Gelman Sciences Inc.
642 South Wagner Road
Ann Arbor, MI 48103
734.436.4025 phone
734.436.4040 fax

CASE NARRATIVE

Monthly Data Gelman Sciences
Project: 1,4-Dioxane Remediation
Date: November 2021

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Gelman Sciences Inc. attests to the validity of the laboratory data generated by Gelman Sciences Ann Arbor, Michigan Environmental Laboratory facilities reported herein. All analyses performed by Gelman Science's Environmental Laboratory facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Gelman Science's Environmental group has reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

At the end of the month some of the 1,4-dioxane samples were sent to Ann Arbor Technical Services for analysis due to a reproducibility problem. The balance of the samples was analyzed for 1,4-dioxane at Gelman Science's Environmental Laboratory. All bromate samples were analyzed by Gelman Science's Environmental Laboratory. The test results in this report meet all NELAP requirements for parameters for which accreditation are required or available. Any exceptions to NELAP requirements are noted in this report. All exceptions are noted per laboratory standard operating procedure based on EPA Method 1624c. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results. The odd even rule is used for rounding. Holding times were met for all samples analyzed. Proper preservation was observed on all samples unless otherwise detailed in the individual sections below. Samples MW-54d, 72d, and 71 were recollected due to questionable results.

RECEIPT/ STORAGE

The samples were received on the days noted in the report for the Month; the samples arrived in good condition, properly preserved and on ice when necessary. Samples that require 1,4-dioxane analysis are collected in hydrochloric HCl acid-preserved vials to a pH of ≤2, except for the Pall ozone treatment samples. These samples have chemicals that, when mixed with the HCl acid, cause interferences and trap damage. Every attempt is made to analyze these samples within 24 hours of receipt.

Samples that require Bromate analysis are collected and preserved in the laboratory with ethylene di-amine and refrigerated.

Samples that are delivered to the laboratory the same day as they are collected are likely not to have reached a fully chilled temperature. This is acceptable as long as there is evidence that chilling has begun. All samples are iced or refrigerated at 4°C (±2°C) from the time of collection until sample preparation or analysis.

1,4-Dioxane (GC-MS)

All ground water and treated water samples were analyzed for 1,4-Dioxane (GC-MS) in accordance with EPA 1624C, which has been modified to enhance detection limits. Samples that were diluted to bring them within the calibrated range of the instrument are noted with a "D" under the Qualifier Code section of the data report. Reporting limits were adjusted based on each dilution.

Reporting limit for undiluted samples is 1ppb (part per billion, micrograms per liter, µg/L). All quality control parameters were within the acceptance limits for reported samples unless indicated.

Bromate (Ion Chromatography)

All surface water and treated samples were analyzed for Bromate (Ion Chromatography) in accordance with EPA 300.1. Surrogates are added to all samples. All quality control parameters were within the acceptance limits with the balance of sample analyzed.

The reporting limit for treated samples is 5.0ppb and for surface samples is 2.0ppb.

Qualifiers

1,4-Dioxane Qualifier Codes:

Qualifier Code	*Description*
nd:	The compound was analyzed for, but not detected at or above the detection limit indicated.
D:	Analyte value quantified from a dilution; reporting limit is raised to reflect dilution.
E:	The compound result is greater than the upper quantitation limit in the associated calibration curve, reported as estimate.
B:	The sample vials contained air bubbles larger than 5mm, which may affect compound results.
J:	The compound was positively identified; the associated numerical value is the approximate concentration.
M:	Matrix effects, sample required dilution.
R:	The reported value is unusable and rejected due to variance from quality control criteria.
V:	The reported value is considered estimated due to variance from quality control criteria.
H:	Sample was analyzed past 14-day hold time, but within 45 days.
O:	Samples analyzed in outside laboratory.
S:	Samples split with DEQ.

Bromate Qualifier Codes:

Qualifier Code	*Description*
nd:	The compound was analyzed but was not detected at or above the detection limit indicated.
E:	The compound result is greater than the upper quantitation limit in the associated calibration curve.
J:	The compound was positively identified; the associated numerical value is the approximate concentration.
R:	The reported value is unusable and rejected due to variance from quality control criteria.
V:	The reported value is considered estimated due to variance from quality control criteria.
H:	Sample was analyzed past 28-day hold time

Analyst: *Gage M. Trendel* _____ Date: 1-12-22

Report Checked by: *Sue Peters* _____ Date: 01-12-22

GELMAN Sciences Inc.

642 South Wagner Road
Ann Arbor, MI 48103-9019 US
734.436.4025 phone

Sample Analysis Report

December, 2021

Analyst Initials: _____
Date: _____

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
Residential Wells								
D0								
4601 Park 4 inch-12-09-21-13:43-1	1	1.0						O
4601 Park 6 inch-12-09-21-14:59-1	2	1.0						O
5005 Jackson Rd-12-10-21-15:06-1	12	1.0						O
Not Determined								
697 South Wagner Rd-12-06-21-16:10-1	nd	1.0						O
Extraction Wells								
C3								
DOLPH-12-16-21-13:50-1	130	5.0						O, D
TW-1-12-16-21-12:50-1	52	1.0						O
TW-10-12-16-21-13:25-1	470	10.0						O, D
TW-14-12-07-21-10:20-1	110	10						O,D
TW-14-12-16-21-12:30-1	110	5.0						O, D
TW-20-12-16-21-13:30-1	770	10.0						O, D
TW-24-12-11-21-10:10-1	2100	40						O,D
TW-24-12-16-21-14:00-1	2200	40.0						O, D
TW-3-12-16-21-13:10-1	40	1.0						O
TW-6-12-11-21-13:35-1	70	10						O,D
D2								
LB-1-12-16-21-10:10-1	330	10.0						O, D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
LB-4-12-16-21-09:50-1	430	10.0						O, D
TW-21-12-11-21-10:00-1	230	10						O,D
TW-21-12-16-21-11:30-1	230	10.0						O, D
TW-5-12-16-21-11:45-1	750	20.0						O, D
TW-9-12-16-21-12:10-1	380	10.0						O, D
E								
TW-11-12-16-21-11:50-1	150	10.0						O, D
TW-17-12-16-21-12:35-1	56	5.0						O, D
TW-18-12-16-21-11:35-1	230	10.0						O, D
TW-18-12-29-21-13:35-1	240	10.0						O
TW-23-12-20-21-12:50-1	400	10						O,D
TW-29-12-16-21-09:55-1	400	10.0						O, D
Marshy								
PW-1-12-16-21-13:45-1	880	10.0						O, D
SW								
TW-22-12-16-21-13:35-1	470	40.0						O, D
TW-28-12-16-21-13:40-1	660	10.0						O, D
Monitoring Wells								
C3								
MW-1 Replacement-12-21-21-14:00-1	1600	80.0						O, D
MW-105s-12-13-21-12:40-1	360	10						O,D
MW-125-12-20-21-14:50-1	240	10.0						O, D
MW-127s-12-20-21-13:49-1	nd	1.0						O
MW-128s-12-20-21-09:16-1	2	1.0						O
MW-20-12-07-21-15:09-1	nd	1.0						O
MW-28-12-07-21-12:30-1	nd	1.0						O

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-2d-12-08-21-12:09-1	33	1.0						O
MW-37-12-20-21-10:03-1	220	10.0						O, D
MW-39s-12-10-21-13:43-1	2	1.0						O
MW-75-12-10-21-13:40-1	330	40						O,D
D0								
A2 Cleaning Supply-12-02-21-10:15-1	51	1.0						O
MW-136i-12-15-21-12:38-1	nd	1.0						O
MW-136s-12-15-21-13:40-1	nd	1.0						O
MW-137s-12-07-21-15:27-1	nd	1.0						O
MW-138i-12-07-21-13:32-1	7	1.0						O
MW-138s-12-07-21-12:50-1	nd	1.0						O
MW-139i-12-09-21-12:13-1	nd	1.0						O
MW-139s-12-09-21-09:58-1	nd	1.0						O
MW-140s-12-15-21-10:58-1	nd	1.0						O
MW-141s-12-09-21-17:00-1	3	1.0						O
MW-41d-12-22-21-11:00-1	16	1.0						O
MW-41s-12-22-21-10:45-1	12	1.0						O
MW-51-12-22-21-11:45-1	nd	1.0						O
MW-53i-12-01-21-13:50-1	40	1.0						O
MW-53s-12-01-21-12:20-1	nd	1.0						O
MW-61d-12-17-21-11:17-1	10	1.0						O
MW-61s-12-17-21-10:07-1	3	1.0						O
MW-93-12-17-21-12:45-1	nd	1.0						O
D2								
2819 Dexter Rd-12-15-21-09:25-1	150	10						O,D
373 Pinewood Shallow-12-16-21-11:30-1	180	10.0						O, D
456 Clarendon-12-15-21-14:39-1	430	10						O,D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
465 Dupont-12-16-21-13:05-1	840	10.0						O, D
MW-117-12-15-21-15:30-1	nd	1.0						O
MW-122s-12-20-21-12:26-1	280	10.0						O, D
MW-124s-12-21-21-10:20-1	nd	1.0						O
MW-126s-12-10-21-11:11-1	nd	1.0						O
MW-131s-12-20-21-13:51-1	nd	1.0						O
MW-134i-12-17-21-13:40-1	8	1.0						O
MW-134s-12-17-21-12:30-1	9	1.0						O
MW-17-12-14-21-09:56-1	270	40						O,D
MW-39d-12-10-21-12:36-1	21	1.0						O
MW-54d-12-21-21-13:05-1	61	1.0						O
MW-54s-12-13-21-16:17-1	nd	1.0						O
MW-56s-12-07-21-13:49-1	48	1.0						O
MW-62i-12-07-21-10:15-1	nd	1.0						O
MW-62s-12-07-21-11:25-1	nd	1.0						O
MW-77-12-14-21-10:46-1	890	20						O,D
MW-92-12-15-21-13:50-1	69	5.0						O,D
MW-94s-12-14-21-09:04-1	760	20						O,D
MW-KD-1d-12-13-21-15:21-1	520	10						O,D
MW-KD-1s-12-13-21-14:24-1	130	10						O,D
E								
373 Pinewood Deep-12-16-21-11:06-1	nd	1.0						O
MW-100-12-16-21-14:33-1	2000	40.0						O, D
MW-103s-12-02-21-12:20-1	76	1.0						O
MW-105d-12-13-21-10:49-1	160	10						O,D
MW-112i-12-02-21-15:20-1	9	1.0						O
MW-112s-12-02-21-14:00-1	3	1.0						O

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-122d-12-20-21-11:15-1	nd	1.0						O
MW-124d-12-21-21-09:11-1	nd	1.0						O
MW-126d-12-10-21-09:56-1	nd	1.0						O
MW-127d-12-20-21-13:11-1	nd	1.0						O
MW-128d-12-20-21-08:37-1	nd	1.0						O
MW-131d-12-20-21-15:10-1	nd	1.0						O
MW-134d-12-21-21-11:55-1	6	1.0						O
MW-135-12-14-21-12:48-1	nd	1.0						O
MW-136d-12-15-21-11:58-1	nd	1.0						O
MW-137d-12-07-21-14:37-1	nd	1.0						O
MW-138d-12-07-21-11:51-1	nd	1.0						O
MW-139d-12-09-21-11:07-1	1	1.0						O
MW-140d-12-15-21-10:22-1	nd	1.0						O
MW-141d-12-09-21-16:34-1	4	1.0						O
MW-30d-12-17-21-14:41-1	100	5.0						O, D
MW-56d-12-07-21-12:39-1	nd	1.0						O
MW-62d-12-07-21-09:04-1	nd	1.0						O
MW-65d-12-08-21-10:15-1	16	1.0						O
MW-65i-12-08-21-09:17-1	4	1.0						O,D
MW-65s-12-08-21-11:18-1	5	1.0						O
MW-68-12-21-21-13:00-1	nd	1.0						O
MW-71-12-14-21-11:43-1	110	20						O,D
MW-71-12-21-21-14:36-1	1100	20.0						O, D
MW-72d-12-22-21-09:25-1	540	10.0						O, D
MW-72s-12-07-21-10:15-1	1	1.0						O
MW-76i-12-06-21-12:29-1	100	4.0						O,D
MW-76s-12-06-21-13:39-1	270	10						O,D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-79d-12-08-21-13:50-1	nd	1.0						O
MW-79s-12-08-21-12:30-1	260	10						O,D
MW-81-12-11-21-15:30-1	140	10						O,D
MW-83s-12-15-21-15:40-1	400	10						O,D
MW-84s-12-06-21-14:59-1	330	40						O,D
MW-88-12-08-21-15:40-1	130	10						O,D
MW-90-12-14-21-12:30-1	5	1.0						O
MW-91-12-21-21-11:42-1	150	20.0						O, D
MW-94d-12-14-21-08:29-1	4	1.0						O
MW-95-12-14-21-15:08-1	17	1.0						O
MW-96-12-14-21-15:51-1	120	10						O,D
MW-98d-12-14-21-13:50-1	22	1.0						O
Saginaw Forest Cabin #1-12-21-21-09:45-1	7	1.0						O
Saginaw Forest Cabin #2-12-21-21-10:44-1	nd	1.0						O
Marshy								
NMW-1s-12-21-21-13:45-1	1600	40.0						O, D
NMW-2s-12-21-21-13:30-1	2200	40.0						O, D
SH								
MW-25s-12-10-21-12:35-1	120	20						O,D
MW-2s-12-10-21-14:30-1	nd	1.0						O
MW-5d-12-10-21-14:10-1	7500	80						O,D
SW								
MW-57-12-14-21-08:38-1	4	1.0						O
MW-58d-12-20-21-11:06-1	14	1.0						O
MW-58s-12-20-21-11:44-1	170	10.0						O, D
MW-78-12-21-21-08:52-1	21	1.0						O

