30046730.000IZ

Matrix Code
- S Soil
- A Air
- O Oil
- P Wipe
- [✓ GW] Ground Water
- SW Surface Water
- WW Waste Water
- X Other: Specify

Deliverables
- ☒ Level 2
- ☐ Level 3
- ☐ Level 4
- ☒ EDD

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS VOCs 8260B										HOLD SAMPLE	Remarks:
4.4.22	1145		FIELDBLANK_040422	GW	3	3											
4.4.22	1155		OW-16D2-040422	GW	3	3											
4.4.22	1210		EQUIPMENTBLANK_040422	GW	3	3											

Received By Lab
APR 04 2022
initials EH

Received On Ice

Comments:

Sampled/Relinquished By: Stacey Hannula	Date/ Time 4.4.22 1230	Received By: Anyssa Mandich/Arcadis
Relinquished By: Anyssa Mandich/Arcadis	Date/ Time 4/4/22 1415	Received By: Fibertec EH
Relinquished By:	Date/ Time	Received By Laboratory:

Turnaround Time **ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY**

______1 bus. day __X__2 bus. days (48 hrs) ______3 bus. days ______4 bus. days

______5-7 bus. days (standard) Other (specify time/date requirement): ____________

LAB USE ONLY

Fibertec project number: A07755

Temperature upon receipt at Lab: 2.0°C

Please see back for terms and conditions

Fibertec
environmental
services

Tuesday, April 12, 2022

Fibertec Project Number:	A07873
Project Identification:	TRW Milford ZF Active Safety (30046730) /30046730
Submittal Date:	04/08/2022

Mrs. Marina Samp
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Mrs. Samp,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Sue Ricketts

By Sue Ricketts at 1:11 PM, Apr 12, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Client Identification: **Arcadis U.S., Inc. - Novi**
Client Project Name: **TRW Milford ZF Active Safety (30046730)**
Client Project No: **30046730**

Sample Description: **Field Blank-040822**
Sample No:
Sample Matrix: **Blank: Field**

Chain of Custody: **207003**
Collect Date: **04/08/22**
Collect Time: **10:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS
Method: EPA 5030C/EPA 8260D

Aliquot ID: **A07873-001** **Matrix: Blank: Field**
Description: **Field Blank-040822**

							Preparation		Analysis		
	Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
	1. Acetone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡	2. Acrylonitrile	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	3. Benzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	4. Bromobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	5. Bromochloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	6. Bromodichloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	7. Bromoform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	8. Bromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	9. 2-Butanone	U		µg/L	25	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	10. n-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	13. Carbon Disulfide	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	15. Chlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	16. Chloroethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	17. Chloroform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	18. Chloromethane	U	V+ L+	µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡	20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	21. Dibromochloromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	22. Dibromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	35. Ethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
	36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM

Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-001

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Field Blank-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**10:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-001** **Matrix: Blank: Field**

Method: EPA 5030C/EPA 8260D **Description: Field Blank-040822**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
40. Methylene Chloride	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
42. MTBE	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
43. Naphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
45. Styrene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
49. Toluene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
53. Trichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
60. m&p-Xylene	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
61. o-Xylene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/11/22	VB22D11B	04/11/22 19:06	VB22D11B	KCM

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-002

Order: A07873
Date: 04/12/22

Client Identification: **Arcadis U.S., Inc. - Novi**
Client Project Name: **TRW Milford ZF Active Safety (30046730)**
Client Project No: **30046730**

Sample Description: **OW-16D2-040822**
Sample No:
Sample Matrix: **Ground Water**

Chain of Custody: **207003**
Collect Date: **04/08/22**
Collect Time: **11:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-002** **Matrix: Ground Water**

Method: EPA 5030C/EPA 8260D **Description: OW-16D2-040822**

							Preparation		Analysis		
	Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
	1. Acetone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡	2. Acrylonitrile	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	3. Benzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	4. Bromobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	5. Bromochloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	6. Bromodichloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	7. Bromoform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	8. Bromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	9. 2-Butanone	U		µg/L	25	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	10. n-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	13. Carbon Disulfide	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	15. Chlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	16. Chloroethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	17. Chloroform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	18. Chloromethane	U	V+ L+	µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡	20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	21. Dibromochloromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	22. Dibromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	27. 1,1-Dichloroethane	**3.5**		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	30. cis-1,2-Dichloroethene	**20**		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	31. trans-1,2-Dichloroethene	**1.5**		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	35. Ethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
	36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2-040822**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**11:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-002** **Matrix: Ground Water**

Method: EPA 5030C/EPA 8260D **Description: OW-16D2-040822**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
40. Methylene Chloride	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
42. MTBE	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
43. Naphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
45. Styrene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
49. Toluene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
53. Trichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
60. m&p-Xylene	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
61. o-Xylene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/11/22	VB22D11B	04/11/22 20:00	VB22D11B	KCM

