ZF Active Safety US Inc.

PROGRESS REPORT NO. 13

Former Kelsey-Hayes Company Site
Milford, Michigan

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

May 15, 2023

PROGRESS REPORT NO. 13
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 Michigan 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 Company site in Milford, Michigan. This progress report provides information regarding response activities and other matters related to the AO that occurred from April 14, 2023, through May 14, 2023.

Chronological Description of Activities Conducted During the Specified Reporting Period

- Observation wells OW-16D2R1 and OW-16D2R2 and compromised observation well OW-16D2 were sampled on April 12, 2023. The samples were submitted to Eurofins Canton, Ohio (Eurofins) for analysis of volatile organic compounds (VOCs) using United States Environmental Protection Agency (USEPA) Test Method 8260D. Laboratory analytical results and field sampling logs were submitted to EGLE and the Village of Milford (VOM) on April 21, 2023. Vinyl chloride was not detected at or above the reporting limit of 1.0 microgram per liter (µg/L) in any of the April 12, 2023 samples. The laboratory analytical report and field sampling logs are included in **Attachment 1**.
- On April 14, 2023, ZF submitted a request to modify Paragraph 5.2 of the AO to remove the 365-day completion requirement for the installation of the water treatment system. A copy of the request is included in **Attachment 2**.
- On April 20, 2023, EGLE granted the Second Modification of the AO (Second Modification) which updated the provisions of Paragraphs 5.2 and 5.3 to remove the 365-day completion requirement for the installation of the water treatment system and to discontinue sampling compromised observation well OW-16D2. The Second Modification provides that ZF should continue monthly sampling of observation wells OW-16D2R1 and OW-16D2R2. Paragraph 5.3 of the Second Modification also included a requirement to remove compromised observation well OW-16D2 from the ground within 30 days of the effective date (April 20, 2023) of the Second Modification. A copy of the Second Modification is included in **Attachment 3**.
- As a follow-up to the requirement to remove compromised observation well OW-16D2, on April 26, 2023, Arcadis provided an update to EGLE via electronic mail regarding the process to abandon compromised observation well OW-16D2, including potential complicating factors associated with attempting to remove OW-16D2 and inspecting well casing and screen materials. On May 4, 2023, EGLE responded via electronic mail ("EGLE's May 4th Email") that it had no concerns with the proposed process and requested that EGLE be notified when the abandonment is scheduled and if any difficulties are encountered, including if the work will extend beyond the 30-day deadline specified in the Second Modification. As a follow-up to EGLE's May 4th Email, Arcadis responded via electronic

mail that a work plan would be submitted for EGLE's review and also provided an initial notification that the abandonment work would be conducted after May 29th, based on driller availability. A copy of the electronic mail correspondence is included in **Attachment 4.**

- On May 8, 2023, ZF submitted a Work Plan to document proposed activities for the abandonment of compromised observation well OW-16D2. The Work Plan included a request to extend the deadline to complete the abandonment work set forth in Paragraph 5.3 of the Second Modification to and including June 9, 2023, based on driller availability and scheduling of the work (2 days) around other activities going on with the Village of Milford. A copy of the Work Plan is included in **Attachment 5**.
- Observation wells OW-16D2R1 and OW-16D2R2 were sampled on May 12, 2023. The samples were submitted to Eurofins for analysis of VOCs using USEPA Test Method 8260D. Laboratory analytical results will be submitted to EGLE and VOM when available.

Results of Sampling and Tests and Other Data

- The laboratory analytical report and field sampling logs for samples collected on April 12, 2023, from observation wells OW-16D2R1 and OW-16D2R2 and compromised observation well OW-16D2 were submitted to EGLE and VOM on April 21, 2023 and are included in **Attachment 1**. Vinyl chloride was not detected at or above the reporting limit of 1.0 µg/L in any of the April 12, 2023 samples.
- The summary tables of laboratory analytical results of samples and field parameters collected from observation wells OW-16D2R1 and OW-16D2R2 and compromised observation well OW-16D2 were updated to include the laboratory analytical results and field parameters from the April 12, 2023, sampling event and are included in **Attachment 6.**

Status of Access Issues

- There were no issues with access during the reporting period.

Scheduled for the Next Reporting Period

- Conduct monthly sampling at observation wells OW-16D2R1 and OW-16D2R2, with analysis of VOCs using USEPA Test Method 8260D by Eurofins within 10 to 14 days.
- Abandon compromised observation well OW-16D2 in accordance with the Work Plan.
- Continue to work with Ms. Yusko-Kotimko on VOM's Permit Application for Water Supply Systems pursuant to Act 399 for construction of the VOM treatment system improvements.

Other Relevant Information

- ZF and EGLE are working on an Administrative Order by Consent (AOC) which, when put into effect, would replace the AO. On April 25, 2023, EGLE provided a draft of the AOC for ZF review and comment. On May 5, 2023, ZF responded with its comments and proposed revisions on the draft AOC.

Attachments

1. Laboratory Analytical Report and Field Sampling Logs (Observation Wells OW-16D2R1 and OW-16D2R2 and Compromised Observation Well OW-16D2)
2. Request to Modify Paragraph 5.2 of the Administrative Order
3. Second Modification of the Administrative Order, Effective April 20, 2023
4. Email Correspondence – OW-16D2 Well Abandonment
5. OW-16D2 Well Abandonment Work Plan
6. Summary Tables of Analytical Results of Samples and Field Parameters (Observation Wells OW-16D2R1 and OW-16D2R2 and Compromised Observation Well OW-16D2)

ATTACHMENT 1

Laboratory Analytical Report and Field Sampling Logs (Observation Wells OW-16D2R1 and OW-16D2R2 and Compromised Observation Well OW-16D2)

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 4/21/2023 7:20:47 AM

JOB DESCRIPTION

TRW Milford

JOB NUMBER

240-183524-2

Eurofins Canton
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

Generated
4/21/2023 7:20:47 AM

Authorized for release by
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Table of Contents

Definitions/Glossary

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

Job ID: 240-183524-2

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: 240-183524-2

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-183524-2

Receipt
The samples were received on 4/14/2023 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 time was 0.4°C

Receipt Exceptions
The following sample was listed on the Chain of Custody (COC); however, no sample was received: MS/MSD on sample 1 of the COC.

GC/MS VOA
Method 8260D: The continuing calibration verification (CCV) associated with batch 240-569960 recovered above the upper control limit for Dichloro-difluoromethane and Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: OW_16D2_041223 (240-183524-9), OW_16D2R1_041223 (240-183524-10), OW_16D2R2_041223 (240-183524-11), TRIP_BLANK_01 (240-183524-12), FIELD_BLANK_01_041323 (240-183524-13), (CCV 240-569960/4), (CCVIS 240-569960/3), (LCS 240-569960/5), (LCS 240-569960/6), (MB 240-569960/8), (240-183626-B-1), (240-183626-E-1 MS) and (240-183626-F-1 MSD).

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-569960 was outside the method criteria for the following analyte: 1,1,2,2-Tetrachloroethane. An MRL standard at or below the reporting limit (RL) was analyzed with the affected samples: OW_16D2_041223 (240-183524-9), OW_16D2R1_041223 (240-183524-10), OW_16D2R2_041223 (240-183524-11), TRIP_BLANK_01 (240-183524-12), FIELD_BLANK_01_041323 (240-183524-13), (CCV 240-569960/4), (CCVIS 240-569960/3), (LCS 240-569960/5), (LCS 240-569960/6), (MB 240-569960/8), (240-183626-B-1), (240-183626-E-1 MS) and (240-183626-F-1 MSD) and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

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

Method Summary

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

Job ID: 240-183524-2

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN

Protocol References:

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

Laboratory References:

EET 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: 240-183524-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-183524-9	OW_16D2_041223	Water	04/12/23 09:10	04/14/23 08:00
240-183524-10	OW_16D2R1_041223	Water	04/12/23 10:00	04/14/23 08:00
240-183524-11	OW_16D2R2_041223	Water	04/12/23 11:00	04/14/23 08:00
240-183524-12	TRIP_BLANK_01	Water	04/12/23 00:00	04/14/23 08:00
240-183524-13	FIELD_BLANK_01_041323	Water	04/13/23 11:05	04/14/23 08:00

Detection Summary

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

Job ID: 240-183524-2

Client Sample ID: OW_16D2_041223 — Lab Sample ID: 240-183524-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	3.6		1.0		ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	17		1.0		ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	1.3		1.0		ug/L	1		8260D	Total/NA

Client Sample ID: OW_16D2R1_041223 — Lab Sample ID: 240-183524-10

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	2.3		1.0		ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	19		1.0		ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	1.0		1.0		ug/L	1		8260D	Total/NA

Client Sample ID: OW_16D2R2_041223 — Lab Sample ID: 240-183524-11

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	9.2		1.0		ug/L	1		8260D	Total/NA

Client Sample ID: TRIP_BLANK_01 — Lab Sample ID: 240-183524-12

No Detections.