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
TW-4-12-11-21-11:55-1	29	1.0						O
Surface Water								
Not Applicable								
HC/HR-12-01-21-08:50-1			nd	2.0				
HC/HR-12-02-21-09:50-1			nd	2.0				
HC/HR-12-03-21-11:00-1			nd	2.0				
HC/HR-12-06-21-10:00-1			nd	2.0				
HC/HR-12-07-21-10:00-1			nd	2.0				
HC/HR-12-08-21-09:50-1			nd	2.0				
HC/HR-12-09-21-10:00-1			nd	2.0				
HC/HR-12-10-21-10:25-1			nd	2.0				
HC/HR-12-13-21-11:00-1			nd	2.0				
HC/HR-12-14-21-09:10-1			nd	2.0				
HC/HR-12-15-21-10:50-1			nd	2.0				
HC/HR-12-16-21-09:40-1			nd	2.0				
HC/HR-12-17-21-09:15-1			nd	2.0				
HC/HR-12-20-21-12:10-1			nd	2.0				
HC/HR-12-21-21-07:45-1			nd	2.0				
HC/HR-12-22-21-09:15-1			nd	2.0				
HC/HR-12-23-21-09:50-1			nd	2.0				
HC/HR-12-28-21-10:30-1			nd	2.0				
HC/HR-12-29-21-11:50-1			nd	2.0				
HC/HR-12-30-21-09:40-1			nd	2.0				
Treatment System								
OUTFALL-12-01-21-2			7.4	5.0				
OUTFALL-12-01-21-1	6	1.0						O

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
OUTFALL-12-02-21-2			7.4	5.0				
OUTFALL-12-02-21-1	6	1.0						O
OUTFALL-12-05-21-2			8.0	5.0				
OUTFALL-12-05-21-1	6	1.0						O
OUTFALL-12-06-21-2			7.2	5.0				
OUTFALL-12-06-21-1	6	1.0						O
OUTFALL-12-07-21-2			6.9	5.0				
OUTFALL-12-07-21-1	6	1.0						O
OUTFALL-12-08-21-2			7.2	5.0				
OUTFALL-12-08-21-1	6	1.0						O
OUTFALL-12-09-21-2			6.8	5.0				
OUTFALL-12-09-21-1	6	1.0						O
OUTFALL-12-12-21-2			8.3	5.0				
OUTFALL-12-12-21-1	5	1.0						O
OUTFALL-12-13-21-2			7.4	5.0				
OUTFALL-12-13-21-1	6	1.0						O
OUTFALL-12-14-21-			7.8	5.0				
OUTFALL-12-14-21-1	6	1.0						O
OUTFALL-12-15-21-2			7.6	5.0				
OUTFALL-12-15-21-1	6	1.0						O
OUTFALL-12-16-21-2			8.0	5.0				
OUTFALL-12-16-21-1	7	1.0						O
OUTFALL-12-19-21-2			5.4	5.0				
OUTFALL-12-19-21-1	8	1.0						O
OUTFALL-12-20-21-3			7.5	5.0				
OUTFALL-12-20-21-	8	1.0						O
OUTFALL-12-21-21-2			7.4	5.0				

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
OUTFALL-12-21-21-1	7	1.0						O
OUTFALL-12-22-21-2			7.8	5.0				
OUTFALL-12-22-21-1	7	1.0						O
OUTFALL-12-23-21-2			6.0	5.0				
OUTFALL-12-23-21-1	6	1.0						O
OUTFALL-12-26-21-2			8.9	5.0				
OUTFALL-12-26-21-1	5	1.0						O
OUTFALL-12-27-21-2			8.2	5.0				
OUTFALL-12-27-21-1	5	1.0						O
OUTFALL-12-28-21-2			5.5	5.0				
OUTFALL-12-28-21-1	5	1.0						O
OUTFALL-12-29-21-2			6.6	5.0				
OUTFALL-12-29-21-1	5	1.0						O
OUTFALL-12-30-21-2			7.4	5.0				
OUTFALL-12-30-21-1	5	1.0						O
Red Pond-12-01-21-07:30-1	340	40.0						O, D
Red Pond-12-02-21-07:15-1	330	40						O,D
Red Pond-12-03-21-07:10-1	300	40						O,D
Red Pond-12-06-21-07:35-1	330	40						O,D
Red Pond-12-07-21-07:00-1	310	40						O,D
Red Pond-12-08-21-06:55-1	260	40						O,D
Red Pond-12-09-21-07:00-1	340	40						O,D
Red Pond-12-10-21-07:45-1	350	40						O,D
Red Pond-12-13-21-07:10-1	370	40						O,D
Red Pond-12-14-21-07:30-1	370	40						O,D
Red Pond-12-15-21-07:35-1	390	40						O,D
Red Pond-12-16-21-07:15-1	390	40						O,D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
Red Pond-12-17-21-07:10-1	380	40.0						O, D
Red Pond-12-20-21-07:35-1	380	40.0						O, D
Red Pond-12-21-21-10:40-1	380	40.0						O, D
Red Pond-12-22-21-07:15-1	390	40.0						O, D
Red Pond-12-23-21-07:30-1	390	40.0						O, D
Red Pond-12-28-21-07:40-1	360	40.0						O, D
Red Pond-12-29-21-07:30-1	350	10.0						O, D
Red Pond-12-30-21-07:00-1	360	40.0						O, D

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1202211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1202211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 13 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/02/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/02/21				
Outfall 001	12/1/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/2/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/2/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/2/21	Urgent	1,4-Dioxane	Water
BP-1	12/2/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/2/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/2/21	Urgent	1,4-Dioxane	Water
Red Pond	12/2/21	Urgent	1,4-Dioxane	Water
MW-144 (182-187)	12/1/21	Urgent	1,4-Dioxane	Water
MW-144 (192-197)	12/1/21	Urgent	1,4-Dioxane	Water
MW-144 (202-207)	12/1/21	Urgent	1,4-Dioxane	Water
MW-144 (212-217)	12/2/21	Urgent	1,4-Dioxane	Water
MW-53i	12/1/21	Standard	1,4-Dioxane	Water
MW-53s	12/1/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 12 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 2 Samples

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1202211
SDG 1202211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/2/21	12/02/2021	08:11:30	1,4-Dioxane	123-91-1		0.010	0.011	mg/L	Wet	108	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

G001-002.21\CN_1202211.doc

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Rod Pond 12/2/21

Mark T. DeLong (Quality Assurance Coordinator) / January 6, 2021

Philip B. Simon (Laboratory Director) / January 6, 2021

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1202211
SDG 1202211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1202211-8 MS	12/02/2021	19:26:31	1,4-Dioxane	123-91-1	0.33	0.40	0.71	mg/L	Wet	94.8	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1202211
SDG 1202211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/2/21	12/02/2021	08:55:26	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG12022211
SDG 1202211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1202211-6 MSD	12/02/2021	20:10:17	1,4-Dioxane	123-91-1	0.33	0.40	0.71	mg/L	Wet	95.5	80	120	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Reported results verified using reagent blank and lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG12022211
SDG 1202211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1202211-6 MS	12/02/2021	19:26:31	1,4-Dioxane	123-91-1	0.71	0.71	mg/L	Wet	0.40	20	
1202211-6 MSD	12/02/2021	20:10:17	1,4-Dioxane	123-91-1	0.71		mg/L	Wet			

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Reported results verified using reagent blank and lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

2 and 3

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1203211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1203211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 12 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/03/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/03/21				
Outfall 001	12/2/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/3/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/3/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/3/21	Urgent	1,4-Dioxane	Water
BP-1	12/3/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/3/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/3/21	Urgent	1,4-Dioxane	Water
Red Pond	12/3/21	Urgent	1,4-Dioxane	Water
MW-112i	12/2/21	Standard	1,4-Dioxane	Water
MW-112s	12/2/21	Standard	1,4-Dioxane	Water
MW-103s	12/2/21	Standard	1,4-Dioxane	Water
A2 Cleaning Supply	12/2/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 4 Samples

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/3/21

Mark DeLong / January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / January 6, 2021

Philip B. Simon (Laboratory Director)

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1203211
SDG 1203211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/3/21	12/02/2021	21:37:43	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1203211
SDG 1203211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
ATS TAP 12/3/21 MSD	12/03/2021	07:48:54	1,4-Dioxane	123-91-1		0.010	0.010	mg/L	Wet	99.6	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1203211
SDG 1203211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/3/21	12/02/2021	20:54:03	1,4-Dioxane	123-91-1		0.010	0.011	mg/L	Wet	111	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1203211
SDG 1203211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
ATS TAP 12/3/21 MS	12/03/2021	07:05:09	1,4-Dioxane	123-91-1	0.0099		mg/L	Wet			
ATS TAP 12/3/21 MSD	12/03/2021	07:48:54	1,4-Dioxane	123-91-1	0.010	0.0099	mg/L	Wet	0.47	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1203211
SDG 1203211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
ATS TAP 12/3/21 MS	12/03/2021	07:05:09	1,4-Dioxane	123-91-1		0.010	0.0099	mg/L	Wet	99.2	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

3,5+6

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1206211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1206211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 12 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/06/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/06/21				
Outfall 001	12/5/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/6/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/6/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/6/21	Urgent	1,4-Dioxane	Water
BP-1	12/6/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/6/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/6/21	Urgent	1,4-Dioxane	Water
Red Pond	12/6/21	Urgent	1,4-Dioxane	Water
Third Sister Lake	12/3/21	Urgent	1,4-Dioxane	Water
West Park Pond	12/3/21	Urgent	1,4-Dioxane	Water
MW-144 (292-297)	12/3/21	Urgent	1,4-Dioxane	Water
MW-144 (302-307)	12/3/21	Urgent	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 12 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- **None**

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- **None**

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- **None**

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- **None**

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- **None**

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- **None**

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- **None**

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

Laboratory Sample ID	Analytical method	Constituent	Percent Recovery	Acceptance Limits
1206211-8 MSD	USEPA 1624	1,4 Dioxane	77.6	80-120%

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- **None**

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1206211
SDG 1206211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/6/21	12/06/2021	11:27:45	1,4-Dioxane	123-91-1		0.010	0.010	mg/L	Wet	99.5	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

G001-002.21\CN_1206211.doc

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Rod Pond 12/6/21

Mark T. DeLong (Quality Assurance Coordinator) / January 6, 2021

Philip B. Simon (Laboratory Director) / January 6, 2021

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1206211
SDG 1206211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1206211-6 MS	12/06/2021	21:26:19	1,4-Dioxane	123-91-1	0.33	0.40	0.75	mg/L	Wet	104	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1206211
SDG 1206211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/6/21	12/06/2021	10:43:48	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1206211
SDG 1206211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1206211-4 MSD	12/06/2021	22:09:56	1,4-Dioxane	123-91-1	0.33	0.40	0.64	mg/L	Wet	77.5	80	120	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed per SOP-QA-003.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1206211
SDG 1206211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1206211-4 MS	12/06/2021	21:26:19	1,4-Dioxane	123-91-1	0.75		mg/L	Wet			
1206211-4 MSD	12/06/2021	22:09:56	1,4-Dioxane	123-91-1	0.64	0.70	mg/L	Wet	15	20	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed per SOP-QA-003.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1207211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

6+7

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1207211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 12 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/07/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/07/21				
Outfall 001	12/6/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/7/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/7/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/7/21	Urgent	1,4-Dioxane	Water
BP-1	12/7/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/7/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/7/21	Urgent	1,4-Dioxane	Water
Red Pond	12/7/21	Urgent	1,4-Dioxane	Water
MW-76S	12/6/21	Standard	1,4-Dioxane	Water
MW-76I	12/6/21	Standard	1,4-Dioxane	Water
MW-84S	12/6/21	Standard	1,4-Dioxane	Water
697 S. Wagner Rd.	12/6/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis
- 1,4-Dioxane (USEPA 1624) – Urgent TAT
- 1,4-Dioxane (USEPA 1624) – Standard TAT

Number of Samples
- 8 Samples
- 4 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

G001-002.21/CN_1207211.doc

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/7/21
- MW-76S 12/6/21
- MW-76I 12/6/21
- MW-84S 12/6/21

Mark DeLong

/ January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ January 6, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_1207211.doc

Sarah Stubblefield

From: Trendel, Gage <gage_trendel@pall.com>
Sent: Wednesday, December 8, 2021 11:22 AM
To: Sarah Stubblefield
Subject: Drinking Water Sample

I mistakenly labeled 697 S. Wagner from 12/6/21 as a groundwater sample. It will actually be a drinking water sample. Sorry for the mix up!