Analytical Laboratory Report

Laboratory Project Number: A07873

Laboratory Sample Number: A07873-003

Order: A07873
Date: 04/12/22

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Trip Blank**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-003** **Matrix: Blank: Trip**

Method: EPA 5030C/EPA 8260D **Description: Trip Blank**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
3. Benzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
4. Bromobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
5. Bromochloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
7. Bromoform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
8. Bromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
9. 2-Butanone	U		µg/L	25	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
10. n-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
15. Chlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
16. Chloroethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
17. Chloroform	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
18. Chloromethane	U	V+ L+	µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
22. Dibromomethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
35. Ethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM

Analytical Laboratory Report
Laboratory Project Number: A07873
Laboratory Sample Number: A07873-003

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Trip Blank**	Chain of Custody:	**207003**
Client Project Name:	**TRW Milford ZF Active Safety (30046730)**	Sample No:		Collect Date:	**04/08/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Trip**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A07873-003** **Matrix: Blank: Trip**
Method: EPA 5030C/EPA 8260D **Description: Trip Blank**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
37. 2-Hexanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
40. Methylene Chloride	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
42. MTBE	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
43. Naphthalene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
45. Styrene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
49. Toluene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
53. Trichloroethene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
60. m&p-Xylene	U		µg/L	2.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
61. o-Xylene	U		µg/L	1.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/11/22	VB22D11B	04/11/22 19:33	VB22D11B	KCM

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

L+ : Recovery in the associated laboratory sample (LCS) exceeds the upper control limit. Results may be biased high.
V+ : Recovery in the associated continuing calibration verification sample (CCV) exceeds the upper control limit. Results may be biased high.

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

Quality Control Report
Laboratory Project Number: A07873

VB22D11B: Method Blank (MB) EPA 8260D

Run Time: VB22D11B.MB 04/11/2022 17:19 [VB22D11B]

Analyte	MB Result µg/L	MB Qualifier	MB RDL µg/L
Acetone	U		50
Acrylonitrile	U		2.0
Benzene	U		1.0
Bromobenzene	U		1.0
Bromochloromethane	U		1.0
Bromodichloromethane	U		1.0
Bromoform	U		1.0
Bromomethane	U		5.0
2-Butanone	U		25
n-Butylbenzene	U		1.0
sec-Butylbenzene	U		1.0
tert-Butylbenzene	U		1.0
Carbon Disulfide	U		5.0
Carbon Tetrachloride	U		1.0
Chlorobenzene	U		1.0
Chloroethane	U		5.0
Chloroform	U		1.0
Chloromethane	U		5.0
2-Chlorotoluene	U		5.0
1,2-Dibromo-3-chloropropane (SIM)	U		1.0
Dibromochloromethane	U		5.0
Dibromomethane	U		5.0
1,2-Dichlorobenzene	U		1.0
1,3-Dichlorobenzene	U		1.0
1,4-Dichlorobenzene	U		1.0
Dichlorodifluoromethane	U		5.0
1,1-Dichloroethane	U		1.0
1,2-Dichloroethane	U		1.0
1,1-Dichloroethene	U		1.0
cis-1,2-Dichloroethene	U		1.0
trans-1,2-Dichloroethene	U		1.0
1,2-Dichloropropane	U		1.0
cis-1,3-Dichloropropene	U		0.50

VB22D11B: Method Blank (MB)

EPA 8260D

Run Time: VB22D11B.MB 04/11/2022 17:19 [VB22D11B]

Analyte	MB Result µg/L	MB Qualifier	MB RDL µg/L
trans-1,3-Dichloropropene	U		0.50
Ethylbenzene	U		1.0
Ethylene Dibromide	U		1.0
2-Hexanone	U		50
Isopropylbenzene	U		5.0
4-Methyl-2-pentanone	U		50
Methylene Chloride	U		5.0
2-Methylnaphthalene	U		5.0
MTBE	U		5.0
Naphthalene	U		5.0
n-Propylbenzene	U		1.0
Styrene	U		1.0
1,1,1,2-Tetrachloroethane	U		1.0
1,1,2,2-Tetrachloroethane	U		1.0
Tetrachloroethene	U		1.0
Toluene	U		1.0
1,2,4-Trichlorobenzene	U		5.0
1,1,1-Trichloroethane	U		1.0
1,1,2-Trichloroethane	U		1.0
Trichloroethene	U		1.0
Trichlorofluoromethane	U		1.0
1,2,3-Trichloropropane	U		1.0
1,2,3-Trimethylbenzene	U		1.0
1,2,4-Trimethylbenzene	U		1.0
1,3,5-Trimethylbenzene	U		1.0
Vinyl Chloride	U		1.0
m&p-Xylene	U		2.0
o-Xylene	U		1.0
4-Bromofluorobenzene(S)	*104*		*80-120*
Dibromofluoromethane(S)	*105*		*80-120*
1,2-Dichloroethane-d4(S)	*100*		*80-120*
Toluene-d8(S)	*102*		*80-120*