Client Sample ID: FIELD_BLANK_01_041323 — Lab Sample ID: 240-183524-13

No Detections.

This Detection Summary does not include radiochemical test results.

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

Job ID: 240-183524-2

Client Sample ID: OW_16D2_041223
Date Collected: 04/12/23 09:10
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-9
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,1-Dichloroethane	**3.6**		1.0		ug/L			04/19/23 19:18	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/19/23 19:18	1
Ethylene Dibromide	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:18	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:18	1
2-Butanone (MEK)	10	U	10		ug/L			04/19/23 19:18	1
2-Hexanone	10	U	10		ug/L			04/19/23 19:18	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/19/23 19:18	1
Acetone	10	U	10		ug/L			04/19/23 19:18	1
Benzene	1.0	U	1.0		ug/L			04/19/23 19:18	1
Dichlorobromomethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
Bromoform	1.0	U	1.0		ug/L			04/19/23 19:18	1
Bromomethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
Carbon disulfide	1.0	U	1.0		ug/L			04/19/23 19:18	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/19/23 19:18	1
Chlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:18	1
Chloroethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
Chloroform	1.0	U	1.0		ug/L			04/19/23 19:18	1
Chloromethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
cis-1,2-Dichloroethene	**17**		1.0		ug/L			04/19/23 19:18	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 19:18	1
Cyclohexane	1.0	U	1.0		ug/L			04/19/23 19:18	1
Chlorodibromomethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
Ethylbenzene	1.0	U	1.0		ug/L			04/19/23 19:18	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/19/23 19:18	1
Methyl acetate	10	U	10		ug/L			04/19/23 19:18	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/19/23 19:18	1
Methylcyclohexane	1.0	U	1.0		ug/L			04/19/23 19:18	1
Methylene Chloride	5.0	U	5.0		ug/L			04/19/23 19:18	1
Styrene	1.0	U	1.0		ug/L			04/19/23 19:18	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/19/23 19:18	1
Toluene	1.0	U	1.0		ug/L			04/19/23 19:18	1
trans-1,2-Dichloroethene	**1.3**		1.0		ug/L			04/19/23 19:18	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 19:18	1
Trichloroethene	1.0	U	1.0		ug/L			04/19/23 19:18	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/19/23 19:18	1
Vinyl chloride	1.0	U	1.0		ug/L			04/19/23 19:18	1
Xylenes, Total	2.0	U	2.0		ug/L			04/19/23 19:18	1

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

Job ID: 240-183524-2

Client Sample ID: OW_16D2_041223
Date Collected: 04/12/23 09:10
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-9
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	86		78 - 122		04/19/23 19:18	1
Dibromofluoromethane (Surr)	94		73 - 120		04/19/23 19:18	1
4-Bromofluorobenzene (Surr)	86		56 - 136		04/19/23 19:18	1
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		04/19/23 19:18	1

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

Job ID: 240-183524-2

Client Sample ID: OW_16D2R1_041223
Date Collected: 04/12/23 10:00
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-10
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,1-Dichloroethane	**2.3**		1.0		ug/L			04/19/23 19:43	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/19/23 19:43	1
Ethylene Dibromide	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:43	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:43	1
2-Butanone (MEK)	10	U	10		ug/L			04/19/23 19:43	1
2-Hexanone	10	U	10		ug/L			04/19/23 19:43	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/19/23 19:43	1
Acetone	10	U	10		ug/L			04/19/23 19:43	1
Benzene	1.0	U	1.0		ug/L			04/19/23 19:43	1
Dichlorobromomethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
Bromoform	1.0	U	1.0		ug/L			04/19/23 19:43	1
Bromomethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
Carbon disulfide	1.0	U	1.0		ug/L			04/19/23 19:43	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/19/23 19:43	1
Chlorobenzene	1.0	U	1.0		ug/L			04/19/23 19:43	1
Chloroethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
Chloroform	1.0	U	1.0		ug/L			04/19/23 19:43	1
Chloromethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
cis-1,2-Dichloroethene	**19**		1.0		ug/L			04/19/23 19:43	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 19:43	1
Cyclohexane	1.0	U	1.0		ug/L			04/19/23 19:43	1
Chlorodibromomethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
Ethylbenzene	1.0	U	1.0		ug/L			04/19/23 19:43	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/19/23 19:43	1
Methyl acetate	10	U	10		ug/L			04/19/23 19:43	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/19/23 19:43	1
Methylcyclohexane	1.0	U	1.0		ug/L			04/19/23 19:43	1
Methylene Chloride	5.0	U	5.0		ug/L			04/19/23 19:43	1
Styrene	1.0	U	1.0		ug/L			04/19/23 19:43	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/19/23 19:43	1
Toluene	1.0	U	1.0		ug/L			04/19/23 19:43	1
trans-1,2-Dichloroethene	**1.0**		1.0		ug/L			04/19/23 19:43	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 19:43	1
Trichloroethene	1.0	U	1.0		ug/L			04/19/23 19:43	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/19/23 19:43	1
Vinyl chloride	1.0	U	1.0		ug/L			04/19/23 19:43	1
Xylenes, Total	2.0	U	2.0		ug/L			04/19/23 19:43	1

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

Job ID: 240-183524-2

Client Sample ID: OW_16D2R1_041223
Date Collected: 04/12/23 10:00
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-10
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	86		78 - 122		04/19/23 19:43	1
Dibromofluoromethane (Surr)	99		73 - 120		04/19/23 19:43	1
4-Bromofluorobenzene (Surr)	86		56 - 136		04/19/23 19:43	1
1,2-Dichloroethane-d4 (Surr)	106		62 - 137		04/19/23 19:43	1

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

Job ID: 240-183524-2

Client Sample ID: OW_16D2R2_041223
Date Collected: 04/12/23 11:00
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-11
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/19/23 20:08	1
Ethylene Dibromide	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 20:08	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 20:08	1
2-Butanone (MEK)	10	U	10		ug/L			04/19/23 20:08	1
2-Hexanone	10	U	10		ug/L			04/19/23 20:08	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/19/23 20:08	1
Acetone	10	U	10		ug/L			04/19/23 20:08	1
Benzene	1.0	U	1.0		ug/L			04/19/23 20:08	1
Dichlorobromomethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
Bromoform	1.0	U	1.0		ug/L			04/19/23 20:08	1
Bromomethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
Carbon disulfide	1.0	U	1.0		ug/L			04/19/23 20:08	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/19/23 20:08	1
Chlorobenzene	1.0	U	1.0		ug/L			04/19/23 20:08	1
Chloroethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
Chloroform	1.0	U	1.0		ug/L			04/19/23 20:08	1
Chloromethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
cis-1,2-Dichloroethene	**9.2**		1.0		ug/L			04/19/23 20:08	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 20:08	1
Cyclohexane	1.0	U	1.0		ug/L			04/19/23 20:08	1
Chlorodibromomethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
Ethylbenzene	1.0	U	1.0		ug/L			04/19/23 20:08	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/19/23 20:08	1
Methyl acetate	10	U	10		ug/L			04/19/23 20:08	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/19/23 20:08	1
Methylcyclohexane	1.0	U	1.0		ug/L			04/19/23 20:08	1
Methylene Chloride	5.0	U	5.0		ug/L			04/19/23 20:08	1
Styrene	1.0	U	1.0		ug/L			04/19/23 20:08	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/19/23 20:08	1
Toluene	1.0	U	1.0		ug/L			04/19/23 20:08	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 20:08	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 20:08	1
Trichloroethene	1.0	U	1.0		ug/L			04/19/23 20:08	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/19/23 20:08	1
Vinyl chloride	1.0	U	1.0		ug/L			04/19/23 20:08	1
Xylenes, Total	2.0	U	2.0		ug/L			04/19/23 20:08	1