Gage M. Trendel
Chemist
Contract Employee
Gelman Sciences, Inc.
642 South Wagner Road
Ann Arbor, MI 48103

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1207211
SDG 1207211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1207211-11 MS	12/07/2021	19:15:16	1,4-Dioxane	123-91-1	0.33	0.40	0.75	mg/L	Wet	104	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1207211
SDG 1207211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/7/21	12/07/2021	08:50:45	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1207211
SDG 1207211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1207211-11 MSD	12/07/2021	19:59:02	1,4-Dioxane	123-91-1	0.33	0.40	0.68	mg/L	Wet	87.6	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1207211
SDG 1207211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/7/21	12/07/2021	09:34:30	1,4-Dioxane	123-91-1		0.010	0.010	mg/L	Wet	102	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1207211
SDG 1207211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1207211-11 MS	12/07/2021	10:15:15	1,4-Dioxane	123-91-1	0.75		mg/L	Wet			
1207211-11 MSD	12/07/2021	10:56:02	1,4-Dioxane	123-91-1	0.68	0.72	mg/L	Wet	9.3	20	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Reported results reflect dilutions performed upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

7+8

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1208211a/b

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1208211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 23 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/08/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/08/21				
Outfall 001	12/7/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/8/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/8/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/8/21	Urgent	1,4-Dioxane	Water
BP-1	12/8/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/8/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/8/21	Urgent	1,4-Dioxane	Water
Red Pond	12/8/21	Urgent	1,4-Dioxane	Water
MW-62d	12/7/21	Standard	1,4-Dioxane	Water
MW-62I	12/7/21	Standard	1,4-Dioxane	Water
MW-62S	12/7/21	Standard	1,4-Dioxane	Water
MW-56d	12/7/21	Standard	1,4-Dioxane	Water
MW-28	12/7/21	Standard	1,4-Dioxane	Water
MW-56s	12/7/21	Standard	1,4-Dioxane	Water
MW-20	12/7/21	Standard	1,4-Dioxane	Water
MW-72D	12/7/21	Standard	1,4-Dioxane	Water
MW-72S	12/7/21	Standard	1,4-Dioxane	Water
MW-138S	12/7/21	Standard	1,4-Dioxane	Water
MW-138i	12/7/21	Standard	1,4-Dioxane	Water
MW-138D	12/7/21	Standard	1,4-Dioxane	Water
MW-137D	12/7/21	Standard	1,4-Dioxane	Water
MW-137S	12/7/21	Standard	1,4-Dioxane	Water
TW-14	12/7/21	Standard	1,4-Dioxane	Water

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 15 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

Laboratory Sample ID	Analytical method	Constituent	Percent Recovery	Acceptance Limits
1208211-8 MS	USEPA 1624	1,4 Dioxane	125	80-120%

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/8/21
- TW-14 12/7/21

Mark A DeLong

/ January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ January 6, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_1208211.doc

SAMPLE RECEIPT ANOMALY FORM (rev 07.2010)

001-002
1208211
1
1
JSB

Sample Identification Discrepancy

Sample Identification per COC	Sample Identification per Sample Label	Proposed Corrective Action	QA Approval (name and date)
TW-14 12/7/21 10:20	* Sample not on COC	Add to COC & Run Sample 12/10/21	@ 1pm 12/10/21

Sample Integrity Issues

Problem Identified	Proposed Corrective Action	QA Approval (name and date)

Sample Preservation Issues

Problem Identified	Proposed Corrective Action	QA Approval (name and date)

Sarah Stubblefield

From: Trendel, Gage <gage_trendel@pall.com>
Sent: Friday, December 10, 2021 8:47 AM
To: Sarah Stubblefield
Subject: RE: Sample Issues

If one vial is labeled 12/8 @ 12:09, Its probably supposed be MW-2D

Confidential - Company Proprietary -

From: Sarah Stubblefield <Sarah.Stubblefield@annarbortechnicalservices.com>
Sent: Friday, December 10, 2021 8:44 AM
To: Trendel, Gage <gage_trendel@pall.com>
Subject: Sample Issues

Hi Gage.

Two items:

- First on Wednesday (12/8) we received an extra sample: TW-14 12/7/21 10:20...do you want us to run this?
- Secondly we have received 2 vials for MW-20 on two different dates at two different times.....at least according to the COC. We haven't run the one from the 7th yet (that's a big batch that'll go on over the weekend), but the one dated the 8th is coming back around 30ppb.....usually it's non-detect. I suspect the vial from the 8th is actually 2D as in dog...not 2D. Please advise.

Sarah Stubblefield | Senior Chemist / Laboratory Manager
Tel: 734-995-0955 | Fax: 734-995-5731 | Cell: 734.368.4739
Email: Sarah.Stubblefield@annarbortechnicalservices.com

Ann Arbor Technical Services, Inc.
290 South Wagner Road | Ann Arbor, Michigan 48103
Web: AnnArborTechnicalServices.com

Attention:

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208211
SDG 1208211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1208211-8 MS	11/15/2021	17:05:03	1,4-Dioxane	123-91-1	0.26	0.40	0.76	mg/L	Wet	125	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208211
SDG 1208211a
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/8/21	12/08/2021	08:39:48	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208211
SDG 1208211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1208211-8 MSD	11/15/2021	17:48:52	1,4-Dioxane	123-91-1	0.26	0.40	0.70	mg/L	Wet	110	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208211
SDG 1208211a
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/8/21	12/08/2021	09:23:36	1,4-Dioxane	123-91-1		0.010	0.0099	mg/L	Wet	98.8	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208212
SDG 1208211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-2 12/10/21	12/10/2021	23:43:18	1,4-Dioxane	123-91-1		0.010	0.0095	mg/L	Wet	95.4	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208211
SDG 1208211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1208211-8 MS	11/15/2021	17:05:03	1,4-Dioxane	123-91-1	0.76		mg/L	Wet			
1208211-8 MSD	11/15/2021	17:48:52	1,4-Dioxane	123-91-1	0.70	0.73	mg/L	Wet	8.0	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208212
SDG 1208211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1208211-16 MS	12/11/2021	07:00:33	1,4-Dioxane	123-91-1		0.80	0.73	mg/L	Wet	91.0	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208212
SDG 1208211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-2 12/10/21	12/11/2021	00:27:02	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208212
SDG 1208211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1208211-16 MSD	12/11/2021	07:44:22	1,4-Dioxane	123-91-1		0.80	0.74	mg/L	Wet	93.1	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1208212
SDG 1208211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1208211-16 MS	12/11/2021	07:00:33	1,4-Dioxane	123-91-1	0.73		mg/L	Wet			
1208211-16 MSD	12/11/2021	07:44:22	1,4-Dioxane	123-91-1	0.74	0.74	mg/L	Wet	2.3	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

8 and 9

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1209211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1209211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 15 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/09/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/09/21				
Outfall 001	12/8/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/9/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/9/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/9/21	Urgent	1,4-Dioxane	Water
BP-1	12/9/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/9/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/9/21	Urgent	1,4-Dioxane	Water
Red Pond	12/9/21	Urgent	1,4-Dioxane	Water
MW-79S	12/8/21	Standard	1,4-Dioxane	Water
MW-65i	12/8/21	Standard	1,4-Dioxane	Water
MW-65D	12/8/21	Standard	1,4-Dioxane	Water
MW-65s	12/8/21	Standard	1,4-Dioxane	Water
MW-2D	12/8/21	Standard	1,4-Dioxane	Water
MW-79d	12/8/21	Standard	1,4-Dioxane	Water
MW-88	12/8/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 7 Samples

G001-002.21/CN_1209211.doc

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

G001-002.21/CN_1209211.doc

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/9/21
- MW-79S 12/8/21
- MW-88 12/8/21

Mark DeLong

/ January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ January 6, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_1209211.doc

Sarah Stubblefield

From: Trendel, Gage <gage_trendel@pall.com>
Sent: Friday, December 10, 2021 8:45 AM
To: Sarah Stubblefield
Subject: RE: Sample Issues

The TW-14 will need to be ran.

What are the two dates and times for the TW-20? Its most likely a mislabeling on the vial.

Confidential - Company Proprietary

From: Sarah Stubblefield <Sarah.Stubblefield@annarbortechnicalservices.com>
Sent: Friday, December 10, 2021 8:44 AM
To: Trendel, Gage <gage_trendel@pall.com>
Subject: Sample Issues

Hi Gage.

Two items.

- First on Wednesday (12/8) we received an extra sample: TW-14 12/7/21 10:20...do you want us to run this?
- Secondly we have received 2 vials for MW-20 on two different dates at two different times.....at least according to the COC. We haven't run the one from the 7th yet (that's a big batch that'll go on over the weekend), but the one dated the 8th is coming back around 30ppb....usually it's non-detect. I suspect the vial from the 8th is actually 2D as in dog...not 20. Please advise.

Sarah Stubblefield | Senior Chemist / Laboratory Manager
Tel: 734.995.0995 | Fax: 734.995.3721 | Cell: 734.368.4739
Email: Sarah.Stubblefield@AnnArborTechnicalServices.com

Ann Arbor Technical Services, Inc.
299 South Wagner Road | Ann Arbor, Michigan 48103
Web: AnnArborTechnicalServices.com

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1209211
SDG 1209211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/9/21	12/09/2021	08:26:02	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Sarah Stubblefield

From: Trendel, Gage <gage_trendel@pall.com>
Sent: Friday, December 10, 2021 8:53 AM
To: Sarah Stubblefield
Subject: RE: Sample Issues

Yeah. The top is MW-20. Bottom is MW-2D

Confidential - Company Proprietary

From: Sarah Stubblefield <Sarah.Stubblefield@annarbortechnicalservices.com>
Sent: Friday, December 10, 2021 8:51 AM
To: Trendel, Gage <gage_trendel@pall.com>
Subject: RE: Sample Issues

1

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1209211
SDG 1209211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/9/21	12/09/2021	09:09:55	1,4-Dioxane	123-91-1		0.010	0.0096	mg/L	Wet	96.4	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

2

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1209211
SDG 1209211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1209211-8 MS	12/09/2021	11:37:46	1,4-Dioxane	123-91-1	1.1		mg/L	Wet			
1209211-8 MSD	12/09/2021	12:21:36	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet	0.0	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1209211
SDG 1209211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1209211-8 MS	12/09/2021	11:37:46	1,4-Dioxane	123-91-1	0.34	0.80	1.1	mg/L	Wet	90.9	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1209211
SDG 1209211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1209211-8 MSD	12/09/2021	12:21:36	1,4-Dioxane	123-91-1	0.34	0.80	1.1	mg/L	Wet	99.9	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1210211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

12-9-10

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1210211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 15 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/10/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/10/21				
Outfall 001	12/9/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/10/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/10/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/10/21	Urgent	1,4-Dioxane	Water
BP-1	12/10/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/10/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/10/21	Urgent	1,4-Dioxane	Water
Red Pond	12/10/21	Urgent	1,4-Dioxane	Water
MW-139S	12/9/21	Standard	1,4-Dioxane	Water
MW-139D	12/9/21	Standard	1,4-Dioxane	Water
MW-139I	12/9/21	Standard	1,4-Dioxane	Water
4601 Park 4inch	12/9/21	Standard	1,4-Dioxane	Water
4601 Park 6inch	12/9/21	Standard	1,4-Dioxane	Water
MW-141d	12/9/21	Standard	1,4-Dioxane	Water
MW-141S	12/9/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 7 Samples

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/10/21

Mark DeLong / January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / January 6, 2021

Philip B. Simon (Laboratory Director)