VB22D11B: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) EPA 8260D

Run Time: VB22D11B.LCS: 04/11/2022 15:31 [VB22D11B] VB22D11B.LCSD: 04/11/2022 15:58 [VB22D11B]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
Acetone	50.0	38.5	77	54-140		50.0	40.0	80		4	20	
Acrylonitrile	50.0	54.7	109	70-130		50.0	54.1	108		1	20	
Benzene	50.0	48.4	97	80-120		50.0	47.1	94		3	20	
Bromobenzene	50.0	45.8	92	75-125		50.0	45.2	90		2	20	
Bromochloromethane	50.0	48.4	97	70-130		50.0	49.1	98		1	20	
Bromodichloromethane	50.0	50.1	100	75-120		50.0	49.1	98		2	20	
Bromoform	50.0	51.9	104	70-130		50.0	51.6	103		1	20	
Bromomethane	50.0	46.6	93	68-135		50.0	45.6	91		2	20	
2-Butanone	50.0	41.0	82	70-148		50.0	41.0	82		0	20	
n-Butylbenzene	50.0	53.9	108	70-133		50.0	52.5	105		3	20	
sec-Butylbenzene	50.0	51.2	102	70-125		50.0	49.4	99		3	20	
tert-Butylbenzene	50.0	49.3	99	70-130		50.0	48.1	96		3	20	
Carbon Disulfide	50.0	48.6	97	70-130		50.0	46.7	93		4	20	
Carbon Tetrachloride	50.0	52.9	106	70-130		50.0	52.4	105		1	20	
Chlorobenzene	50.0	47.8	96	80-120		50.0	46.6	93		3	20	
Chloroethane	50.0	48.1	96	61-130		50.0	46.6	93		3	20	
Chloroform	50.0	48.3	97	80-120		50.0	46.9	94		3	20	
Chloromethane	50.0	71.8	144	67-125	*	50.0	70.0	140	*	3	20	
2-Chlorotoluene	50.0	48.1	96	75-125		50.0	47.3	95		1	20	
1,2-Dibromo-3-chloropropane (SIM)	50.0	47.5	95	70-130		50.0	47.7	95		0	20	
Dibromochloromethane	50.0	48.5	97	70-130		50.0	48.7	97		0	20	
Dibromomethane	50.0	46.5	93	75-125		50.0	45.9	92		1	20	
1,2-Dichlorobenzene	50.0	47.0	94	70-120		50.0	46.6	93		1	20	
1,3-Dichlorobenzene	50.0	47.4	95	75-125		50.0	46.3	93		2	20	
1,4-Dichlorobenzene	50.0	45.3	91	75-125		50.0	44.5	89		2	20	
Dichlorodifluoromethane	50.0	60.4	121	70-136		50.0	57.0	114		6	20	
1,1-Dichloroethane	50.0	48.6	97	70-130		50.0	47.7	95		2	20	
1,2-Dichloroethane	50.0	45.9	92	70-130		50.0	45.3	91		1	20	
1,1-Dichloroethene	50.0	48.3	97	78-120		50.0	46.5	93		4	20	
cis-1,2-Dichloroethene	50.0	50.8	102	70-125		50.0	49.3	99		3	20	
trans-1,2-Dichloroethene	50.0	49.9	100	70-130		50.0	47.8	96		4	20	
1,2-Dichloropropane	50.0	51.0	102	80-121		50.0	50.7	101		1	20	
cis-1,3-Dichloropropene	50.0	49.4	99	70-130		50.0	48.7	97		2	20	