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

Job ID: 240-183524-2

Client Sample ID: OW_16D2R2_041223
Date Collected: 04/12/23 11:00
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-11
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	88		78 - 122		04/19/23 20:08	1
Dibromofluoromethane (Surr)	98		73 - 120		04/19/23 20:08	1
4-Bromofluorobenzene (Surr)	89		56 - 136		04/19/23 20:08	1
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		04/19/23 20:08	1

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

Job ID: 240-183524-2

Client Sample ID: TRIP_BLANK_01
Date Collected: 04/12/23 00:00
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-12
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/19/23 15:32	1
Ethylene Dibromide	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 15:32	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 15:32	1
2-Butanone (MEK)	10	U	10		ug/L			04/19/23 15:32	1
2-Hexanone	10	U	10		ug/L			04/19/23 15:32	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/19/23 15:32	1
Acetone	10	U	10		ug/L			04/19/23 15:32	1
Benzene	1.0	U	1.0		ug/L			04/19/23 15:32	1
Dichlorobromomethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
Bromoform	1.0	U	1.0		ug/L			04/19/23 15:32	1
Bromomethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
Carbon disulfide	1.0	U	1.0		ug/L			04/19/23 15:32	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/19/23 15:32	1
Chlorobenzene	1.0	U	1.0		ug/L			04/19/23 15:32	1
Chloroethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
Chloroform	1.0	U	1.0		ug/L			04/19/23 15:32	1
Chloromethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 15:32	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 15:32	1
Cyclohexane	1.0	U	1.0		ug/L			04/19/23 15:32	1
Chlorodibromomethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
Ethylbenzene	1.0	U	1.0		ug/L			04/19/23 15:32	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/19/23 15:32	1
Methyl acetate	10	U	10		ug/L			04/19/23 15:32	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/19/23 15:32	1
Methylcyclohexane	1.0	U	1.0		ug/L			04/19/23 15:32	1
Methylene Chloride	5.0	U	5.0		ug/L			04/19/23 15:32	1
Styrene	1.0	U	1.0		ug/L			04/19/23 15:32	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/19/23 15:32	1
Toluene	1.0	U	1.0		ug/L			04/19/23 15:32	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 15:32	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 15:32	1
Trichloroethene	1.0	U	1.0		ug/L			04/19/23 15:32	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/19/23 15:32	1
Vinyl chloride	1.0	U	1.0		ug/L			04/19/23 15:32	1
Xylenes, Total	2.0	U	2.0		ug/L			04/19/23 15:32	1

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

Job ID: 240-183524-2

Client Sample ID: TRIP_BLANK_01
Date Collected: 04/12/23 00:00
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-12
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	86		78 - 122		04/19/23 15:32	1
Dibromofluoromethane (Surr)	94		73 - 120		04/19/23 15:32	1
4-Bromofluorobenzene (Surr)	88		56 - 136		04/19/23 15:32	1
1,2-Dichloroethane-d4 (Surr)	105		62 - 137		04/19/23 15:32	1

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

Job ID: 240-183524-2

Client Sample ID: FIELD_BLANK_01_041323
Date Collected: 04/13/23 11:05
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-13
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/19/23 14:41	1
Ethylene Dibromide	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:41	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:41	1
2-Butanone (MEK)	10	U	10		ug/L			04/19/23 14:41	1
2-Hexanone	10	U	10		ug/L			04/19/23 14:41	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/19/23 14:41	1
Acetone	10	U	10		ug/L			04/19/23 14:41	1
Benzene	1.0	U	1.0		ug/L			04/19/23 14:41	1
Dichlorobromomethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
Bromoform	1.0	U	1.0		ug/L			04/19/23 14:41	1
Bromomethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
Carbon disulfide	1.0	U	1.0		ug/L			04/19/23 14:41	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/19/23 14:41	1
Chlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:41	1
Chloroethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
Chloroform	1.0	U	1.0		ug/L			04/19/23 14:41	1
Chloromethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 14:41	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 14:41	1
Cyclohexane	1.0	U	1.0		ug/L			04/19/23 14:41	1
Chlorodibromomethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
Ethylbenzene	1.0	U	1.0		ug/L			04/19/23 14:41	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/19/23 14:41	1
Methyl acetate	10	U	10		ug/L			04/19/23 14:41	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/19/23 14:41	1
Methylcyclohexane	1.0	U	1.0		ug/L			04/19/23 14:41	1
Methylene Chloride	5.0	U	5.0		ug/L			04/19/23 14:41	1
Styrene	1.0	U	1.0		ug/L			04/19/23 14:41	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/19/23 14:41	1
Toluene	1.0	U	1.0		ug/L			04/19/23 14:41	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 14:41	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 14:41	1
Trichloroethene	1.0	U	1.0		ug/L			04/19/23 14:41	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/19/23 14:41	1
Vinyl chloride	1.0	U	1.0		ug/L			04/19/23 14:41	1
Xylenes, Total	2.0	U	2.0		ug/L			04/19/23 14:41	1

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

Job ID: 240-183524-2

Client Sample ID: FIELD_BLANK_01_041323
Date Collected: 04/13/23 11:05
Date Received: 04/14/23 08:00

Lab Sample ID: 240-183524-13
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	88		78 - 122		04/19/23 14:41	1
Dibromofluoromethane (Surr)	95		73 - 120		04/19/23 14:41	1
4-Bromofluorobenzene (Surr)	86		56 - 136		04/19/23 14:41	1
1,2-Dichloroethane-d4 (Surr)	103		62 - 137		04/19/23 14:41	1

Surrogate Summary

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

Job ID: 240-183524-2

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DBFM	BFB	DCA
Lab Sample ID	Client Sample ID	(78-122)	(73-120)	(56-136)	(62-137)
240-183524-9	OW_16D2_041223	86	94	86	107
240-183524-10	OW_16D2R1_041223	86	99	86	106
240-183524-11	OW_16D2R2_041223	88	98	89	107
240-183524-12	TRIP_BLANK_01	86	94	88	105
240-183524-13	FIELD_BLANK_01_041323	88	95	86	103
LCS 240-569960/5	Lab Control Sample	90	95	96	102
MB 240-569960/8	Method Blank	87	95	86	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-569960/8
Matrix: Water
Analysis Batch: 569960

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,1,2-Trichloroethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,1-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,1-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0		ug/L			04/19/23 14:16	1
Ethylene Dibromide	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,2-Dichloroethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,2-Dichloropropane	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:16	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:16	1
2-Butanone (MEK)	10	U	10		ug/L			04/19/23 14:16	1
2-Hexanone	10	U	10		ug/L			04/19/23 14:16	1
4-Methyl-2-pentanone (MIBK)	10	U	10		ug/L			04/19/23 14:16	1
Acetone	10	U	10		ug/L			04/19/23 14:16	1
Benzene	1.0	U	1.0		ug/L			04/19/23 14:16	1
Dichlorobromomethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
Bromoform	1.0	U	1.0		ug/L			04/19/23 14:16	1
Bromomethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
Carbon disulfide	1.0	U	1.0		ug/L			04/19/23 14:16	1
Carbon tetrachloride	1.0	U	1.0		ug/L			04/19/23 14:16	1
Chlorobenzene	1.0	U	1.0		ug/L			04/19/23 14:16	1
Chloroethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
Chloroform	1.0	U	1.0		ug/L			04/19/23 14:16	1
Chloromethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
cis-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 14:16	1
cis-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 14:16	1
Cyclohexane	1.0	U	1.0		ug/L			04/19/23 14:16	1
Chlorodibromomethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
Dichlorodifluoromethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
Ethylbenzene	1.0	U	1.0		ug/L			04/19/23 14:16	1
Isopropylbenzene	1.0	U	1.0		ug/L			04/19/23 14:16	1
Methyl acetate	10	U	10		ug/L			04/19/23 14:16	1
Methyl tert-butyl ether	1.0	U	1.0		ug/L			04/19/23 14:16	1
Methylcyclohexane	1.0	U	1.0		ug/L			04/19/23 14:16	1
Methylene Chloride	5.0	U	5.0		ug/L			04/19/23 14:16	1
Styrene	1.0	U	1.0		ug/L			04/19/23 14:16	1
Tetrachloroethene	1.0	U	1.0		ug/L			04/19/23 14:16	1
Toluene	1.0	U	1.0		ug/L			04/19/23 14:16	1
trans-1,2-Dichloroethene	1.0	U	1.0		ug/L			04/19/23 14:16	1
trans-1,3-Dichloropropene	1.0	U	1.0		ug/L			04/19/23 14:16	1
Trichloroethene	1.0	U	1.0		ug/L			04/19/23 14:16	1
Trichlorofluoromethane	1.0	U	1.0		ug/L			04/19/23 14:16	1
Vinyl chloride	1.0	U	1.0		ug/L			04/19/23 14:16	1
Xylenes, Total	2.0	U	2.0		ug/L			04/19/23 14:16	1