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1210211
SDG 1210211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1210211-8 MS	12/10/2021	12:02:28	1,4-Dioxane	123-91-1	0.35	0.80	1.1	mg/L	Wet	96.0	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1210211
SDG 1210211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/10/21	12/10/2021	08:47:25	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1210211
SDG 1210211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1210211-8 MSD	12/10/2021	12:46:19	1,4-Dioxane	123-91-1	0.35	0.80	1.2	mg/L	Wet	104	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1210211
SDG 1210211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/10/21	12/10/2021	07:39:57	1,4-Dioxane	123-91-1		0.010	0.0095	mg/L	Wet	95.4	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1210211
SDG 1210211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name		CAS		Result	Mean	Units	Basis	RPD	Control Limit	Comments
1210211-4 MS	12/10/2021	12:02:26	1,4-Dioxane		123-91-1		1.1		mg/L	Wet			
1210211-4 MSD	12/10/2021	12:48:19	1,4-Dioxane		123-91-1		1.2	1.2	mg/L	Wet	8.7	20	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Results reported to MDL. Flagged upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

12-13 & 14

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1214211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1214211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 17 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/14/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/14/21				
Outfall 001	12/13/21	Urgent	1,4-Dioxane	Water
Red Pond	12/14/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/14/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/14/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/14/21	Urgent	1,4-Dioxane	Water
BP-1	12/14/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/14/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/14/21	Urgent	1,4-Dioxane	Water
MW-105d	12/13/21	Standard	1,4-Dioxane	Water
MW-105s	12/13/21	Standard	1,4-Dioxane	Water
MW-145 (10-14)	12/13/21	Urgent	1,4-Dioxane	Water
MW-145 (20-24)	12/13/21	Urgent	1,4-Dioxane	Water
MW-145 (32-37)	12/13/21	Urgent	1,4-Dioxane	Water
MW-KD-1S	12/13/21	Standard	1,4-Dioxane	Water
MW-KD-1D	12/13/21	Standard	1,4-Dioxane	Water
MW-54S	12/13/21	Standard	1,4-Dioxane	Water
MW-54D	12/13/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 11 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 6 Sample

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- **Sample MW-145 (10-14) 12/13/21 was analyzed at native pH.**

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- **None**

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- **None**

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- **None**

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:
- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:
- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:
- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:
- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:
- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/14/21
- MW-105d 12/13/21
- MW-105s 12/13/21
- MW-KD-1S 12/13/21
- MW-KD-1D 12/13/21

Mark DeLong

/ January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon

/ January 6, 2021

Philip B. Simon (Laboratory Director)

SAMPLE RECEIPT ANOMALY FORM (rev 072810)

G001-002
121421l
JEB

Sample Identification Discrepancy

Sample Identification per COC	Sample Identification per Sample Label	Proposed Corrective Action	QA Approval (name and date)
Outfall 12/13/21	12/3/21	— Date = 12/13/21	
* Samples 2-8	Times Differ	from COC to Sample	vials *
* Samples 9-17	Sample times	Not on COC	*
		* Report Times On Sample Vial	JJ 12/15/21

Sample Integrity Issues

Problem Identified	Proposed Corrective Action	QA Approval (name and date)

Sample Preservation Issues

Problem Identified	Proposed Corrective Action	QA Approval (name and date)
pH approx 5.5	Sample - 1214211-11	MW-145 (10-14)
	→ Flag Data JJ	12/15/21

Sarah Stubblefield

From: Trendel, Gage <gage_trendel@pall.com>
Sent: Wednesday, December 15, 2021 8:30 AM
To: Sarah Stubblefield
Subject: RE: Sample Discrepancies

Yes. I'm not sure how that happened. Are the times staggered on the sheet?

Gage Trendel
Chemist
F&V OPERATIONS AND RESOURCE MANAGEMENT, INC.
642 S. Wagner Road | Ann Arbor | MI | 48103
O: 616.977.1000 | D: 419.787.5144 | F: 616.977.1005

Confidential - Company Proprietary

From: Sarah Stubblefield <Sarah.Stubblefield@annarbortechnicalservices.com>
Sent: Wednesday, December 15, 2021 8:25 AM
To: Trendel, Gage <gage_trendel@pall.com>
Subject: Sample Discrepancies

Hi Gage.

In terms of the samples we received yesterday (12/14), the times for the usual daily samples on the COC are all different as compared to the times on the vials and the rest of the samples don't have times listed on the COC. I'm assuming you want us to report the times that are on the vials. Is this correct?

Sarah Stubblefield | Senior Chemist / Laboratory Manager
Tel: 734.995.0995 | Fax: 734.995.3731 | Cell: 734.368.4730
Email. Sarah.Stubblefield@AnnArborTechnicalServices.com

Ann Arbor Technical Services, Inc.
290 South Wagner Road | Ann Arbor, Michigan 48103
Web. AnnArborTechnicalServices.com

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1214211
SDG 1214211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1214211-2 MS	12/14/2021	17:32:37	1,4-Dioxane	123-91-1	0.37	0.80	1.0	mg/L	Wet	81.0	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1214211
SDG 1214211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/14/21	12/14/2021	15:08:54	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1214211
SDG 1214211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1214211-2 MSD	12/14/2021	18:16:27	1,4-Dioxane	123-91-1	0.37	0.80	1.1	mg/L	Wet	88.6	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1214211
SDG 1214211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/14/21	12/14/2021	14:15:42	1,4-Dioxane	123-91-1		0.010	0.0089	mg/L	Wet	89.2	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1214211
SDG: 1214211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1214211-2 MS	12/14/2021	17:32:37	1,4-Dioxane	123-91-1	1.0		mg/L	Wet			
1214211-2 MSD	12/14/2021	18:16:27	1,4-Dioxane	123-91-1	1.1	1.0	mg/L	Wet	5.8	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

12-10, 11+12, 13

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1213211a/b

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1213211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 22 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/13/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/13/21				
Outfall 001	12/12/21	Urgent	1,4-Dioxane	Water
Red Pond	12/13/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/13/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/13/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/13/21	Urgent	1,4-Dioxane	Water
BP-1	12/13/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/13/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/13/21	Urgent	1,4-Dioxane	Water
MW-25S	12/10/21	Standard	1,4-Dioxane	Water
MW-25S	12/10/21	Urgent	TIC	Water
MW-75	12/10/21	Standard	1,4-Dioxane	Water
MW-5d	12/10/21	Standard	1,4-Dioxane	Water
MW-2S	12/10/21	Standard	1,4-Dioxane	Water
MW-126d	12/10/21	Standard	1,4-Dioxane	Water
MW-126s	12/10/21	Standard	1,4-Dioxane	Water
MW-39d	12/10/21	Standard	1,4-Dioxane	Water
MW-39s	12/10/21	Standard	1,4-Dioxane	Water
5005 Jackson Rd	12/10/21	Standard	1,4-Dioxane	Water
TW-21	12/11/21	Standard	1,4-Dioxane	Water
TW-24	12/11/21	Standard	1,4-Dioxane	Water
TW-4	12/11/21	Standard	1,4-Dioxane	Water
TW-6	12/11/21	Standard	1,4-Dioxane	Water
MW-81	12/11/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
1,4-Dioxane (USEPA 1624) – Urgent TAT	8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
1,4-Dioxane (USEPA 1624) – Standard TAT	14 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
TIC (APHA 5310C) – Urgent TAT	1 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:
- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:
- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:
- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/13/21
- MW-25S 12/10/21
- MW-75 12/10/21
- MW-5d 12/10/21
- TW-21 12/11/21
- TW-24 12/11/21
- TW-6 12/11/21
- MW-81 12/11/21

Mark T. DeLong (Quality Assurance Coordinator) / January 6, 2021

Philip B. Simon (Laboratory Director) / January 6, 2021

G001-002.21/CN_1213211.doc

G001-002.21
1213211
1 of 1
JTO

Sample Identification Discrepancy

Sample Identification per COC	Sample Identification per Sample Label	Proposed Corrective Action	QA Approval (name and date)
TW-21 10:00	TW-21 10:05	Report per Sample Kind	12/15/21

#COC indicates Outfall/Eff Samples preserved, All others pre preserved
#Samples Outfall/Eff unpreserved All others preserved

Sample Integrity Issues

Problem Identified	Proposed Corrective Action	QA Approval (name and date)

Sample Preservation Issues

Problem Identified	Proposed Corrective Action	QA Approval (name and date)

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1213211
SDG 1213211a
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/13/21	12/13/2021	09:33:08	1,4-Dioxane	123-91-1		mg/L	Wet	0.031		

Comments:
All methods reference 40 CFR methods unless otherwise noted.
All methods reference 40 CFR methods unless otherwise noted.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1213211
SDG 1213211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1213211-2 MSD	12/13/2021	15:29:07	1,4-Dioxane	123-91-1	0.37	0.80	1.1	mg/L	Wet	91.1	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1213211
SDG 1213211a
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/13/21	12/13/2021	10:20:10	1,4-Dioxane	123-91-1		0.010	0.0092	mg/L	Wet	92.4	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1213211
SDG 1213211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1213211-2 MS	12/13/2021	14:45:15	1,4-Dioxane	123-91-1	1.1		mg/L	Wet			
1213211-2 MSD	12/13/2021	15:29:07	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet	1.9	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1213211
SDG 1213211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1213211-2 MS	12/13/2021	14:45:15	1,4-Dioxane	123-91-1	0.37	0.80	1.1	mg/L	Wet	93.7	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1213212
SDG 1213211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1213211-10 MS	12/14/2021	00:14:00	1,4-Dioxane	123-91-1	0.33	0.80	1.1	mg/L	Wet	94.5	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1213212
SDG 1213211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-2 12/13/21	12/13/2021	22:03:17	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1213212
SDG 1213211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1213211-10 MSD	12/14/2021	00:57:32	1,4-Dioxane	123-91-1	0.33	0.80	1.1	mg/L	Wet	96.6	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1213212
SDG 1213211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-2 12/13/21	12/13/2021	20:35:50	1,4-Dioxane	123-91-1		0.010	0.0092	mg/L	Wet	92.4	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: LSEPA 1624
QA/QC Batch Number: QCORG1213212
SDG 1213211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1213211-10 MS	12/14/2021	00:14:00	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet			
1213211-10 MSD	12/14/2021	00:57:32	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet	1.8	20	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Percent recovery and RPD limits based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
SAMPLE DELIVERY GROUP (SDG) CASE NARRATIVE

ATS Project Number: G001-002
ATS SDGs / SRFs: 1213211
Analysis Modes/Methods:

- **Total Inorganic Carbon (APHA 5310C)**

Sample Analysis

Samples were analyzed in accordance with APHA 5310C. An initial calibration with at least five levels was used to quantitate inorganic carbon. Concentrations were reported to the lowest calibration standard. Samples were reported as mg/L.

Anomalies Noted:

- **None**

Calibration Verification

Standard preparation and calibration curves were verified through the analysis of a second source verification standard (ICV) daily. All verification standards met the acceptance criteria with the following exceptions:

- **None**

Method calibration was verified through the analysis of a mid-level continuing calibration verification standard (CCV) every 10 samples. All verification standards met the acceptance criteria with the following exceptions:

- **None**

The lack of detectable background levels was verified through the analysis of a continuing calibration blank solution (CCB) every 10 samples. All verification blanks met the acceptance criteria with the following exceptions:

- **None**

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed as part of each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- **None**

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Laboratory Fortified Blanks and Matrix Spikes

A laboratory fortified blank (LFB) / laboratory control sample (LCS) was analyzed with each QA/QC batch. All LCS/LFB's met the acceptance criteria with the following exceptions:

- **None**

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. All MS/MDS's met the acceptance criteria with the following exceptions:

Lab Sample ID	Constituent	Percent Recovery	Acceptance Limits
1213211-9 MSD	Total Inorganic Carbon	132.0	70-130%

Matrix Replicates

A replicate analysis was analyzed with each QA/QC batch. All replicates met the acceptance criteria with the following exceptions:

- **None**

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples and analytes were diluted:

- **1213211-9 – Total Inorganic Carbon**

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0115 Fax. 734/995-3731
Michigan Laboratory ID: 9504
Wisconsin Laboratory ID: 998321730

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCINORG1216211
Parameter: Total Inorganic Carbon (APHA 5310C)

ATS Project: Pall Corporation #G001-002
Report Date: 1/6/22

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 MW-25S 12/10/21 Matrix Spike Total Inorganic Carbon	460 mg/L	470 mg/L	470 mg/L	3.4

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002 Laboratory Fortified Blank Total Inorganic Carbon	<1 mg/L	10 mg/L	11 mg/L	107.0
MW-25S 12/10/21 Matrix Spike Total Inorganic Carbon	210 mg/L	200 mg/L	460 mg/L	124.0
MW-25S 12/10/21 Matrix Spike Duplicate Total Inorganic Carbon	210 mg/L	200 mg/L	470 mg/L	132.0*

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<1 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.
*Outside standard control limits.