VB22D11B: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) EPA 8260D

Run Time: VB22D11B.LCS: 04/11/2022 15:31 [VB22D11B] VB22D11B.LCSD: 04/11/2022 15:58 [VB22D11B]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
trans-1,3-Dichloropropene	50.0	53.5	107	70-132		50.0	53.0	106		1	20	
Ethylbenzene	50.0	50.8	102	80-120		50.0	49.2	98		4	20	
Ethylene Dibromide	50.0	49.2	98	80-120		50.0	48.5	97		1	20	
2-Hexanone	50.0	53.4	107	70-130		50.0	53.2	106		1	20	
Isopropylbenzene	50.0	52.0	104	75-125		50.0	50.4	101		3	20	
4-Methyl-2-pentanone	50.0	59.4	119	70-130		50.0	59.4	119		0	20	
Methylene Chloride	50.0	45.0	90	70-130		50.0	43.9	88		2	20	
2-Methylnaphthalene	50.0	46.5	93	70-130		50.0	46.0	92		1	20	
MTBE	50.0	51.4	103	70-125		50.0	51.6	103		0	20	
Naphthalene	50.0	49.5	99	70-130		50.0	49.7	99		0	20	
n-Propylbenzene	50.0	51.7	103	70-130		50.0	50.0	100		3	20	
Styrene	50.0	43.7	87	70-130		50.0	42.8	86		1	20	
1,1,1,2-Tetrachloroethane	50.0	50.6	101	80-130		50.0	49.3	99		2	20	
1,1,2,2-Tetrachloroethane	50.0	54.5	109	70-130		50.0	55.0	110		1	20	
Tetrachloroethene	50.0	51.6	103	70-130		50.0	48.3	97		6	20	
Toluene	50.0	51.0	102	80-120		50.0	49.6	99		3	20	
1,2,4-Trichlorobenzene	50.0	46.9	94	70-130		50.0	45.8	92		2	20	
1,1,1-Trichloroethane	50.0	52.7	105	70-130		50.0	51.0	102		3	20	
1,1,2-Trichloroethane	50.0	48.1	96	75-125		50.0	47.2	94		2	20	
Trichloroethene	50.0	46.6	93	71-125		50.0	45.7	91		2	20	
Trichlorofluoromethane	50.0	48.2	96	70-133		50.0	46.4	93		3	20	
1,2,3-Trichloropropane	50.0	46.1	92	75-125		50.0	46.7	93		1	20	
1,2,3-Trimethylbenzene	50.0	48.4	97	70-130		50.0	47.3	95		2	20	
1,2,4-Trimethylbenzene	50.0	51.5	103	75-130		50.0	50.8	102		1	20	
1,3,5-Trimethylbenzene	50.0	51.0	102	75-130		50.0	49.6	99		3	20	
Vinyl Chloride	50.0	53.8	108	74-125		50.0	51.4	103		5	20	
m&p-Xylene	100	103	103	75-130		100	100	100		3	20	
o-Xylene	50.0	50.9	102	80-120		50.0	49.4	99		3	20	
4-Bromofluorobenzene(S)			*105*	*80-120*				*104*				
Dibromofluoromethane(S)			*103*	*80-120*				*103*				
1,2-Dichloroethane-d4(S)			*99*	*80-120*				*97*				
Toluene-d8(S)			*101*	*80-120*				*102*				

Definitions/ Qualifiers:

U: The analyte was not detected at or above the Reporting Limit (RL).
***:** Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:

Sue Ricketts

By Sue Ricketts at 1:19 PM, Apr 12, 2022

Fibertec
environmental
services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 207003
PAGE 1 of 1

Client Name: Arcadis

Contact Person: Marina Samp

Project Name/ Number: TRW Milford 30046730

Email distribution list: marina.samp@arcadis.com
john.mcinnis@arcadis.com

Quote#

Purchase Order# 30046730.0001Z

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	VOC 8260B	HOLD SAMPLE
4.8.22	1035		FIELDBLANK-040822	GW	3	3	
↓	1135		GW-16D2_040822	GW	3	3	
↓	~~—~~		~~EQUIPMENTBLANK-040822~~	~~GW~~	~~3~~	~~3~~	
			TRIP BLANK		3	3	

PARAMETERS

Matrix Code
S Soil
A Air
O Oil
P Wipe
[✓ GW] Ground Water
SW Surface Water
WW Waste Water
X Other: Specify

Deliverables
☒ Level 2
☐ Level 3
☐ Level 4
☒ EDD

Remarks:

Received By Lab
APR 08 2022
Initials: DG

Comments:

Sampled/Relinquished By: Stacey Hannula
Date/ Time 4.8.22 1240
Received By: Kriss Scott

Relinquished By: Kriss Scott
Date/ Time
Received By: 4/8/22 4:35

Relinquished By:
Date/ Time 4/8/22 1800
Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day
X 2 bus. days 48hr
_____3 bus. days
_____4 bus. days
_____5-7 bus. days (standard)
Other (specify time/date requirement): __________

LAB USE ONLY

Fibertec project number: A07873

Temperature upon receipt at Lab: 3.4°C

ived
ice

Please see back for terms and conditions

Fibertec
environmental
services

Wednesday, April 20, 2022

Fibertec Project Number:	A08019
Project Identification:	TRW Milford (30046730) /30046730
Submittal Date:	04/18/2022

Mr. John McInnis
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Mr. McInnis,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Sue Ricketts

By Sue Ricketts at 12:45 PM, Apr 20, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A08019
Laboratory Sample Number: A08019-001

Order: A08019
Date: 04/20/22

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**FIELD BLANK-041822**	Chain of Custody:	**207305**
Client Project Name:	**TRW Milford (30046730)**	Sample No:		Collect Date:	**04/18/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**10:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A08019-001** **Matrix: Blank: Field**