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

Lab Sample ID: MB 240-569960/8
Matrix: Water
Analysis Batch: 569960

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*87*		*78 - 122*		*04/19/23 14:16*	*1*
Dibromofluoromethane (Surr)	*95*		*73 - 120*		*04/19/23 14:16*	*1*
4-Bromofluorobenzene (Surr)	*86*		*56 - 136*		*04/19/23 14:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*62 - 137*		*04/19/23 14:16*	*1*

Lab Sample ID: LCS 240-569960/5
Matrix: Water
Analysis Batch: 569960

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	19.5		ug/L		97	64 - 131
1,1,2,2-Tetrachloroethane	20.0	15.8		ug/L		79	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	19.8		ug/L		99	51 - 146
1,1,2-Trichloroethane	20.0	18.2		ug/L		91	70 - 138
1,1-Dichloroethane	20.0	19.1		ug/L		96	72 - 127
1,1-Dichloroethene	20.0	17.1		ug/L		85	63 - 134
1,2,4-Trichlorobenzene	20.0	18.4		ug/L		92	44 - 147
1,2-Dibromo-3-Chloropropane	20.0	14.8		ug/L		74	53 - 135
Ethylene Dibromide	20.0	18.6		ug/L		93	71 - 134
1,2-Dichlorobenzene	20.0	18.2		ug/L		91	78 - 120
1,2-Dichloroethane	20.0	21.5		ug/L		107	66 - 128
1,2-Dichloropropane	20.0	19.1		ug/L		96	75 - 133
1,3-Dichlorobenzene	20.0	18.4		ug/L		92	80 - 120
1,4-Dichlorobenzene	20.0	19.0		ug/L		95	80 - 120
2-Butanone (MEK)	40.0	41.6		ug/L		104	54 - 156
2-Hexanone	40.0	42.4		ug/L		106	43 - 167
4-Methyl-2-pentanone (MIBK)	40.0	41.0		ug/L		102	46 - 158
Acetone	40.0	39.3		ug/L		98	50 - 149
Benzene	20.0	18.5		ug/L		93	77 - 123
Dichlorobromomethane	20.0	20.6		ug/L		103	69 - 126
Bromoform	20.0	19.4		ug/L		97	57 - 129
Bromomethane	20.0	19.4		ug/L		97	36 - 142
Carbon disulfide	20.0	18.2		ug/L		91	43 - 140
Carbon tetrachloride	20.0	21.6		ug/L		108	55 - 137
Chlorobenzene	20.0	19.3		ug/L		96	80 - 121
Chloroethane	20.0	19.1		ug/L		95	38 - 152
Chloroform	20.0	19.1		ug/L		95	74 - 122
Chloromethane	20.0	23.1		ug/L		115	47 - 143
cis-1,2-Dichloroethene	20.0	17.4		ug/L		87	77 - 123
cis-1,3-Dichloropropene	20.0	17.8		ug/L		89	64 - 130
Cyclohexane	20.0	17.7		ug/L		89	58 - 146
Chlorodibromomethane	20.0	19.3		ug/L		96	70 - 124
Dichlorodifluoromethane	20.0	20.2		ug/L		101	34 - 153
Ethylbenzene	20.0	19.5		ug/L		97	80 - 121
Isopropylbenzene	20.0	18.7		ug/L		94	74 - 128
Methyl acetate	40.0	37.4		ug/L		93	42 - 169
Methyl tert-butyl ether	20.0	17.0		ug/L		85	65 - 126
Methylcyclohexane	20.0	16.4		ug/L		82	62 - 136

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

Lab Sample ID: LCS 240-569960/5
Matrix: Water
Analysis Batch: 569960

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	20.0	18.4		ug/L		92	71 - 125
Styrene	20.0	18.8		ug/L		94	80 - 135
Tetrachloroethene	20.0	20.8		ug/L		104	76 - 123
Toluene	20.0	18.7		ug/L		93	80 - 123
trans-1,2-Dichloroethene	20.0	19.4		ug/L		97	75 - 124
trans-1,3-Dichloropropene	20.0	17.8		ug/L		89	57 - 129
Trichloroethene	20.0	18.9		ug/L		95	70 - 122
Trichlorofluoromethane	20.0	22.4		ug/L		112	30 - 170
Vinyl chloride	20.0	21.2		ug/L		106	60 - 144
Xylenes, Total	40.0	37.4		ug/L		94	80 - 121
m-Xylene & p-Xylene	20.0	18.7		ug/L		93	80 - 120
o-Xylene	20.0	18.7		ug/L		94	80 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*90*		*78 - 122*
Dibromofluoromethane (Surr)	*95*		*73 - 120*
4-Bromofluorobenzene (Surr)	*96*		*56 - 136*
1,2-Dichloroethane-d4 (Surr)	*102*		*62 - 137*

GC/MS VOA

Analysis Batch: 569960

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-183524-9	OW_16D2_041223	Total/NA	Water	8260D	
240-183524-10	OW_16D2R1_041223	Total/NA	Water	8260D	
240-183524-11	OW_16D2R2_041223	Total/NA	Water	8260D	
240-183524-12	TRIP_BLANK_01	Total/NA	Water	8260D	
240-183524-13	FIELD_BLANK_01_041323	Total/NA	Water	8260D	
MB 240-569960/8	Method Blank	Total/NA	Water	8260D	
LCS 240-569960/5	Lab Control Sample	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-183524-2

Client Sample ID: OW_16D2_041223
Lab Sample ID: 240-183524-9
Date Collected: 04/12/23 09:10
Matrix: Water
Date Received: 04/14/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	569960	SAM	EET CAN	04/19/23 19:18

Client Sample ID: OW_16D2R1_041223
Lab Sample ID: 240-183524-10
Date Collected: 04/12/23 10:00
Matrix: Water
Date Received: 04/14/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	569960	SAM	EET CAN	04/19/23 19:43

Client Sample ID: OW_16D2R2_041223
Lab Sample ID: 240-183524-11
Date Collected: 04/12/23 11:00
Matrix: Water
Date Received: 04/14/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	569960	SAM	EET CAN	04/19/23 20:08

Client Sample ID: TRIP_BLANK_01
Lab Sample ID: 240-183524-12
Date Collected: 04/12/23 00:00
Matrix: Water
Date Received: 04/14/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	569960	SAM	EET CAN	04/19/23 15:32

Client Sample ID: FIELD_BLANK_01_041323
Lab Sample ID: 240-183524-13
Date Collected: 04/13/23 11:05
Matrix: Water
Date Received: 04/14/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	569960	SAM	EET CAN	04/19/23 14:41

Laboratory References:
EET 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: 240-183524-2
Project/Site: TRW 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	06-29-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-28-24
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-24
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