Control Limits:
Recoveries
Laboratory Fortified Blank (85 - 115 %)
Matrix Spike (70 - 130 %)
Relative Range
Replicates (<20%)

ANN ARBOR TECHNICAL SERVICES, INC.

12-1445

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1215211a/b

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1215211
Client PO Number: 4504963225

Case Narrative Summary

This case narrative applies to the following 23 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/15/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/15/21				
Outfall 001	12/14/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/15/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/15/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/15/21	Urgent	1,4-Dioxane	Water
BP-1	12/15/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/15/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/15/21	Urgent	1,4-Dioxane	Water
Red Pond	12/15/21	Urgent	1,4-Dioxane	Water
MW-90	12/14/21	Standard	1,4-Dioxane	Water
MW-94D	12/14/21	Standard	1,4-Dioxane	Water
MW-94S	12/14/21	Standard	1,4-Dioxane	Water
MW-17	12/14/21	Standard	1,4-Dioxane	Water
MW-77	12/14/21	Standard	1,4-Dioxane	Water
MW-71	12/14/21	Standard	1,4-Dioxane	Water
MW-135	12/14/21	Standard	1,4-Dioxane	Water
MW-98D	12/14/21	Standard	1,4-Dioxane	Water
MW-95	12/14/21	Standard	1,4-Dioxane	Water
MW-96	12/14/21	Standard	1,4-Dioxane	Water
MW-57	12/14/21	Standard	1,4-Dioxane	Water
MW-145 (52-57)	12/14/21	Urgent	1,4-Dioxane	Water
MW-145 (62-67)	12/14/21	Urgent	1,4-Dioxane	Water
MW-145 (82-87)	12/14/21	Urgent	1,4-Dioxane	Water
MW-145 (89-94)	12/14/21	Urgent	1,4-Dioxane	Water
MW-145 (117-122)	12/15/21	Urgent	1,4-Dioxane	Water

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 13 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 11 Sample + 1 Matrix Spike + 1 Matrix Spike Duplicate

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY BLANK SUMMARY

Method:	USEPA 1624
QA/QC Batch Number:	QCORG1215211
SDG	1215211a
Project Number:	G001-002.21
Report Date:	1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/15/21	12/15/2021	10:00:30	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

G001-002.21\CN_1215211.doc

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/15/21
- MW-9AS 12/14/21
- MW-17 12/14/21
- MW-77 12/14/21
- MW-71 12/14/21
- MW-96 12/14/21

Mark T. DeLong (Quality Assurance Coordinator) / January 6, 2021

Philip B. Simon (Laboratory Director) / January 6, 2021

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY ACCURACY SUMMARY

Method:	USEPA 1624
QA/QC Batch Number:	QCORG1215211
SDG	1215211a
Project Number:	G001-002.21
Report Date:	1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/15/21	12/15/2021	09:09:26	1,4-Dioxane	123-91-1		0.010	0.0095	mg/L	Wet	95.4	85	115	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1215211
SDG 1215211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1215211-8 MS	12/15/2021	20:20:38	1,4-Dioxane	123-91-1	1.2		mg/L	Wet			
1215211-8 MSD	12/15/2021	21:04:23	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet	5.8	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1215211
SDG 1215211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1215211-8 MS	12/15/2021	20:20:38	1,4-Dioxane	123-91-1	0.39	0.80	1.2	mg/L	Wet	98.4	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1215212
SDG 1215211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-2 12/15/21	12/19/2021	00:23:51	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1215211
SDG 1215211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1215211-8 MSD	12/15/2021	21:04:23	1,4-Dioxane	123-91-1	0.39	0.80	1.1	mg/L	Wet	90.1	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1215212
SDG 1215211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1215211-12 MSD	12/19/2021	04:44:45	1,4-Dioxane	123-91-1	0.27	0.80	1.1	mg/L	Wet	105	80	120	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1215212
SDG 1215211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-2 12/15/21	12/18/2021	23:40:23	1,4-Dioxane	123-91-1		0.010	0.010	mg/L	Wet	102	85	115	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1215212
SDG 1215211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1215211-12 MS	12/19/2021	04:01:19	1,4-Dioxane	123-91-1	1.1		mg/L	Wet			
1215211-12 MSD	12/19/2021	04:44:45	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet	0.40	20	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1215212
SDG 1215211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1215211-12 MS	12/19/2021	04:01:19	1,4-Dioxane	123-91-1	0.27	0.80	1.1	mg/L	Wet	105	80	120	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Data Transmittal Cover Page

Project Name: Pall Corporation
ATS Project Number: G001-002
ATS Report Number(s): Inorg_SRF_1216_1217_1220_1221_1222_1228_1229_1230

Client PO Number: 4504293919
Project Description: This data report contains the results of 137 water samples, received by ATS between December 16 and December 30, to be analyzed for 1,4-Dioxane.

We certify that the sample analyses for this report have been conducted in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written Standard Operating Procedure specific to the ATS Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Gage Trendel **Email:** gtrendel@fv-operations.com
FAX Number:

No. of Pages (including cover pg.): 238

From: Sarah Stubblefield, Senior Chemist / Lab Manager **Email:** Sarah.Stubblefield@AnnArborTechnicalServices.com
FAX Number: 734-995-3731

Additional Message:

Date: 1/6/22 **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.

12-15 and 16

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS
1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1216211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1216211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 18 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/16/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/16/21				
Outfall 001	12/15/21	Urgent	1,4-Dioxane	Water
Red Pond	12/16/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/16/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/16/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/16/21	Urgent	1,4-Dioxane	Water
BP-1	12/16/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/16/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/16/21	Urgent	1,4-Dioxane	Water
2819 Dexter Rd	12/15/21	Standard	1,4-Dioxane	Water
MW-140D	12/15/21	Standard	1,4-Dioxane	Water
MW-140S	12/15/21	Standard	1,4-Dioxane	Water
MW-136D	12/15/21	Standard	1,4-Dioxane	Water
MW-136i	12/15/21	Standard	1,4-Dioxane	Water
MW-136s	12/15/21	Standard	1,4-Dioxane	Water
456 Clarendon	12/15/21	Standard	1,4-Dioxane	Water
MW-117	12/15/21	Standard	1,4-Dioxane	Water
MW-92	12/15/21	Standard	1,4-Dioxane	Water
MW-83S	12/15/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 10 Samples

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/16/21
- 2819 Dexter Rd 12/15/21
- 456 Clarendon 12/15/21
- MW-92 12/15/21
- MW-83s 12/15/21

Mark T. DeLong / January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / January 6, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_1216211.doc

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1216211
SDG 1216211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 1216211	12/16/2021	08:17:38	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments:
All analyses performed using US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Reported results reported using MDL based upon lowest calibration standard.
U= indicates estimated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1216211
SDG 1216211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 1216211	12/16/2021	09:08:09	1,4-Dioxane	123-91-1		0.010	0.0094	mg/L	Wet	93.8	85	115	

Comments:
All analyses performed using US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Reported specific reporting limit (MDL) based upon lowest calibration standard.
U= indicates estimated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1216211
SDG 1216211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1216211-2 MS	12/16/2021	16:01:16	1,4-Dioxane	123-91-1	1.2		mg/L	Wet			
1216211-2 MSD	12/16/2021	16:45:03	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet	4.4	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ATS Project Number: G001-002.21

ATS SDG: 1217211a/b

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

12-16+17

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1216211
SDG 1216211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1216211-2 MS	12/16/2021	16:01:16	1,4-Dioxane	123-91-1	0.39	0.80	1.2	mg/L	Wet	95.4	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1216211
SDG 1216211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1216211-2 MSD	12/16/2021	16:45:03	1,4-Dioxane	123-91-1	0.39	0.80	1.1	mg/L	Wet	89.2	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1217211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 31 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/17/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/17/21				
Outfall 001	12/16/21	Urgent	1,4-Dioxane	Water
Red Pond	12/17/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/17/21	Urgent	1,4-Dioxane	Water
BP-1	12/17/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/17/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/17/21	Urgent	1,4-Dioxane	Water
LB-4	12/16/21	Standard	1,4-Dioxane	Water
TW-29	12/16/21	Standard	1,4-Dioxane	Water
LB-1	12/16/21	Standard	1,4-Dioxane	Water
TW-21	12/16/21	Standard	1,4-Dioxane	Water
TW-18	12/16/21	Standard	1,4-Dioxane	Water
TW-5	12/16/21	Standard	1,4-Dioxane	Water
TW-11	12/16/21	Standard	1,4-Dioxane	Water
TW-9	12/16/21	Standard	1,4-Dioxane	Water
TW-14	12/16/21	Standard	1,4-Dioxane	Water
TW-17	12/16/21	Standard	1,4-Dioxane	Water
TW-1	12/16/21	Standard	1,4-Dioxane	Water
TW-3	12/16/21	Standard	1,4-Dioxane	Water
TW-10	12/16/21	Standard	1,4-Dioxane	Water
TW-20	12/16/21	Standard	1,4-Dioxane	Water
TW-22	12/16/21	Standard	1,4-Dioxane	Water
TW-28	12/16/21	Standard	1,4-Dioxane	Water
PW-1	12/16/21	Standard	1,4-Dioxane	Water
DOLPH	12/16/21	Standard	1,4-Dioxane	Water
TW-24	12/16/21	Standard	1,4-Dioxane	Water
373 Pinewood Deep	12/16/21	Standard	1,4-Dioxane	Water
373 Pinewood Shallow	12/16/21	Standard	1,4-Dioxane	Water
465 Dupont	12/16/21	Standard	1,4-Dioxane	Water
MW-100	12/16/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 23 Sample + 1 Matrix Spike + 1 Matrix Spike Duplicate

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/17/21
- LB-4 12/16/21
- TW-29 12/16/21
- LB-1 12/16/21
- TW-21 12/16/21
- TW-18 12/16/21
- TW-5 12/16/21
- TW-11 12/16/21
- TW-9 12/16/21
- TW-14 12/16/21
- TW-17 12/16/21
- TW-10 12/16/21
- TW-20 12/16/21
- TW-22 12/16/21
- TW-28 12/16/21
- PW-1 12/16/21
- DOLPH 12/16/21
- TW-24 12/16/21
- 373 Pinewood Shallow 12/16/21
- 465 Dupont12/16/21
- MW-100 12/16/21

Mark A DeLong

/ January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ January 6, 2021

Philip B. Simon (Laboratory Director)

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217211
SDG 1217211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1217211-2 MS	12/17/2021	12:27:41	1,4-Dioxane	123-91-1	0.38	0.80	1.1	mg/L	Wet	93.5	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217211
SDG 1217211a
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/17/21	12/17/2021	08:57:30	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217211
SDG 1217211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1217211-2 MSD	12/17/2021	13:17:23	1,4-Dioxane	123-91-1	0.38	0.80	1.2	mg/L	Wet	101	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217211
SDG 1217211a
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/17/21	12/17/2021	08:07:34	1,4-Dioxane	123-91-1		0.010	0.0093	mg/L	Wet	92.8	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217212
SDG 1217211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-2 12/17/21	12/18/2021	12:46:49	1,4-Dioxane	123-91-1		0.010	0.0090	mg/L	Wet	90.3	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217211
SDG 1217211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1217211-2 MS	12/17/2021	12:27:41	1,4-Dioxane	123-91-1	1.1		mg/L	Wet			
1217211-2 MSD	12/17/2021	13:17:23	1,4-Dioxane	123-91-1	1.2	1.2	mg/L	Wet	4.9	20	

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217212
SDG 1217211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1217211-23 MS	12/18/2021	18:25:07	1,4-Dioxane	123-91-1	0.47	0.80	1.2	mg/L	Wet	93.3	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217212
SDG 1217211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-2 12/17/21	12/18/2021	13:30:32	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217212
SDG 1217211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1217211-03 MSD	12/18/2021	17:08:38	1,4-Dioxane	123-91-1	0.47	0.80	1.4	mg/L	Wet	110	80	120	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1217212
SDG 1217211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1217211-03 MS	12/18/2021	16:25:07	1,4-Dioxane	123-91-1	1.2		mg/L	Wet			
1217211-03 MSD	12/18/2021	17:08:38	1,4-Dioxane	123-91-1	1.4	1.3	mg/L	Wet	11	20	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

12-19 and 26

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1220211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1220211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 14 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/20/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/20/21				
Outfall 001	12/19/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/20/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/20/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/20/21	Urgent	1,4-Dioxane	Water
BP-1	12/20/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/20/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/20/21	Urgent	1,4-Dioxane	Water
Red Pond	12/20/21	Urgent	1,4-Dioxane	Water
MW-134S	12/19/21	Standard	1,4-Dioxane	Water
MW-134i	12/19/21	Standard	1,4-Dioxane	Water
MW-61s	12/19/21	Standard	1,4-Dioxane	Water
MW-61d	12/19/21	Standard	1,4-Dioxane	Water
MW-93	12/19/21	Standard	1,4-Dioxane	Water
MW-304	12/19/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 6 Sample

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/20/21

/ January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ January 6, 2021

Philip B. Simon (Laboratory Director)

Sarah Stubblefield

From: Trendel, Gage <gage_trendel@pall.com>
Sent: Monday, December 20, 2021 10:22 AM
To: Sarah Stubblefield
Subject: RE: Sample Question

Ah. Yes. That's my mistake. The spreadsheet is correct here.