Method: EPA 5030C/EPA 8260D **Description: FIELD BLANK-041822**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U	L-	µg/L	50	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
3. Benzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
4. Bromobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
5. Bromochloromethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
7. Bromoform	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
8. Bromomethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
9. 2-Butanone	U		µg/L	25	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
10. n-Butylbenzene	U	V+	µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
15. Chlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
16. Chloroethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
17. Chloroform	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
18. Chloromethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
22. Dibromomethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
35. Ethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
37. 2-Hexanone	U		µg/L	50	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC

Analytical Laboratory Report
Laboratory Project Number: A08019
Laboratory Sample Number: A08019-001

Order: A08019
Date: 04/20/22

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**FIELD BLANK-041822**	Chain of Custody:	**207305**
Client Project Name:	**TRW Milford (30046730)**	Sample No:		Collect Date:	**04/18/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Field**	Collect Time:	**10:35**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A08019-001** **Matrix: Blank: Field**
Method: EPA 5030C/EPA 8260D **Description: FIELD BLANK-041822**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
40. Methylene Chloride	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
42. MTBE	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
43. Naphthalene	U	V+ L+	µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
45. Styrene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
49. Toluene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
53. Trichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
60. m&p-Xylene	U		µg/L	2.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
61. o-Xylene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/19/22	VB22D19A	04/19/22 13:08	VB22D19A	BRC

Analytical Laboratory Report
Laboratory Project Number: A08019
Laboratory Sample Number: A08019-002

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**EQUIPMENT BLANK-041822**	Chain of Custody:	**207305**
Client Project Name:	**TRW Milford (30046730)**	Sample No:		Collect Date:	**04/18/22**
Client Project No:	**30046730**	Sample Matrix:	**Blank: Equipment**	Collect Time:	**11:20**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A08019-002** **Matrix: Blank: Equipment**
Method: EPA 5030C/EPA 8260D **Description: EQUIPMENT BLANK-041822**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U	L-	µg/L	50	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
3. Benzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
4. Bromobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
5. Bromochloromethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
7. Bromoform	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
8. Bromomethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
9. 2-Butanone	U		µg/L	25	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
10. n-Butylbenzene	U	V+	µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
15. Chlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
16. Chloroethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
17. Chloroform	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
18. Chloromethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
22. Dibromomethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
27. 1,1-Dichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
30. cis-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
31. trans-1,2-Dichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
35. Ethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
37. 2-Hexanone	U		µg/L	50	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC

Client Identification: **Arcadis U.S., Inc. - Novi**
Sample Description: **EQUIPMENT BLANK-041822**
Chain of Custody: **207305**
Client Project Name: **TRW Milford (30046730)**
Sample No:
Collect Date: **04/18/22**
Client Project No: **30046730**
Sample Matrix: **Blank: Equipment**
Collect Time: **11:20**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS
Method: EPA 5030C/EPA 8260D
Aliquot ID: **A08019-002** **Matrix: Blank: Equipment**
Description: **EQUIPMENT BLANK-041822**

							Preparation		Analysis		
	Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
	38. Isopropylbenzene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	40. Methylene Chloride	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
‡	41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	42. MTBE	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	43. Naphthalene	U	V+ L+	µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	44. n-Propylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	45. Styrene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	48. Tetrachloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	49. Toluene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
‡	52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	53. Trichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
‡	56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	59. Vinyl Chloride	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	60. m&p-Xylene	U		µg/L	2.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
	61. o-Xylene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC
‡	62. Xylenes	U		µg/L	3.0	1.0	04/19/22	VB22D19A	04/19/22 13:35	VB22D19A	BRC

Analytical Laboratory Report
Laboratory Project Number: A08019
Laboratory Sample Number: A08019-003

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2-041822**	Chain of Custody:	**207305**
Client Project Name:	**TRW Milford (30046730)**	Sample No:		Collect Date:	**04/18/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**10:55**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A08019-003** **Matrix: Ground Water**
Method: EPA 5030C/EPA 8260D **Description: OW-16D2-041822**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	U	L-	µg/L	50	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
‡ 2. Acrylonitrile	U		µg/L	2.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
3. Benzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
4. Bromobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
5. Bromochloromethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
6. Bromodichloromethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
7. Bromoform	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
8. Bromomethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
9. 2-Butanone	U		µg/L	25	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
10. n-Butylbenzene	U	V+	µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
11. sec-Butylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
12. tert-Butylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
13. Carbon Disulfide	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
14. Carbon Tetrachloride	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
15. Chlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
16. Chloroethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
17. Chloroform	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
18. Chloromethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
19. 2-Chlorotoluene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
‡ 20. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
21. Dibromochloromethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
22. Dibromomethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
23. 1,2-Dichlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
24. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
25. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
26. Dichlorodifluoromethane	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
27. 1,1-Dichloroethane	**3.0**		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
28. 1,2-Dichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
29. 1,1-Dichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
30. cis-1,2-Dichloroethene	**18**		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
31. trans-1,2-Dichloroethene	**1.3**		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
32. 1,2-Dichloropropane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
33. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
34. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
35. Ethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
36. Ethylene Dibromide	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
37. 2-Hexanone	U		µg/L	50	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**OW-16D2-041822**	Chain of Custody:	**207305**
Client Project Name:	**TRW Milford (30046730)**	Sample No:		Collect Date:	**04/18/22**
Client Project No:	**30046730**	Sample Matrix:	**Ground Water**	Collect Time:	**10:55**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS **Aliquot ID: A08019-003** **Matrix: Ground Water**
Method: EPA 5030C/EPA 8260D **Description: OW-16D2-041822**