0.4/04

STL North Canton 4101 Shuffel Drive NW North Canton, OH 44720 Attn: Michael DelMonico	TRW Chain Of Custody / Analysis Request			LAB USE ONLY Laboratory ID No. (Lot No.)
Project Type: Groundwater Sampling - IZ	Privileged & Confidential: Yes		Site Name: Milford	
TRW PM: (name, company, address, e-mail) Bob Bleazard 11202 East Germann Road Mesa, AZ 85212 bob.bleazard@trw.com	TRW PO No.: 30046730 000CZ Database Manager: (name, company, address, E-mail) Christina Weaver and Sharon Clouse 28550 Cabot Drive, Suite 500 Novi, MI 48377 christina.weaver@arcadis.com john.mcinnis@arcadis.com sclouse@arcadis-us.com		Site Location: Milford, Michigan	
Analysis Level: Level 1 (Routine Report) TAT: 10 Business Days (Standard - Level 1)	Sampler: Scott Filipiak, Lottie Jay 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	1,1-Dichloroethane (8260D)	Cis-1,2-Dichloroethene (8260D)	Trans-1,2-Dichloroethene (8260 D)	Tetrachloroethene (8260D)	1,1,1-Trichloroethane (8260 D)	Trichloroethene (8260 D)	Lab Sample Numbers
	Preservatives Code (see below)												1	1	1	1	1	1	
1	OW-31-22	--	--	OW-31-22 041223	4/12/23	1205	GW	WATER	REG	9	G		x	x	x	x	x	x	
2	OW-32-22	--	--	OW-32-22 041223	4/12/23	1400	GW	WATER	REG	3	G		x	x	x	x	x	x	
3	OW-33-22	--	--	OW-33-22 041323	4/13/23	1040	GW	WATER	REG	3	G		x	x	x	x	x	x	
4	OW-34-22	--	--	OW-34-22 041223	4/12/23	1515	GW	WATER	REG	3	G		x	x	x	x	x	x	
5	OW-35-22	--	--	OW-35-22 041223	4/12/23	1245	GW	WATER	REG	3	G		x	x	x	x	x	x	MIC... 190
6	OW-36-22	--	--	OW-36-22 041323	4/13/23	1015	GW	WATER	REG	3	G		x	x	x	x	x	x	
7	DUP-01	--	--	DUP-01 041223	4/12/23	—	GW	WATER	REG	3	G		x	x	x	x	x	x	
8	Trip Blank	—	—	Trip Blank-02	—	—													
9																			
10																			

Special Instructions:

Relinquished by	Company	Date/Time	Received by	Company	Date/Time	Condition	Cooler Temp	Custody Seals Intact
Lottie Jay	ARCADIS	4/13/23 1135		EE TA	4/13/23 1145			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time	Condition	Cooler Temp	Custody Seals Intact
	EE TA	4/13/23 1145		EE TA	4/14/23			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time	Condition	Cooler Temp	Custody Seals Intact
Relinquished by	Company	Date/Time	Received by	Company	Date/Time	Condition	Cooler Temp	Custody Seals Intact

Preservatives Code: 0 = None; 1 = HCL; 2 = HNO3; 3 = H2SO4; 4 = NaOH; 5 = Zn. Acetate; 6 = MeOH; 7 = NaHSO4; 8 = Other (specify):

240-183524 Chain of Custody

Eurofins - Canton Sample Receipt Form/Narrative Login # :_____
Barberton Facility

Client IRW Site Name_____ Cooler unpacked by: Yamy Borja

Cooler Received on 4-14-23 Opened on 4-14-23

FedEx: 1st Grd Exp UPS FAS (Clipper) Client Drop Off Eurofins Courier Other_____

Receipt After-hours: Drop-off Date/Time_____ Storage Location_____

Eurofins Cooler # EC ~~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 # 22 (CF +0.0 °C) Observed Cooler Temp. 0.4 °C Corrected Cooler Temp. 0.4 °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)?	TR (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)?	(Y)	(N) (Y)
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# HC203864
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 # 62225	(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:

OW-31-22 - no MS or MSD

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:_____

BY... SF ..... DATE 4-12-2023 SHEET NO. 1 ..... OF. 1 .....
CHKD. BY. CW ... DATE 4-12-2023 JOB NO. 30136112 .....
SUBJECT. Frmr K-H Milford .....

ARCADIS

MW-16D2 (3.30/103.30) 0825 - 0905 / 0910

TIME	TEMP	D.O	SPC	PH	ORP	NAM	DMD
5	13.6	0.89	1.08	7.38	36.0	25.2	4.41
10	13.5	0.85	1.09	7.38	24.5	10.4	5.57
15	13.4	0.70	1.10	7.38	15.0	4.96	6.50
20	13.4	0.81	1.10	7.38	-13.5	4.44	7.41
25	13.5	0.77	1.10	7.39	-23.0	4.62	8.29
30	13.5	0.77	1.10	7.38	-23.9	4.00	9.17
35	13.6	0.78	1.10	7.39	-24.2	3.71	10.05
40	13.6	0.78	1.10	7.39	-24.1	3.36	10.99

MW-16D2R1 (0.71/90.25) 0920 - 0955 / 1000

5	13.1	0.80	1.07	7.27	-55.5	12.6	0.71
10	13.2	0.60	1.07	7.27	-60.1	4.84	0.71
15	13.1	0.39	1.07	7.26	-68.1	4.00	0.71
20	13.2	0.33	1.07	7.26	-71.4	3.39	0.71
25	13.3	0.28	1.07	7.26	-74.0	3.10	0.71
30	13.3	0.30	1.07	7.26	-74.6	2.96	0.71
35	13.4	0.31	1.07	7.26	-74.8	2.77	0.71

MW-16D2R2 (0.25/100.40) 1015 - 1055 / 1100

5	13.2	2.26	1.12	7.48	-84.4	10.1	0.6
10	13.2	1.28	1.12	7.50	-58.5	4.21	0.25
15	13.3	1.35	1.14	7.46	-70.9	3.96	1.11
20	13.3	1.22	1.13	7.47	-74.1	3.22	1.20
25	13.3	0.42	1.15	7.43	-91.7	3.16	1.20
30	13.3	0.34	1.15	7.42	-94.0	2.96	1.20
35	13.3	0.35	1.15	7.42	-94.0	2.70	1.20
40	13.3	0.35	1.15	7.42	-94.1	3.08	1.20

ATTACHMENT 2

Request to Modify Paragraph 5.2 of the Administrative Order

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

VIA EMAIL: AlgerB@michigan.gov
AND CERTIFIED MAIL

Department: Environmental, Health and Safety
From: Scott Detwiler
Phone: +1 480-722-4139
Email: Scott.Detwiler@zf.com
Date: April 14, 2023

Brandon Alger, Project Manager
Warren District Office, Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy ("EGLE")
27700 Donald Court
Warren, Michigan 48092

RE: **Administrative Order for Response Activity, EGLE Docket No. AO-RRD-22-001; Facility Id. No. 63000952.**

Dear Mr. Alger,

This letter is intended to confirm ZF Active Safety US Inc.'s (ZF's) understanding and request the Department of Environment, Great Lakes, and Energy's (EGLE's) concurrence regarding the current status of the requirements in Section 5.2 of the Administrative Order for Response Activity ("AO"), EGLE Docket No. AO-RRD-22-001 ("AO").

As you know, ZF first submitted a Technical Summary Report and cover letter to EGLE on August 9, 2022, requesting EGLE concurrence to withdraw the AO and suspend the requirements under the AO while it considers ZF's request. Since the initial submittal of the Technical Summary Report and letter, ZF and EGLE have actively worked together to refine the Report and the latest update of the Technical Summary Report was submitted by ZF on January 20, 2023.

In addition, since the Effective Date of the AO, ZF has complied with the requirements of Section 5.2 of the AO and has participated in design meetings with the Village of Milford and the EGLE Drinking Water and Environmental Health Division ("DWEHD"), provided design plans and specifications for review, and prepared and submitted a complete application for an Act 399 construction permit for a water treatment system for the Village of Milford. ZF, DWEHD, and the Village of Milford continue to work together on the details of the Act 399 permit. ZF has also continued to collect monthly samples from the OW-16D2 observation wells in accordance with Section 5.3 of the AO. Furthermore, ZF and EGLE have had regular communication through email and online meetings since March 2022 regarding the AO, including about the status of the items in Section 5.2.

However, Section 5.2 of the AO states, "Pursuant to the schedule below, Respondent shall diligently provide for and fully cooperate with the Village of Milford to design, install, implement, and maintain and operate the packed tower air stripper consistent with the Scope of Work no later than 365 days after the Effective Date of this Order." Given the Effective Date of the AO of April 16, 2022 and in light of the current status of the items in Sections 5.2.d. through 5.2.f. of the AO, ZF requests EGLE's response to this letter concurring that the parties are actively working together on the AO requirements and the development of a document to replace the AO and therefore, the requirements in Section 5.2 noted above have been suspended and Section 5.2 shall be modified or waived until such time that the AO has been terminated and replaced.