The only difference from the spreadsheet is the conductivity and pH will be done in house.

Gage Trendel
Chemist
F&V OPERATIONS AND RESOURCE MANAGEMENT, INC.
642 S. Wagner Road | Ann Arbor | MI | 48103
O: 616.977.1000 | D: 419.787.5144 | F: 616.977.1005

Confidential - Company Proprietary

From: Sarah Stubblefield <Sarah.Stubblefield@annarbortechnicalservices.com>
Sent: Monday, December 20, 2021 10:20 AM
To: Trendel, Gage <gage_trendel@pall.com>
Subject: Sample Question

Hi Gage.

The 9:40 sample, which I'm guessing is the 1 Hour draw indicates that you want all of the analyses performed per the COC. The spreadsheet you had sent last week only listed Br and Cl. Do you want us to perform all of the analyses on this sample as well?

Also, we've disposed of a lot of your samples. Do you want any of the VOC boxes with dividers back?

-S-

Sarah Stubblefield | Senior Chemist / Laboratory Manager
Tel: 734.995.0995 | Fax: 734.995.3731 | Cell: 734.368.4730
Email. Sarah.Stubblefield@AnnArborTechnicalServices.com

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1220211
SDG 1220211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/20/21	12/20/2021	07:48:01	1,4-Dioxane	123-91-1		0.010	0.0091	mg/L	Wet	90.5	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road | Ann Arbor, Michigan 48103
Web. AnnArborTechnicalServices.com

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1220211
SDG 1220211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1220211-8 MS	12/20/2021	17:16:28	1,4-Dioxane	123-91-1	0.38	0.80	1.1	mg/L	Wet	86.7	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1220211
SDG 1220211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/20/21	12/20/2021	08:36:31	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1220211
SDG 1220211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1220211-8 MSD	12/20/2021	16:02:15	1,4-Dioxane	123-91-1	0.38	0.80	1.2	mg/L	Wet	98.4	80	120	

Comments:
All methods reference old EPA methods unless otherwise noted.
Preparations performed prior to analysis.
Reporting limits have been adjusted upon lowest calibration standard.
M+ - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1220211
SDG 1220211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1220211-8 MS	12/20/2021	17:18:28	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet	8.4	20	
1220211-8 MSD	12/20/2021	18:02:15	1,4-Dioxane	123-91-1	1.2	1.1	mg/L	Wet			

12-20 + 21

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1221211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1221211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 19 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/21/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/21/21				
Outfall 001	12/20/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/21/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/21/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/21/21	Urgent	1,4-Dioxane	Water
BP-1	12/21/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/21/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/21/21	Urgent	1,4-Dioxane	Water
Red Pond	12/21/21	Urgent	1,4-Dioxane	Water
MW-128D	12/20/21	Standard	1,4-Dioxane	Water
MW-128S	12/20/21	Standard	1,4-Dioxane	Water
MW-37	12/20/21	Standard	1,4-Dioxane	Water
MW-58S	12/20/21	Standard	1,4-Dioxane	Water
MW-127D	12/20/21	Standard	1,4-Dioxane	Water
MW-127S	12/20/21	Standard	1,4-Dioxane	Water
MW-125	12/20/21	Standard	1,4-Dioxane	Water
MW-122d	12/20/21	Standard	1,4-Dioxane	Water
MW-122s	12/20/21	Standard	1,4-Dioxane	Water
MW-131s	12/20/21	Standard	1,4-Dioxane	Water
MW-131d	12/20/21	Standard	1,4-Dioxane	Water

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 11 Sample

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

G001-002.21/CN_1221211.doc

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

G001-002.21/CN_1221211.doc

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/21/21
- MW-37 12/20/21
- MW-58S 12/20/21
- MW-12S 12/20/21
- MW-122S 12/20/21

Mark DeLong

/ January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ January 6, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_1221211.doc

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1221211
SDG 1221211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/21/21	12/21/2021	09:47:43	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Abbreviations:
All analyses performed using US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon linear calibration standard.
In-house derived reporting limit (RDL) based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1221211
SDG 1221211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1221211-8 MSD	12/21/2021	17:48:05	1,4-Dioxane	123-91-1	0.38	0.80	1.2	mg/L	Wet	105	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1221211
SDG 1221211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/21/21	12/21/2021	08:52:26	1,4-Dioxane	123-91-1		0.010	0.011	mg/L	Wet	109	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1221211
SDG 1221211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1221211-8 MS	12/21/2021	17:04:14	1,4-Dioxane	123-91-1	1.1		mg/L	Wet			
1221211-8 MSD	12/21/2021	17:48:05	1,4-Dioxane	123-91-1	1.2	1.2	mg/L	Wet	7.2	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1221211
SDG 1221211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1221211-8 MS	12/21/2021	17:04:14	1,4-Dioxane	123-91-1	0.38	0.80	1.1	mg/L	Wet	94.3	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

12-21 122

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1222211a/b

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1222211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 21 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/22/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/22/21				
Outfall 001	12/21/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/22/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/22/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/22/21	Urgent	1,4-Dioxane	Water
BP-1	12/22/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/22/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/22/21	Urgent	1,4-Dioxane	Water
Red Pond	12/22/21	Urgent	1,4-Dioxane	Water
NMW-2S	12/21/21	Standard	1,4-Dioxane	Water
NMW-1S	12/21/21	Standard	1,4-Dioxane	Water
MW-124d	12/21/21	Standard	1,4-Dioxane	Water
MW-124s	12/21/21	Standard	1,4-Dioxane	Water
MW-91	12/21/21	Standard	1,4-Dioxane	Water
MW-54d	12/21/21	Standard	1,4-Dioxane	Water
MW-71	12/21/21	Standard	1,4-Dioxane	Water
MW-78	12/21/21	Standard	1,4-Dioxane	Water
Saginaw Forest Cabin #1	12/21/21	Standard	1,4-Dioxane	Water
Saginaw Forest Cabin #2	12/21/21	Standard	1,4-Dioxane	Water
MW-134D	12/21/21	Standard	1,4-Dioxane	Water
MW-68	12/21/21	Standard	1,4-Dioxane	Water
MW-1 Replacement	12/21/21	Standard	1,4-Dioxane	Water

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 13 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222211
SDG 1222211a
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/22/21	12/22/2021	13:23:59	1,4-Dioxane	123-91-1		0.010	0.0090	mg/L	Wet	89.9	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

G001-002.21/CN_1222211.doc

ATS

Philip B. Simon (Laboratory Director) / January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator) / January 6, 2021

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/22/21
- NMW-2S 12/21/21
- NMW-1S 12/21/21
- MW-91 12/21/21
- MW-71 12/21/21
- MW-1 Replacement 12/21/21

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222211
SDG 1222211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1222211-2 MS	12/22/2021	16:49:10	1,4-Dioxane	123-91-1	0.39	0.80	1.3	mg/L	Wet	108	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222211
SDG 1222211a
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/22/21	12/23/2021	08:05:40	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222212
SDG 1222211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-2 12/22/21	12/23/2021	07:21:57	1,4-Dioxane	123-91-1		0.010	0.0093	mg/L	Wet	92.9	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222211
SDG 1222211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1222211-2 MSD	12/22/2021	17:33:00	1,4-Dioxane	123-91-1	0.39	0.80	1.1	mg/L	Wet	94.0	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222212
SDG 1222211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1222211-13 MS	12/23/2021	12:28:11	1,4-Dioxane	123-91-1	0.15	0.40	0.49	mg/L	Wet	85.3	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222211
SDG 1222211a
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1222211-2 MS	12/22/2021	16:49:10	1,4-Dioxane	123-91-1	1.3		mg/L	Wet			
1222211-2 MSD	12/22/2021	17:33:00	1,4-Dioxane	123-91-1	1.1	1.2	mg/L	Wet	9.3	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222212
SDG 1222211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1222211-13 MS	12/23/2021	12:28:11	1,4-Dioxane	123-91-1	0.49		mg/L	Wet			
1222211-13 MSD	12/23/2021	13:11:54	1,4-Dioxane	123-91-1	0.54	0.51	mg/L	Wet	9.6	20	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222212
SDG 1222211b
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1222211-13 MSD	12/23/2021	13:11:54	1,4-Dioxane	123-91-1	0.15	0.40	0.54	mg/L	Wet	97.5	80	120	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1222212
SDG 1222211b
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-2 12/22/21	12/23/2021	08:05:40	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1228211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

12-20, 22, 23, 24, 27, 28

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1228211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 15 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/28/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/28/21				
Outfall 001	12/23/21	Urgent	1,4-Dioxane	Water
Outfall 001	12/26/21	Urgent	1,4-Dioxane	Water
Outfall 001	12/27/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/28/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/28/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/28/21	Urgent	1,4-Dioxane	Water
BP-1	12/28/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/28/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/28/21	Urgent	1,4-Dioxane	Water
Red Pond	12/28/21	Urgent	1,4-Dioxane	Water
MW-51	12/22/21	Standard	1,4-Dioxane	Water
MW-72d	12/22/21	Standard	1,4-Dioxane	Water
MW-41s	12/22/21	Standard	1,4-Dioxane	Water
MW-41d	12/22/21	Standard	1,4-Dioxane	Water
MW-58d	12/20/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 10 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 5 Samples

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/28/21
- MW-72d 12/22/21

Mark T. DeLong / January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / January 6, 2021

Philip B. Simon (Laboratory Director)

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1228211
SDG 1228211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1228211-10 MS	12/28/2021	18:22:22	1,4-Dioxane	123-91-1	0.36	0.80	1.1	mg/L	Wet	95.8	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1228211
SDG 1228211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/28/21	12/28/2021	08:34:42	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1228211
SDG 1228211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1228211-10 MSD	12/28/2021	19:06:16	1,4-Dioxane	123-91-1	0.36	0.80	1.2	mg/L	Wet	102	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1228211
SDG 1228211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/28/21	12/28/2021	09:39:01	1,4-Dioxane	123-91-1		0.010	0.0091	mg/L	Wet	90.9	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1228211
SDG 1228211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1228211-10 MS	12/29/2021	18:22:22	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet			
1228211-10 MSD	12/29/2021	19:05:16	1,4-Dioxane	123-91-1	1.2	1.1	mg/L	Wet	4.8	20	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Reported results reflect MDL(s) adjusted upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

12-8-19, 30

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1230211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1230211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 9 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/30/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/30/21				
Outfall 001	12/29/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/30/21	Urgent	1,4-Dioxane	Water
BP-1	12/30/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/30/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/30/21	Urgent	1,4-Dioxane	Water
Red Pond	12/30/21	Urgent	1,4-Dioxane	Water
TW-18	12/29/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 1 Sample

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1230211
SDG 1230211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/30/21	12/30/2021	08:40:45	1,4-Dioxane	123-91-1		0.010	0.0093	mg/L	Wet	92.8	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/30/21
- TW-18 12/29/21

Philip B. Simon (Laboratory Director) / January 6, 2021

Mark T. DeLong (Quality Assurance Coordinator) / January 6, 2021

G001-002.21ICN_120211.doc

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1230211
SDG 1230211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1230211-8 MS	12/30/2021	16:06:19	1,4-Dioxane	123-91-1	0.36	0.80	1.1	mg/L	Wet	94.7	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1230211
SDG 1230211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/30/21	12/30/2021	09:31:40	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1230211
SDG 1230211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemist Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1230211-8 MSD	12/30/2021	16:56:11	1,4-Dioxane	123-91-1	0.36	0.80	1.2	mg/L	Wet	99.7	80	120	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Reported results are reported to the lowest calibration standard.
M+: Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1230211
SDG 1230211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemist Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1230211-8 MS	12/30/2021	16:05:19	1,4-Dioxane	123-91-1	1.1		mg/L	Wet			
1230211-9 MSD	12/30/2021	16:30:11	1,4-Dioxane	123-91-1	1.2	1.1	mg/L	Wet	3.8	20	

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Reported results are reported to the lowest calibration standard.
M+: Indicates elevated reporting limit based upon sample dilution.