						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
38. Isopropylbenzene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
39. 4-Methyl-2-pentanone	U		µg/L	50	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
40. Methylene Chloride	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
‡ 41. 2-Methylnaphthalene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
42. MTBE	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
43. Naphthalene	U	V+ L+	µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
44. n-Propylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
45. Styrene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
46. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
47. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
48. Tetrachloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
49. Toluene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
50. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
51. 1,1,1-Trichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
‡ 52. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
53. Trichloroethene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
54. Trichlorofluoromethane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
55. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
‡ 56. 1,2,3-Trimethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
57. 1,2,4-Trimethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
58. 1,3,5-Trimethylbenzene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
59. Vinyl Chloride	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
60. m&p-Xylene	U		µg/L	2.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
61. o-Xylene	U		µg/L	1.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC
‡ 62. Xylenes	U		µg/L	3.0	1.0	04/19/22	VB22D19A	04/19/22 14:02	VB22D19A	BRC

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

L- : Recovery in the associated laboratory sample (LCS) exceeds the lower control limit. Results may be biased low.
L+ : Recovery in the associated laboratory sample (LCS) exceeds the upper control limit. Results may be biased high.
V+ : Recovery in the associated continuing calibration verification sample (CCV) exceeds the upper control limit. Results may be biased high.

Analysis Locations:

All analyses performed in Holt.

NELAP ACCREDITED TNI LABORATORY

Accreditation Number(s):

T104704518-19-8 (TX)

Quality Control Report
Laboratory Project Number: A08019

VB22D19A: Method Blank (MB) EPA 8260D

Run Time: VB22D19A.MB 04/19/2022 11:47 [VB22D19A]

Analyte	MB Result µg/L	MB Qualifier	MB RDL µg/L
Acetone	U		50
Acrylonitrile	U		2.0
Benzene	U		1.0
Bromobenzene	U		1.0
Bromochloromethane	U		1.0
Bromodichloromethane	U		1.0
Bromoform	U		1.0
Bromomethane	U		5.0
2-Butanone	U		25
n-Butylbenzene	U		1.0
sec-Butylbenzene	U		1.0
tert-Butylbenzene	U		1.0
Carbon Disulfide	U		5.0
Carbon Tetrachloride	U		1.0
Chlorobenzene	U		1.0
Chloroethane	U		5.0
Chloroform	U		1.0
Chloromethane	U		5.0
2-Chlorotoluene	U		5.0
1,2-Dibromo-3-chloropropane (SIM)	U		1.0
Dibromochloromethane	U		5.0
Dibromomethane	U		5.0
1,2-Dichlorobenzene	U		1.0
1,3-Dichlorobenzene	U		1.0
1,4-Dichlorobenzene	U		1.0
Dichlorodifluoromethane	U		5.0
1,1-Dichloroethane	U		1.0
1,2-Dichloroethane	U		1.0
1,1-Dichloroethene	U		1.0
cis-1,2-Dichloroethene	U		1.0
trans-1,2-Dichloroethene	U		1.0
1,2-Dichloropropane	U		1.0
cis-1,3-Dichloropropene	U		0.50

VB22D19A: Method Blank (MB) EPA 8260D

Run Time: VB22D19A.MB 04/19/2022 11:47 [VB22D19A]

Analyte	MB Result µg/L	MB Qualifier	MB RDL µg/L
trans-1,3-Dichloropropene	U		0.50
Ethylbenzene	U		1.0
Ethylene Dibromide	U		1.0
2-Hexanone	U		50
Isopropylbenzene	U		5.0
4-Methyl-2-pentanone	U		50
Methylene Chloride	U		5.0
2-Methylnaphthalene	U		5.0
MTBE	U		5.0
Naphthalene	U		5.0
n-Propylbenzene	U		1.0
Styrene	U		1.0
1,1,1,2-Tetrachloroethane	U		1.0
1,1,2,2-Tetrachloroethane	U		1.0
Tetrachloroethene	U		1.0
Toluene	U		1.0
1,2,4-Trichlorobenzene	U		5.0
1,1,1-Trichloroethane	U		1.0
1,1,2-Trichloroethane	U		1.0
Trichloroethene	U		1.0
Trichlorofluoromethane	U		1.0
1,2,3-Trichloropropane	U		1.0
1,2,3-Trimethylbenzene	U		1.0
1,2,4-Trimethylbenzene	U		1.0
1,3,5-Trimethylbenzene	U		1.0
Vinyl Chloride	U		1.0
m&p-Xylene	U		2.0
o-Xylene	U		1.0
4-Bromofluorobenzene(S)	*99*		*80-120*
Dibromofluoromethane(S)	*101*		*80-120*
1,2-Dichloroethane-d4(S)	*100*		*80-120*
Toluene-d8(S)	*100*		*80-120*