ZF appreciates EGLE's attention to this matter. Please include this letter in the administrative record for the AO and the Facility.

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

Sincerely,

Scott Detwiler
Senior Regional Manager
ZF Environmental, Health and Safety

Cc:

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. Danielle Allison-Yokom, Michigan Department of Attorney General
Mr. Michael Neller, EGLE – Remediation and Redevelopment Division 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 3

Second Modification of the Administrative Order, Effective April 20, 2023

Second Modification of the
Administrative Order for Response Activity
Former Kelsey-Hayes Company
101 Oak Street, Milford, Oakland County, Michigan
EGLE Docket No. AO-RRD-22-001

WHEREAS, DWEHD has not yet issued the Act 399 construction permit; and

WHEREAS, EGLE reviewed the November 14, 2022, Updated Technical Summary Report, submitted by Respondent, which concluded that the unique construction of monitoring well OW-16D2, consisting of galvanized steel in both the casing and the screen, caused fouling, and created isolated conditions conducive to the presence of in-well vinyl chloride; and

WHEREAS, EGLE reviewed the groundwater analytical field parameters from June 2022 through February 2023, submitted to EGLE by Respondent on February 14, 2023, and determined the drawdown and other parameters to be supportive of the conclusions of the November 14, 2022, Updated Technical Summary Report; and

WHEREAS, monitoring well OW-16D2 has therefore been determined to no longer be an effective monitoring well due to its unique construction, and associated tendency to foul; and

WHEREAS, Respondent has installed monitoring wells OW-16D2R1 and OW-16D2R2, intended to replace monitoring well OW-16D2; and

WHEREAS, the EGLE RRD Director is authorized to modify any required response activities pursuant to Section XIII of the Administrative Order for Response Activity, AO-RRD-22-001 (Order).

NOW, THEREFORE, in consideration of Respondents findings and EGLE's review, the following modifications to the Order shall take effect upon the date of the EGLE RRD Director's signature:

Paragraphs 5.2 and 5.3 of the Order are modified as follows:

5.2 **Installation of Air Stripper.** Pursuant to the schedule below, Respondent shall diligently provide for and fully cooperate with the Village of Milford to design, install, implement, and maintain and operate the packed tower air stripper consistent with the Scope of Work. All work shall be conducted in accordance with the requirements of this Order.

5.3 **Increase monitoring well sampling frequency.** Beginning 15 days after the effective date of this Second Modification to the Order, and continuing monthly until this Order is terminated, Respondent shall sample monitoring wells OW-16D2R1 and OW-16D2R2. Collected samples shall be analyzed for VOCs with results reported to EGLE in the progress reports pursuant to Section XII. Within 30 days of the effective date of this Second Modification to the Order, Respondent shall remove monitoring well OW-16D2 from the ground, in accordance with the American Society for Testing and Materials Standard ASTM D5299/D5299M-18, and provide to EGLE written and photographed documentation of the steps that were taken to remove the monitoring well and the condition of the monitoring well (whether fouling is present, the extent of fouling, the condition of the casing, and any other notable concerns).

All other aspects of the Order as originally issued on March 16, 2022, and as modified September 16, 2022, remain in full force and effect.

This modification became effective on April 20, 2023.

Mike Neller, Director
Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy

April 20, 2023
Date

Approved as to form:

Danielle Allison-Yokom
Assistant Attorney General
Environment, Natural Resources, and Agriculture Division
Michigan Department of Attorney General

April 20, 2023
Date

ATTACHMENT 4

Email Correspondence – OW-16D2 Well Abandonment

McInnis, John

From: McInnis, John
Sent: Thursday, May 4, 2023 11:13 AM
To: Alger, Brandon (EGLE)
Cc: Detwiler Scott MSA HEEN; Sclafani, Troy
Subject: RE: Former Kelsey-Hayes Milford - Compromised Well OW-16D2 Removal

Hi Brandon,

Thanks for the feedback. We will keep you updated on the schedule and if we encounter any issues. We are working on a work plan for your review that summarizes the removal process.

Based on Cascade's availability, the earliest we can schedule the well removal is after Memorial Day.

Thanks, John

From: Alger, Brandon (EGLE) <AlgerB@michigan.gov>
Sent: Thursday, May 4, 2023 8:26 AM
To: McInnis, John <John.McInnis@arcadis.com>
Cc: Detwiler Scott MSA HEEN <scott.detwiler@zf.com>; Sclafani, Troy <Troy.Sclafani@arcadis.com>
Subject: RE: Former Kelsey-Hayes Milford - Compromised Well OW-16D2 Removal

Hi John,

No concerns with the proposed process. Please let us know what day you plan for this to occur and if any difficulties are encountered. Additionally, if it appears this will go beyond 30 days, please let us know a weekish in advance.

Thanks,
Brandon Alger | Senior Geologist
Remediation and Redevelopment Division | Warren District Office
Michigan Department of Environment, Great Lakes, and Energy
586-623-2839 | AlgerB@Michigan.gov
Follow Us | Michigan.gov/EGLE

From: McInnis, John <John.McInnis@arcadis.com>
Sent: Wednesday, May 3, 2023 8:39 AM
To: Alger, Brandon (EGLE) <AlgerB@michigan.gov>
Cc: Detwiler Scott MSA HEEN <scott.detwiler@zf.com>; Sclafani, Troy <Troy.Sclafani@arcadis.com>
Subject: RE: Former Kelsey-Hayes Milford - Compromised Well OW-16D2 Removal

Hi Brandon,

Did you or your team have any questions or concerns with the proposed well abandonment process?

Thanks, John

From: Alger, Brandon (EGLE) <AlgerB@michigan.gov>
Sent: Wednesday, April 26, 2023 2:57 PM
To: McInnis, John <John.McInnis@arcadis.com>
Cc: Detwiler Scott MSA HEEN <scott.detwiler@zf.com>; Sclafani, Troy <Troy.Sclafani@arcadis.com>
Subject: RE: Former Kelsey-Hayes Milford - Compromised Well OW-16D2 Removal

Thanks John,

I will review this with our team and get back to you if we have any questions.

Brandon Alger | Senior Geologist
Remediation and Redevelopment Division | Warren District Office
Michigan Department of Environment, Great Lakes, and Energy
586-623-2839 | AlgerB@Michigan.gov
Follow Us | Michigan.gov/EGLE

From: McInnis, John <John.McInnis@arcadis.com>
Sent: Wednesday, April 26, 2023 1:39 PM
To: Alger, Brandon (EGLE) <AlgerB@michigan.gov>
Cc: Detwiler Scott MSA HEEN <scott.detwiler@zf.com>; Sclafani, Troy <Troy.Sclafani@arcadis.com>
Subject: Former Kelsey-Hayes Milford - Compromised Well OW-16D2 Removal

Hi Brandon,

We had a conversation with Cascade regarding removal of compromised well OW-16D2. They indicated that they have successfully removed entire wells. Because of the depth and age of OW-16D2, they recommend overdrilling the casing with a sonic rig to remove the well.

As you are aware there are several complicating factors associated with attempting to remove OW-16D2, including its age and deteriorated condition, as well as the fact that it was installed with hollow-stem augers in an area of challenging lithology that is likely to have resulted in auger "deflection" and wells that are not perfectly plumb. Since there is the potential for the well to get cut during overdrilling by the sonic tooling or shear off when they pull on it, Cascade recommends pre-grouting the well first before the removal process. This will allow the well to be properly grouted in place if the well does get cut or sheared off during the removal. The concern is that if the well is cut or sheared during the removal then the well would not be properly grouted/sealed in place. The disadvantage of the pre-grouting is that the well materials will be covered with grout if successfully removed so the inspection of the screen and casing may be difficult. Cascade indicated that they would try to carefully remove the grout using rinse water, but there's a possibility that any buildup or corrosion on the well materials that exists in its current state may get dislocated during the grout removal process. We wanted to bring this to your attention as we understand inspection of the well materials to be EGLE's primary reason for requesting well removal for the abandonment.

In addition, to help further document the condition of the well before removal, another down-hole camera survey will be performed prior to the abandonment.

Please let us know if you have any questions or concerns with this procedure.