12-22, 23, 28, 29

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Data Transmittal Cover Page

Project Name: Pall Corporation
ATS Project Number: G001-002
ATS Report Number(s): Inorg_SRF_1202_1203_1206_1207 1208_1209_1210_1213_1214_1215

Client PO Number: 4504963225
Project Description: This data report contains the results of 166 water samples, received by ATS between December 2 and December 15, to be analyzed for 1,4-Dioxane and Total Inorganic Carbon.

We certify that the sample analyses for this report have been conducted in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written Standard Operating Procedure specific to the ATS Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Gage Trendel **Email:** gtrendel@fv-operations.com
FAX Number:

No. of Pages (including cover pg.): 310

From: Sarah Stubblefield, Senior Chemist / Lab Manager **Email:** Sarah.Stubblefield@AnnArborTechnicalServices.com
FAX Number: 734-995-3731

Additional Message:

Date: 1/6/22 **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.

ANN ARBOR TECHNICAL SERVICES, INC.

ORGANIC ANALYSIS

1,4-Dioxane by GC/MS
USEPA 1624

ATS Project Number: G001-002.21

ATS SDG: 1229211

Prepared By:
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 1/6/22
SRF / SDG Number(s): 1229211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 10 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/29/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 12/29/21				
Outfall 001	12/22/21	Standard	1,4-Dioxane	Water
Red Pond	12/23/21	Standard	1,4-Dioxane	Water
Outfall 001	12/28/21	Urgent	1,4-Dioxane	Water
Comb Eff	12/29/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	12/29/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	12/29/21	Urgent	1,4-Dioxane	Water
BP-1	12/29/21	Urgent	1,4-Dioxane	Water
Outfall Grab	12/29/21	Urgent	1,4-Dioxane	Water
Outfall Test	12/29/21	Urgent	1,4-Dioxane	Water
Red Pond	12/29/21	Urgent	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Urgent TAT	• 8 Samples
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 2 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 12/23/21
- Red Pond 12/29/21

Mark T. DeLong (Quality Assurance Coordinator) / January 6, 2021

Philip B. Simon (Laboratory Director) / January 6, 2021

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1229211
SDG 1229211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Comments
LRB-1 12/29/21	12/29/2021	07:50:57	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

Comments:
All analyses reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
# indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1229211
SDG 1229211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1229211-2 MSD	12/29/2021	18:44:45	1,4-Dioxane	123-91-1	0.39	0.80	1.1	mg/L	Wet	89.1	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1229211
SDG 1229211
Project Number: G001-002.21
Report Date: 1/6/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
LFB-1 12/29/21	12/29/2021	08:58:57	1,4-Dioxane	123-91-1		0.010	0.0091	mg/L	Wet	91.2	85	115	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1229211
SDG 1229211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Comments
1229211-2 MS	12/29/2021	18:00:49	1,4-Dioxane	123-91-1	1.1		mg/L	Wet			
1229211-2 MSD	12/29/2021	18:44:45	1,4-Dioxane	123-91-1	1.1	1.1	mg/L	Wet	1.3	20	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG1229211
SDG 1229211
Project Number: G001-002.21
Report Date: 1/6/2022

Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Comments
1229211-2 MS	12/29/2021	18:00:49	1,4-Dioxane	123-91-1	0.39	0.80	1.1	mg/L	Wet	90.9	80	120	

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	MW-72D	Analysis Date	12/13/2021 11:53:04
Laboratory Sample ID	1208211-16	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 9:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (VDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103
Office: 734-995-0995
Fax: 734-995-3731

CHAIN OF CUSTODY RECORD

Page 1

Project ID / Number: Fall
Sample Custodian: Gage Trendel
Laboratory Information: PO# 4504293519
Comments: Samples received by 1/6; 45 day hold time >OK; Metals Samples preserved upon receipt in lab
Samples: Outfall; Comb. Eff; Eff-OC-1A; Eff-OC-2A; BP-1; OF-Grab; OF-Test; Red Pond; MW-134S; MW-134I; MW-69S; MW-69D; MW-93; MW-30D; Inf-AF-10-3611-0840; Eff-AF-10-3611-0840; Eff-AF-10-3611-0840
Sample Identification: Urgent
Sample 120212-3 Only for Anions

CHAIN OF CUSTODY RECORD

Page 1

Project ID / Number: Fall
Sample Custodian: Gage Trendel
Laboratory Information: PO# 4504293519
Comments: Samples received by jk; 45 day hold time >OK; Outfall Eff → unpreserved; All others → HCl preserved
Analysis: 1,4-Dioxane; Bromide; Chloride
Samples: Outfall; Comb. Eff; Eff-OC-1A; Eff-OC-2A; BP-1; Outfall Grab; Outfall Test; Red Pond; Inf-AF-10-3611-1140; Eff-AF-10-3611-1340; Eff-AF-10-3611-1540; Eff-AF-10-3611-1740; Blind; Eff-AF-10-3611-725
Sample Identification: Urgent; Rush

CHAIN OF CUSTODY RECORD

Page 1

Project ID / Number: Fall
Sample Custodian: Gage Trendel
Laboratory Information: PO# 4504293519
Comments: Samples received by 1/6; 45 day hold time >OK; HCl preserved
Samples: MW-128D; MW-128S; MW-37; MW-58D; MW-58S; MW-127D; MW-127S; MW-125; MW-122D; MW-122S; MW-131S; MW-131D
Sample not Received

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-3393 Fax. 734/995-3721
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pall
LABORATORY INFORMATION: PO# 4504293919
SAMPLE CUSTODIAN: Gage Trendel
RELINQUISHED BY: [signature] DATE/TIME: 12/22/21
RECEIVED BY: [signature] 12/22/21 11:00
RELINQUISHED BY: DATE/TIME:
RECEIVED BY: DATE/TIME:
COMMENTS: Samples needed by 1/6. 45 day hold time → OK
Outfall/Eff → Unpreserved
All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

									Tracking Number
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/20/21				Urgent			12282211-1	
2.	Outfall	12/21/21							2	
3.	Outfall	12/21/21							3	
4.	Comb. Eff	12/22/21	7:45						4	
5.	Eff-OC-1A		7:50						5	
6.	Eff-OC-2A		7:50						6	
7.	BP-1		7:55						7	
8.	Outfall-Grab		8:00						8	
9.	Outfall-Test		8:05						9	
10.	Rock Pond		7:40						10	
11.	MW-51	12/22/21	11:45						11	
12.	MW-72d		9:25						12	
13.	MW-41s		10:45						13	
14.	MW-41d		11:00						14	
15.	MW-58d	12/22/21	11:06						15	
16.										
17.										
18.										
19.										
20.										

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3721
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

Page

PROJECT ID / NUMBER: Pall
LABORATORY INFORMATION: PO# 4504293919
SAMPLE CUSTODIAN: Gage Trendel 12/22/21 12/22/21
RELINQUISHED BY: [signature] DATE/TIME: 12/21/21
RECEIVED BY: [signature] 12/22/21 9:45
RELINQUISHED BY: DATE/TIME: 9:15
RECEIVED BY: DATE/TIME:
COMMENTS: Samples needed by 1/6 45 day hold time → OK
Outfall/Eff → Unpreserved
All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

									Tracking Number
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/20/21				Urgent	1	1	12222211-1	
2.	Rock Pond	12/22/21	7:15						2	
3.	~~Comb~~ Comb-Eff.		7:20						3	
4.	Eff-OC-1A		7:25						4	
5.	Eff-OC-2A		7:25						5	
6.	BP-1		7:30						6	
7.	Outfall Grab		7:35						7	
8.	Outfall Test		7:40						8	
9.	NMW-2S	12/21/21	13:30						9	
10.	NMW-1S		13:45						10	
11.	MW-124d	9:11	~~9:30~~						11	
12.	MW-124s	~~10:25~~	~~9:30~~						12	
13.	MW-91	11:45	~~10:00~~						13	
14.	MW-54d	~~8:05~~	~~10:30~~						14	
15.	MW-71	~~11:30~~	~~10:30~~						15	
16.	MW-76	~~8:50~~	~~10:30~~						16	
17.	Saginaw Forest Column #1		9:45						17	
18.	Saginaw Forest Column #2		10:44						18	
19.	MW-134D		11:55						19	
20.	MW-60S		13:00						20	

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-3393 Fax. 734/995-3721
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

Page 1

PROJECT ID / NUMBER: Pall
LABORATORY INFORMATION: PO# 4504293919
SAMPLE CUSTODIAN: Gage Trendel
RELINQUISHED BY: [signature] DATE/TIME: 12/30/21
RECEIVED BY: [signature] 12/30/21 9:40
RELINQUISHED BY: DATE/TIME: 8:15
RECEIVED BY: DATE/TIME:
COMMENTS: Samples needed by 1/6. 45 day hold time → OK
Outfall/Eff → Unpreserved
All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

									Tracking Number
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/30/21				Urgent			12802211-1	
2.	Comb. Eff.	12/30/21	7:05						2	
3.	Eff-OC-1A		7:10						3	
4.	Eff-OC-2A		7:10						4	
5.	BP-1		7:15						5	
6.	Outfall Grab		7:20						6	
7.	Outfall Test		7:25						7	
8.	Rock Pond		7:00						8	
9.	TW-1R	12/21/21	13:35						9	
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3721
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

Page

PROJECT ID / NUMBER: Pall
LABORATORY INFORMATION:
SAMPLE CUSTODIAN: Gage Trendel 12/22/21
RELINQUISHED BY: [signature] DATE/TIME:
RECEIVED BY: [signature] 12/22/21 9:45
RELINQUISHED BY: DATE/TIME:
RECEIVED BY: DATE/TIME:
COMMENTS (Preservation, etc.):

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

									Tracking Number
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	ANALYSIS: 1,4-Dioxane	Bromide	Chloride	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	MW-1 Replacement	12/21/21	14:00				1		1	✓	✓	12222211-21
2.	Eff-AF-10-3611-1430	1	1430				4					22 23
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pell
LABORATORY INFORMATION: PO# 4504963225
SAMPLE CUSTODIAN: Gaga Trendel
RELINQUISHED BY: DATE/TIME: 12/2/21
RECEIVED BY:
RELINQUISHED BY: DATE/TIME: 10:40
RECEIVED BY:
COMMENTS: HCl preserved URGENT

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number

DATE/TIME | RELINQUISHED BY | DATE/TIME | RECEIVED BY | DATE/TIME

ANALYSIS: 14-Day

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY MANAGER	14-Day	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	MW-144 (212-217)	12/2/21	850			Urgent	1		12022114-1	
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pell
LABORATORY INFORMATION: PO# 4504293919
SAMPLE CUSTODIAN: Gaga Trendel
RELINQUISHED BY: DATE/TIME: 12/29/21
RECEIVED BY: DATE/TIME: 12/29/21 9:00
RELINQUISHED BY: DATE/TIME: 830
RECEIVED BY:
COMMENTS: Samples needed by 1/6 — 45 day hold time → OK; Outfall/EFF → Unpreserved; All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number

DATE/TIME | RELINQUISHED BY | DATE/TIME | RECEIVED BY | DATE/TIME

ANALYSIS: 14-Day

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY MANAGER	14-Day	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/2/21				Urgent			12292111-1	
2.	Recd Pond	12/2/21	7:30						2	
3.	Outfall	12/2/21							3	
4.	Eff. Comb	12/2/21	7:35						4	
5.	Eff-OC-1A		7:40						5	
6.	Eff-OC-2A		7:40						6	
7.	BP-1		7:45						7	
8.	OF-Comb		7:50						8	
9.	OF-Test		755						9	
10.	Recd Pond	12/2/21	7:30						10	
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pell
LABORATORY INFORMATION: PO# 4504963225
SAMPLE CUSTODIAN: Gaga Trendel
RELINQUISHED BY: DATE/TIME: 12/3/21
RECEIVED BY:
RELINQUISHED BY: DATE/TIME: 8:25
RECEIVED BY:
COMMENTS: Samples needed by 1/6 — 45 day hold time → OK; Outfall/EFF → Unpreserved; All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number

DATE/TIME | RELINQUISHED BY | DATE/TIME | RECEIVED BY | DATE/TIME

ANALYSIS: 14-Day

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY MANAGER	14-Day	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/2/21				Urgent			12032111-1	
2.	Comb-Eff	12/3/21	7:15						2	
3.	Eff-OC-1A		7:20						3	
4.	Eff-OC-2A		7:20						4	
5.	BP-1		7:25						5	
6.	OF Comb		7:30						6	
7.	OF Test		7:35						7	
8.	Recd Pond		7:10						8	
9.	MW-112	12/2/21	15:20						9	
10.	MW-112S		14:00						10	
11.	MW-103S		12:20						11	
12.	AR Cleaning Supply		10:15						12	
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pell
LABORATORY INFORMATION: PO# 4504963225
SAMPLE CUSTODIAN: Gaga Trendel
RELINQUISHED BY: DATE/TIME: 12/2/21
RECEIVED BY:
RELINQUISHED BY: DATE/TIME: 8:25
RECEIVED BY:
COMMENTS: Samples needed by 1/6 — 45 day hold time → OK; Outfall/EFF → Unpreserved; All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number

DATE/TIME | RELINQUISHED BY | DATE/TIME | RECEIVED BY | DATE/TIME

ANALYSIS: 14-Day

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY MANAGER	14-Day	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/1/21				Urgent	1		12022114-1	
2.	Comb-Eff	12/2/21	7:20						2	
3.	Eff-OC-1A		7:25						3	
4.	Eff-OC-2A		7:25						4	
5.	BP-1		7:30						5	
6.	Outfall-Comb		7:35						6	
7.	Outfall-Test		7:40						7	
8.	Recd Pond		7:15						8	
9.	MW-144 (182-187)	12/1/21	9:00						9	
10.	(192-197)		11:30						10	
11.	(202-207)		14:00						11	
12.	MW-53		13:55						12	
13.	MW-53S		12:20						13	
14.										
15.										
16.										
17.										
18.										
19.										
20.										