VB22D19A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) EPA 8260D

Run Time: VB22D19A.LCS: 04/19/2022 10:27 [VB22D19A] VB22D19A.LCSD: 04/19/2022 10:54 [VB22D19A]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
Acetone	50.0	23.4	47	54-140	*	50.0	22.4	45	*	4	20	
Acrylonitrile	50.0	55.1	110	70-130		50.0	56.3	113		3	20	
Benzene	50.0	49.1	98	80-120		50.0	48.2	96		2	20	
Bromobenzene	50.0	50.2	100	75-125		50.0	49.3	99		1	20	
Bromochloromethane	50.0	49.3	99	70-130		50.0	48.7	97		2	20	
Bromodichloromethane	50.0	52.1	104	75-120		50.0	51.3	103		1	20	
Bromoform	50.0	51.1	102	70-130		50.0	51.8	104		2	20	
Bromomethane	50.0	49.3	99	68-135		50.0	47.9	96		3	20	
2-Butanone	50.0	38.2	76	70-148		50.0	39.1	78		3	20	
n-Butylbenzene	50.0	61.4	123	70-133		50.0	57.7	115		7	20	
sec-Butylbenzene	50.0	55.3	111	70-125		50.0	52.8	106		5	20	
tert-Butylbenzene	50.0	54.6	109	70-130		50.0	52.6	105		4	20	
Carbon Disulfide	50.0	43.7	87	70-130		50.0	41.9	84		4	20	
Carbon Tetrachloride	50.0	48.0	96	70-130		50.0	48.2	96		0	20	
Chlorobenzene	50.0	50.5	101	80-120		50.0	49.7	99		2	20	
Chloroethane	50.0	45.4	91	61-130		50.0	44.0	88		3	20	
Chloroform	50.0	48.1	96	80-120		50.0	48.5	97		1	20	
Chloromethane	50.0	51.3	103	67-125		50.0	50.2	100		3	20	
2-Chlorotoluene	50.0	53.2	106	75-125		50.0	51.3	103		3	20	
1,2-Dibromo-3-chloropropane (SIM)	50.0	56.4	113	70-130		50.0	56.9	114		1	20	
Dibromochloromethane	50.0	51.4	103	70-130		50.0	51.9	104		1	20	
Dibromomethane	50.0	49.7	99	75-125		50.0	50.3	101		2	20	
1,2-Dichlorobenzene	50.0	53.0	106	70-120		50.0	51.4	103		3	20	
1,3-Dichlorobenzene	50.0	52.6	105	75-125		50.0	51.4	103		2	20	
1,4-Dichlorobenzene	50.0	49.3	99	75-125		50.0	48.1	96		3	20	
Dichlorodifluoromethane	50.0	54.0	108	70-136		50.0	52.4	105		3	20	
1,1-Dichloroethane	50.0	49.9	100	70-130		50.0	49.2	98		2	20	
1,2-Dichloroethane	50.0	47.3	95	70-130		50.0	47.5	95		0	20	
1,1-Dichloroethene	50.0	45.2	90	78-120		50.0	43.5	87		3	20	
cis-1,2-Dichloroethene	50.0	50.3	101	70-125		50.0	50.2	100		1	20	
trans-1,2-Dichloroethene	50.0	48.2	96	70-130		50.0	47.2	94		2	20	
1,2-Dichloropropane	50.0	52.5	105	80-121		50.0	52.1	104		1	20	
cis-1,3-Dichloropropene	50.0	54.6	109	70-130		50.0	53.9	108		1	20	

VB22D19A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) EPA 8260D

Run Time: VB22D19A.LCS: 04/19/2022 10:27 [VB22D19A] VB22D19A.LCSD: 04/19/2022 10:54 [VB22D19A]