Thanks, John

John McInnis PE
Principal 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

Professional Registration / PE-MI, 6201037207

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ATTACHMENT 5

OW-16D2 Well Abandonment Work Plan

Work Plan

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

TO
Brandon Alger, Senior Geologist
Michigan Department of Environment,
Great Lakes, And Energy

DATE
May 8, 2023

OUR REF
Compromised Well OW-16D2 Abandonment Work Plan

DEPARTMENT
Environment

PROJECT NUMBER
30136112

OVERVIEW

On behalf of ZF Active Safety US Inc. (ZF), Arcadis of Michigan, LLC (Arcadis) has prepared this Work Plan to document proposed activities for the abandonment of compromised well OW-16D2 (**Figure 1**). This Work Plan was prepared pursuant to Michigan Department of Environment, Great Lakes, and Energy (EGLE) Second Modification of the Administrative Order for Response Activity Former Kelsey-Hayes Company 101 Oak Street, Milford, Oakland County, Michigan, EGLE Docket No. AORRD-22-001, dated April 20, 2023. This Work Plan describes the process, in accordance with ASTM International Standard D5299/D5299M-18 for abandoning the compromised well OW-16D2 as requested by EGLE.

COMPROMISED WELL OW-16D2 REMOVAL

Field activities associated with the removal of compromised well OW-16D2 will include:

- Performing a camera survey of the well to document the current condition of the screen and the casing immediately prior to the well abandonment.
- Attempting to remove the well screen and casing from the ground using over-drilling with a sonic drill rig.

Monitoring Well Camera Survey

A down-well camera survey will be conducted to provide further documentation of the compromised well OW-16D2 immediately prior to the well abandonment, and to evaluate how the well conditions may have changed over time since the previous camera survey performed on July 21, 2022. A video recording and still photographs of the camera survey will be captured.

Monitoring Well Removal

Arcadis will retain a drilling subcontractor to over-drill and attempt to remove the well casing and screen from the ground. There are several complicating factors associated with attempting to remove OW-16D2, including its age (25 years), galvanized steel materials, and deteriorated condition, as well as the fact that it was installed with hollow-stem augers in an area of challenging lithology that is likely to have resulted in auger “deflection” and wells that are not perfectly plumb. Since there is the potential for the well to get cut during over-drilling by the sonic tooling or shear off when the drill rig pulls on it, the drilling subcontractor recommends pre-grouting the well first before the removal process. This will allow the well to be properly grouted in place if the well does get cut or

sheared off during the removal. The concern is that if the well is cut or sheared during the removal then the well would not be properly grouted/sealed in place.

The steps to remove the well are as follows:

Utility clearance will be conducted by calling Michigan OneCall and retaining a private utility locating subcontractor.

The drilling subcontractor will remove the stick-up well cover and concrete pad from the ground. Then, the drilling subcontractor will pre-grout the well with a bentonite grout prior to starting the removal process. The bentonite grout used for the process will be mixed according to manufacturer instructions, using one 50-lb bag of QUICK GROUT® per 24 gallons of water (see **Attachment 1**).

Using sonic drilling, an 8-inch casing will be advanced over the well casing to the bottom of the well (approximately 100 feet below ground surface).

The well casing will be attached to the sonic head or a winch and pulled out of the hole. In the process, the well material will be cut into smaller sections to allow disposal into a dumpster. Water and slurry generated during the drilling process will be captured in a drill-through tub and containerized in 55-gallon drums. The subcontractor will attempt to carefully remove the grout from the well materials using rinse water to facilitate inspection and photographic documentation of screen and casing to the extent possible. However, there is a possibility that any buildup or corrosion on the well materials that exists in its current state may get dislocated during the grout removal process.

Once the well casing has been removed, the borehole will be plugged with bentonite grout as specified above. The grout will be applied from the bottom up using tremie method at the same time as the 8-inch sonic casing is being removed from the ground. The grout will be filled to approximately 3 feet below ground surface. The next 2 feet of the borehole will be filled with dry bentonite chips and the remaining portion of the borehole will be filled flush to surface grade with topsoil and then seeded.

All well materials and other waste will be properly disposed of.

Written and photographic documentation of the steps that were taken to remove OW-16D2 and condition of the well will be provided to EGLE in a letter report following the abandonment.

TARGET SCHEDULE

Arcadis is coordinating with the Village of Milford and its drilling company subcontractor that will be performing the well abandonment work on selecting two consecutive days which are compatible with community activities planned in the park where this work will occur. Based on these coordination activities to date, ZF is aware that this work will not be able to be scheduled to meet the May 20, 2023 completion deadline set forth in Section 5.3 of the Second Modification of the Administrative Order for Response Activity dated April 20, 2023. ZF therefore requests that EGLE agree to a 20-day extension – to and including June 9, 2023 - to complete this work in a manner which accounts for current site access and drilling company subcontractor availability.

Enclosures: Figures and Attachments

Figures
1 - Site Layout Map

Attachments
1 – QUICK GROUT® Manufacturer's Information

Figure

RL-05

OW-16D2

Center St

E Liberty St

Canal St

N Main St

N Main St

N Main St

S Main St

S Main St

Water St

Clinton St

W Liberty St

Text

MILL POND

MILL CREEK

HUBBELL POND

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

0 120 240

SCALE IN FEET

FORMER KELSEY-HAYES PLANT
MILFORD, MICHIGAN

COMPROMISED WELL OW-16D2 LOCATION

ARCADIS

FIGURE 1

Attachment 1

Product Information for Baroid (Halliburton) QUIK-GROUT®.

QUIK-GROUT®

One-Sack Borehole Grouting and Plugging Material

Description

QUIK-GROUT® one-sack grouting and plugging material is a sodium bentonite-based grout designed for grouting water wells, monitoring wells, and for plugging boreholes. QUIK-GROUT grouting and plugging material does not contain any polymers.

Applications/Functions

- Can seal or grout plastic and steel casings
- Can seal downhole instrumentation in test and observation holes
- Can plug abandoned boreholes and earthen cavities
- Not recommended for use as a cement additive

Advantages

- Easy-to-use one sack grout
- Dust-free mixing
- Can be mixed and pumped using conventional rig equipment
- Rehydratable
- No heat of hydration
- Can develop a 20% active solids slurry weighing 9.4 lb/gal (1.13 g/cm^3) with hydrostatic gradient of 0.489 psi/ft (11.1 kPa/meter)
- Can create a low permeability seal to prevent entry of contaminants from the surface
- Can develop a permanent, flexible seal to prevent commingling between aquifers
- NSF/ANSI Standard 60 certified

Typical Properties

Appearance	Beige to tan granules
Specific gravity	2.6
pH (8% slurry)	8.2
Electrical Resistivity	0.98 ohm-meter
Yield Volume	26.3 gallons per 50-lb sack 99.5 liters per 23-kg sack
Permeability (in fresh water)	2.5 x 10^{-8} cm/sec

Recommended Treatment

For maximum results, pre-treat make-up water with Soda Ash to less than or equal to 100 mg/l total hardness and to a pH range of 8.5 – 9.5.

The recommended mixing rate is one 50-lb (23-kg) sack of QUIK-GROUT grouting and plugging material per 24 gallons (91 liters) of fresh water to create a 20% active solids by weight grout with a density of 9.4 lb/gal or 1.13 g/cm^3.

Rev. 3/3/2011 · IDP 023

Recommended Mixing Procedure

Do not over mix and do not use a centrifugal pump.

1. Using a mixing device, blend one sack of QUIK-GROUT® grouting and plugging material into 24 gallons (91 liters) of fresh water. Rate of addition should be about 20 to 30 seconds per 50-lb (23-kg) bag.

   Note: The resulting slurry should have an oatmeal consistency containing unyielded or partially yielded bentonite.

2. Pump slurry through tremie pipe into hole without delay. Grout slurry should be pumped through tremie pipe from bottom of interval to surface to ensure effective displacement. Maintain submergence of tremie pipe a minimum of 10-feet within grout column for uniform displacement.

Additional Information

- The grouting material and method selected will depend upon the specific subsurface environment including all prevailing geological and hydrological factors and any existing regulatory requirements. The grouting process may not be complete until the grout is static at the desired level.
- The use of bentonite may not be appropriate in environments where the formation water chemistry has a total hardness greater than 500 parts per million and/or a chloride content of greater than 1500 parts per million.
- If questions arise regarding subsurface environments it is always best to consult your local Baroid IDP representative to determine if the Baroid product of choice is appropriate for the given conditions.