Analyte	LCS Spike Amount µg/L	LCS Result µg/L	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/L	LCSD Result µg/L	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
trans-1,3-Dichloropropene	50.0	58.3	117	70-132		50.0	57.7	115		2	20	
Ethylbenzene	50.0	52.2	104	80-120		50.0	51.0	102		2	20	
Ethylene Dibromide	50.0	53.9	108	80-120		50.0	54.1	108		0	20	
2-Hexanone	50.0	39.6	79	70-130		50.0	39.0	78		1	20	
Isopropylbenzene	50.0	54.4	109	75-125		50.0	53.3	107		2	20	
4-Methyl-2-pentanone	50.0	57.3	115	70-130		50.0	58.2	116		1	20	
Methylene Chloride	50.0	42.2	84	70-130		50.0	35.1	70		18	20	
2-Methylnaphthalene	50.0	62.1	124	70-130		50.0	58.1	116		7	20	
MTBE	50.0	52.6	105	70-125		50.0	53.6	107		2	20	
Naphthalene	50.0	68.2	136	70-130	*	50.0	66.9	134	*	1	20	
n-Propylbenzene	50.0	53.9	108	70-130		50.0	52.0	104		4	20	
Styrene	50.0	49.5	99	70-130		50.0	49.1	98		1	20	
1,1,1,2-Tetrachloroethane	50.0	52.6	105	80-130		50.0	52.2	104		1	20	
1,1,2,2-Tetrachloroethane	50.0	61.9	124	70-130		50.0	62.5	125		1	20	
Tetrachloroethene	50.0	50.6	101	70-130		50.0	49.4	99		2	20	
Toluene	50.0	50.2	100	80-120		50.0	49.2	98		2	20	
1,2,4-Trichlorobenzene	50.0	59.2	118	70-130		50.0	57.8	116		2	20	
1,1,1-Trichloroethane	50.0	50.4	101	70-130		50.0	49.4	99		2	20	
1,1,2-Trichloroethane	50.0	52.4	105	75-125		50.0	52.3	105		0	20	
Trichloroethene	50.0	45.6	91	71-125		50.0	44.8	90		1	20	
Trichlorofluoromethane	50.0	51.7	103	70-133		50.0	48.8	98		5	20	
1,2,3-Trichloropropane	50.0	53.5	107	75-125		50.0	53.4	107		0	20	
1,2,3-Trimethylbenzene	50.0	53.1	106	70-130		50.0	51.7	103		3	20	
1,2,4-Trimethylbenzene	50.0	58.0	116	75-130		50.0	56.0	112		4	20	
1,3,5-Trimethylbenzene	50.0	55.3	111	75-130		50.0	53.5	107		4	20	
Vinyl Chloride	50.0	51.3	103	74-125		50.0	49.3	99		4	20	
m&p-Xylene	100	107	107	75-130		100	104	104		3	20	
o-Xylene	50.0	53.6	107	80-120		50.0	52.9	106		1	20	
4-Bromofluorobenzene(S)			*100*	*80-120*				*101*				
Dibromofluoromethane(S)			*99*	*80-120*				*100*				
1,2-Dichloroethane-d4(S)			*104*	*80-120*				*104*				
Toluene-d8(S)			*100*	*80-120*				*100*				

Definitions/ Qualifiers:

U:	The analyte was not detected at or above the Reporting Limit (RL).
***:**	Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:

Sue Ricketts

By Sue Ricketts at 12:52 PM, Apr 20, 2022

Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 207305
PAGE 1 of 1

Client Name: Arcadis
Contact Person: Stacey Hannula
Project Name/ Number: TRW Milford 30046730
Email distribution list: marina.samp@arcadis.com john.mcinnis@arcadis.com
Quote#
Purchase Order# 30046730.0001Z

PARAMETERS: VOC 8260B

HOLD SAMPLE

Matrix Code

- S Soil
- A Air
- O Oil
- P Wipe
- [✓ GW] Ground Water
- SW Surface Water
- WW Waste Water
- X Other: Specify

Deliverables

- ☒ Level 2
- ☐ Level 3
- ☐ Level 4
- ☒ EDD

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	VOC 8260B	Remarks:
4.18	1035 SH		FIELDBLANK 041822	GW	3	3	
↓	~~1055~~ 1120		EQUIPMENTBLANK-041822	GW	3	3	1120 sample time
	1055		OW-16D2-041822	GW	3	3	
			~~8 TRIPBLANK~~		~~3~~	~~3~~	

Received By Lab
APR 18 2022
Initials EA

Received On Ice

Comments:

Sampled/Relinquished By: Stacey Hannula
Date/ Time 4.18.22 12:10
Received By: Russ Scott

Relinquished By: Russ Scott
Date/ Time
Received By: 4/18/22 1:30

Relinquished By:
Date/ Time 4/18/22 15:15
Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

___ 1 bus. day X 2 bus. days 48hr ___ 3 bus. days ___ 4 bus. days

___ 5-7 bus. days (standard) Other (specify time/date requirement): ___

LAB USE ONLY

Fibertec project number: A08019

Temperature upon receipt at Lab: 3.1 °C

Please see back for terms and conditions

Arcadis of Michigan, LLC

28550 Cabot Drive

Suite 500

Novi, Michigan 48377

Tel 248 994 2240

www.arcadis.com