Packaging

QUIK-GROUT grouting and plugging material is packaged in 50-lb (23-kg) multiwall paper bags, containing 0.7 ft^3 (0.02 m^3).

Availability

QUIK-GROUT grouting and plugging material can be purchased through any Baroid Industrial Drilling Products Retailer. To locate the 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

ATTACHMENT 6

Summary Tables of Analytical Results of Samples and Field Parameters (Observation Wells OW-16D2R1 and OW-16D2R2 and Compromised Observation Well OW-16D2)

Table 1
Observation Wells OW-16D2R1 and OW-16D2R2
Groundwater Analytical Results and Field Parameters
Former Kelsey-Hayes Milford Plant

Sample Identification:	OW-16D2R1												OW-16D2R2										Residential Drinking Water Criteria
Sample Collection Date:	6/8/2022	7/11/2022	8/8/2022	9/8/2022	10/3/2022	11/3/2022	12/7/2022	1/10/2023	1/26/2023	2/7/2023	3/21/2023	4/12/2023	8/8/2022	9/8/2022	10/3/2022	11/3/2022	12/7/2022	1/10/2023	1/26/2023	2/7/2023	3/21/2023	4/12/2023	
Tetrachloroethene	<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	<1.0	<1.0	<1.0	5.0 (A)
Trichloroethene	<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	<1.0	<1.0	<1.0	5.0 (A)
cis-1,2-Dichloroethene	21	20	20	22	19	17	19	23	19	21	20	19	11	12	10	8.3	9.2	11	8.8	9.5	9.4	9.2	70 (A)
trans-1,2-Dichloroethene	1.1	1.2	1.3	1.4	1.1	1.0	1.2	1.4	1.2	1.3	1.2	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	100 (A)
1,1-Dichloroethane	2.5	2.2	2.2	2.5	2.1	1.9	2.1	2.3	1.9	2.3	2.1	2.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	880
Vinyl chloride	<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	<1.0	<1.0	<1.0	2.0 (A)
Field Parameters																							
Drawdown (feet)	0.21	0.87	0.02	0.89	-0.19	-0.08	-0.06	0.01	0	0.01	0.4	0	1.11	0.84	0.16	0.01	0.01	0.26	0.08	0.02	0.13	0.95	-
Total Elapsed Minutes	54	41	27	29	27	24	40	40	35	35	35	35	57	28	29	21	35	35	35	40	40	40	-
Rate (mL/min)	125	100	125	100	115	125	200	200	200	200	200	200	125	100	125	125	200	200	200	200	200	200	-
First Depth to Water (feet)	1.2	2.18	2.61	2.2	1.98	1.67	1.82	1.55	1.67	2.15	1.20	0.71	1.14	1.76	1.43	1.22	1.42	1.75	2.4	0.68	2.12	0.25	-
Final Depth to Water (feet)	1.41	3.05	2.63	3.09	1.79	1.59	1.76	1.56	1.67	2.16	1.60	0.71	2.25	2.6	1.59	1.23	1.43	2.01	2.48	0.70	2.25	1.20	-
pH (standard units)	7.25	7.3	7.31	7.16	7.34	7.14	7.24	7.16	7.55	7.45	7.02	7.26	7.43	7.24	7.47	7.24	7.4	7.29	7.68	7.56	7.16	7.42	-
Conductivity (milliSiemens per centimenter)	1.047	1.08	1.12	1.12	1.08	1.07	1.05	1.08	1.11	1.09	1.08	1.07	1.09	1.1	1.08	1.13	1.13	1.18	1.23	1.18	1.19	1.15	-
Turbidity (Nephelometric Turbidity Unit)	0.02	0.78	0.02	0.02	0.02	0.02	2.29	2.35	2.76	2.01	1.43	2.77	129	1.96	0.52	0.02	2.67	2.76	2.56	2.53	2.59	3.08	-
Dissolved Oxygen (milligrams per liter)	0.17	0.15	0.17	0.17	0.05	0.13	0.18	0.19	0.19	0.3	0.19	0.31	0.11	0.21	0.04	0.11	0.24	0.27	0.38	0.27	0.25	0.55	-
Temperature (degrees Celsius)	15.3	17.6	17.9	17.5	15.2	13.3	11.8	10.7	6.7	10.1	10.3	13.4	20.4	18.1	15.8	13.6	11.2	10.5	4.8	9.3	10.6	13.3	-
Oxidation Reduction Potential (millivolt)	-287.7	-141.4	-112.3	-139.3	-76.2	-216.5	-20.7	-70.3	37.1	-58.1	-64.0	-74.8	-145.1	-138.1	-98.5	-182.7	-74	-93.4	-3.0	-98.0	-106.0	-94.1	-

Notes:
All volatile organic compound (VOC) concentrations are in micrograms per liter (µg/L).
All samples were analyzed for VOCs via USEPA Method 8260.
Residential drinking water criteria comes from cleanup criteria published in the EGLE Revised Part 201, effective December 30, 2013.

Abbreviations:
< = Below laboratory detection limit
EGLE = Michigan Department of Environment, Great Lakes, and Energy

Qualifiers:
(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.

Table 2
Compromised Observation Well OW-16D2
Groundwater Analytical Results and Field Parameters
Former Kelsey-Hayes Milford Plant

Sample Identification:	(Compromised) OW-16D2											
Sample Collection Date:	**6/8/2022**	**7/11/2022**	**8/8/2022**	**9/8/2022**	**10/3/2022**	**11/3/2022**	**12/7/2022**	**1/10/2023**	**1/26/2023**	**2/7/2023**	**3/21/2023**	**4/12/2023**
Tetrachloroethene	<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	<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	19	18	16	21	17	12	17	20	18	18	18	17
trans-1,2-Dichloroethene	1.4	<1.0	<1.0	1.8	1.4	<1.0	1.4	1.8	1.5	1.6	1.6	1.3
1,1-Dichloroethane	3.6	3.5	3.6	3.9	3.2	2.9	3.3	3.8	3.3	3.5	3.3	3.6
Vinyl chloride	<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)	8.45	8.84	7.2	5.51	5.59	5.19	7.89	14.7	9.02	6.8	6.99	7.69
Total Elapsed Minutes	53	53	43	42	44	27	45	55	40	40	40	40
Rate (mL/min)	100	100	110	100	115	125	200	200	200	200	200	200
First Depth to Water (feet)	27.76	6.32	5.44	6.17	5.68	4.68	5.13	4.26	4.35	3.70	3.71	3.30
Final Depth to Water (feet)	36.21	15.16	12.64	11.68	11.27	9.87	13.02	18.96	13.37	10.50	10.70	10.99
pH (standard units)	7.24	7.31	7.38	7.17	7.39	7.35	7.23	7.16	7.67	7.52	7.09	7.39
Conductivity (milliSiemens per centimenter)	1.085	1.1	1.12	1.16	1.12	1.08	1.09	1.11	1.13	1.16	1.14	1.10
Turbidity (Nephelometric Turbidity Unit)	46.8	4.39	0.88	1.01	1.29	2.52	2.75	1.25	2.91	2.17	2.95	3.36
Dissolved Oxygen (milligrams per liter)	11.95	0.99	0.37	0.24	0.07	0.22	0.21	0.29	0.24	0.41	1.13	0.78
Temperature (degrees Celsius)	13.7	15.7	17	15	13.8	12.5	10.8	9.2	4.5	7.9	9.6	13.6
Oxidation Reduction Potential (millivolt)	121.2	100.1	-9.9	-36.4	24.5	-96.9	79.7	-2.5	105.1	18.5	-11.9	-24.1

Notes:
All volatile organic compound (VOC) concentrations are in micrograms per liter (µg/L).
All samples were analyzed for VOCs via USEPA Method 8260.
Observation Well OW-16D2 has been shown to be in a compromised condition and not performing properly. Therefore, samples collected from the well are not representative of groundwater conditions and not suitable for comparison to EGLE Part 201 cleanup criteria for establishing compliance.

Abbreviations:
< = Below laboratory detection limit
EGLE = Michigan Department of Environment, Great Lakes, and Energy

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