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0595 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pall

LABORATORY INFORMATION: PO# 4504963225

SAMPLE CUSTODIAN: Gage Trendel — 12/8/21

RELINQUISHED BY: DATE/TIME 12/8/21 10:20 — RECEIVED BY:

RELINQUISHED BY: DATE/TIME — RECEIVED BY:

COMMENTS: Samples needed by 1/6. 45 day hold time → Outfall/Eff → unpreserved; all others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (if applicable)

									Tracking Number
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	

DATE / TIME	RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Day TAT	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/1/21				Urgent	1			120821I-1	
2.	Comb. Eff.	12/2/21	7:20							2	
3.	Eff-OC-1A		7:05							3	
4.	Eff-OC-2A		7:05							4	
5.	RP-1		7:10							5	
6.	OF-Grab		7:15							6	
7.	OF-Test		7:20							7	
8.	Red Pond		6:55							8	
9.	MW-62d	12/1/21	9:04							9	
10.	MW-62I		10:15							10	
11.	MW-62S		11:25							11	
12.	MW-56d		12:30							12	
13.	MW-25		12:30							13	
14.	MW-56S		13:49							14	
15.	MW-20		15:09							15	
16.	MW-72D		9:00							16	
17.	MW-72S		10:15							17	
18.	MW-138S		12:50							18	
19.	MW-138I		13:32							19	
20.	MW-138D		11:51							20	

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0595 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

Page

PROJECT ID / NUMBER: Pall

LABORATORY INFORMATION: PO# 4504963225

SAMPLE CUSTODIAN: Gage Trendel

RELINQUISHED BY: DATE/TIME 12/6/21 9:15 — RECEIVED BY:

RELINQUISHED BY: DATE/TIME — RECEIVED BY:

COMMENTS: Samples needed by 1/6. 45 day hold time → OK; Outfall/Eff → unpreserved; All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (if applicable)

									Tracking Number
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	

DATE / TIME	RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Day TAT	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/5/21				Urgent	1			120621I-1	
2.	Comb - Eff	12/6/21	7:40							2	
3.	Eff - OC - 1A		7:45							3	
4.	Eff - OC - 2A		7:45							4	
5.	RP-1		7:50							5	
6.	Outfall Grab		7:55							6	
7.	Outfall Test		8:00							7	
8.	Red Pond		7:35							8	
9.	Third Sister Lake	12/3/21	10:05							9	
10.	West Park Pond		10:30							10	
11.	MW-144 (252-297)		11:30							11	
12.	MW-144 (302-307)		14:45							12	
13.											
14.											
15.											
16.											
17.											
18.											
19.											
20.											

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0595 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER:

LABORATORY INFORMATION:

SAMPLE CUSTODIAN: — 12/8/21

RELINQUISHED BY: DATE/TIME 11/8/21 10:20 — RECEIVED BY:

RELINQUISHED BY: DATE/TIME — RECEIVED BY:

COMMENTS (Preservation, etc.):

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (if applicable)

									Tracking Number
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	

DATE / TIME	RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Day TAT	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	MW-137D	12/7/21	14:37				1			120821I-21	
2.	MW-137S	1	15:27				1			22	
3.	~~MW-14~~ TW-14	12/7/21	10:20							23	
	DUP										
4.											
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											
13.											
14.											
15.											
16.											
17.											
18.											
19.											
20.											

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0595 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pall

LABORATORY INFORMATION: PO# 4504963225

SAMPLE CUSTODIAN: Gage Trendel

RELINQUISHED BY: DATE/TIME 12/7/21 8:30 — RECEIVED BY:

RELINQUISHED BY: DATE/TIME — RECEIVED BY:

COMMENTS: Samples needed by 1/6. 45 day hold time → OK; Outfall/Eff → unpreserved; All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (if applicable)

									Tracking Number
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	
Date		Fed Ex		UPS		DHL		Courier	

DATE / TIME	RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Day TAT	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/6/21				Urgent				120721I-1	
2.	Comb - Eff	12/7/21	7:05							2	
3.	Eff-OC-1A		7:10							3	
4.	Eff-OC-2A		7:10							4	
5.	RP-1		7:15							5	
6.	Outfall Test		7:25							6	
7.	Outfall Grab		7:20							7	
8.	Red Pond		7:00							8	
9.	MW-76S	12/6/21	12:29							9	
10.	MW-76I		14:59							10	
11.	MW-84S		16:16							11	
12.	697 S Wagner Rd		16:10			Drinking Water				12	
13.											
14.											
15.											
16.											
17.											
18.											
19.											
20.											

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0993 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321729

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pall
LABORATORY INFORMATION: PO#4504963225
SAMPLE CUSTODIAN (Print & Signature): Gage Trendel
SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

RELINQUISHED BY (Print & Signature)	DATE / TIME	RECEIVED BY (Print & Signature)
[signature]	12/4/21	Jim Bradley 12/14/21
	8:50	10:40

COMMENTS (Preservation, etc.): Samples needed by 1/6 — 45 day hold time → Ok. Outfall / Eff → unpreserved; All others → HCl preserved

ANALYSIS: 14-Dioxane

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Dioxane	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/3/21				Urgent	1			
2.	Rock Pond	12/4/21	7:10							
3.	Comb. Eff		7:15							
4.	Eff-OC-1A		7:20							
5.	Eff-OC-2A		7:20							
6.	BP-1		7:25							
7.	OF - Grab		7:30							
8.	OF - Test		7:35							
9.	MW-105d	12/3/21								
10.	MW-105s									
11.	MW-145 (10-14)									
12.	(20-24)									
13.	(32-37)									
14.	MW-KD-1S									
15.	MW-KD-1D									
16.	MW-54S									
17.	MW-54D									
18.										
19.										
20.										

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pall
LABORATORY INFORMATION: PO#4504963225
SAMPLE CUSTODIAN (Print & Signature): Gage Trendel
SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

RELINQUISHED BY (Print & Signature)	DATE / TIME	RECEIVED BY (Print & Signature)
[signature]	12/9/21	Jim Bradley
	9:50	

COMMENTS (Preservation, etc.): Samples needed by 1/6. 45 day hold time → Ok. Outfall / Eff → unpreserved; All others → HCl preserved

ANALYSIS: 14-Dioxane

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Dioxane	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/8/21				Urgent	1		1209211-1	
2.	Comb. Eff.	12/9/21	7:05						2	
3.	Eff-OC-1A		7:10						3	
4.	Eff-OC-2A		7:10						4	
5.	BP-1		7:15						5	
6.	Outfall - Grab		7:20						6	
7.	Outfall - Test		7:25						7	
8.	Rock Pond	⊥	7:00						8	
9.	MW-79S	12/8/21	12:30						9	
10.	MW-65i		9:17						10	
11.	MW-65D		10:15						11	
12.	MW-65S		11:18						12	
13.	~~MW-2S~~ MW-2D JDB		12:09						13	
14.	MW-79d		13:50						14	
15.	MW-88	⊥	15:40				⊥	⊥	15	
16.										
17.										
18.										
19.										
20.										

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pall
LABORATORY INFORMATION: PO#4504963225
SAMPLE CUSTODIAN (Print & Signature): Gage Trendel
SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

RELINQUISHED BY (Print & Signature)	DATE / TIME	RECEIVED BY (Print & Signature)
[signature]	12/3/21	Jim Bradley 12/13/21 10:38
	9:35	

COMMENTS (Preservation, etc.): Samples due by 1/6 — 45 day hold time → Ok. Outfall / Eff → HCl preserved; All others → unpreserved

ANALYSIS: 14-Dioxane

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Dioxane	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/3/21				Urgent	1		12132214-1	
2.	Rock Pond	12/3/21	7:~~05~~						2	
3.	Comb. Eff		7:~~10~~						3	
4.	Eff-OC-1A		7:~~20~~						4	
5.	Eff-OC-2A		7:~~25~~						5	
6.	BP-1		7:25						6	
7.	Outfall Grab		7:30						7	
8.	Outfall Test	⊥	7:35						8	
9.	MW-25S	12/2/21	12:35						9	
10.	MW-7S		15:40						10	
11.	MW-5d		14:10						11	
12.	MW-2S		14:30						12	
13.	MW-126d		9:56						13	
14.	MW-126S		11:11						14	
15.	MW-39d		12:~~30~~						15	
16.	MW-39S		13:13						16	
17.	500S Jackson Rd	⊥	15:~~00~~						17	
18.	TW-2i	12/11/21	10:~~00~~						18	
19.	TW-2d		10:10						19	
20.	TW-4	⊥	11:55				⊥	⊥	20	

CHAIN OF CUSTODY RECORD

Page

PROJECT ID / NUMBER: Pall
LABORATORY INFORMATION:
SAMPLE CUSTODIAN (Print & Signature): Gage Trendel
SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

RELINQUISHED BY (Print & Signature)	DATE / TIME	RECEIVED BY (Print & Signature)
[signature]	12/10/21	Jim Bradley
	8:35	

COMMENTS (Preservation, etc.): Samples needed by 1/6 — 45 day hold time → Ok. Outfall / Eff → unpreserved; All other → HCl preserved

ANALYSIS: 1,4-Dioxane

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	1,4-Dioxane	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/9/21		X		Urgent	1		X 12102211-1	
2.	Comb Eff	12/10/21	07:50	X					2	
3.	Eff-OC-1A		07:55						3	
4.	Eff-OC-2A		07:55						4	
5.	BP-1		08:00						5	
6.	Outfall Grab		08:05						6	
7.	Outfall Test		08:10						7	
8.	Rock Pond	⊥	07:45						8	
9.	MW-139S	12/9/21	9:58						9	
10.	MW-139d		11:01						10	
11.	MW-139I		12:03						11	
12.	4601 Park 4inch		13:43						12	
13.	4601 Park 6inch		14:59						13	
14.	MW-141d		16:34						14	
15.	MW-141S	⊥	17:00	✓			↓		↓ 15	
16.										
17.										
18.										
19.										
20.										

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0200 Fax. 734/995-3721
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pall

LABORATORY INFORMATION: PO#4504293919

SAMPLE CUSTODIAN (Print & Signature): Gage Trendel

RELINQUISHED BY (Print & Signature): [signature] — DATE/TIME: 12/16/21

RECEIVED BY (Print & Signature): [signature] Jim Bradley — DATE/TIME: 12/16/21 9:00 DEO

RELINQUISHED BY (Print & Signature): — DATE/TIME:

RECEIVED BY (Print & Signature): — DATE/TIME:

COMMENTS (Preservation, etc.): Samples needed by 1/6 — 45 day hold time - OK — Outfall Eff → unpreserved — All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Day Dissolved	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/5/21				Urgent	1			12621-1	
2.	Rock Pond	12/16/21	7:15							2	
3.	Comb. Eff		7:20							3	
4.	Eff - OC - 1A		7:25							4	
5.	Eff - OC - 2A		7:25							5	
6.	BP-1		7:30							6	
7.	Outfall Grab		7:35							7	
8.	Outfall Test		7:40							8	
9.	2519 Dexter Rd	12/5/21	9:25							9	
10.	MW-140D		10:22							10	
11.	MW-140S		10:58							11	
12.	MW-136D		11:58							12	
13.	MW-136I		12:52							13	
14.	MW-136S		13:40							14	
15.	456 Clarendon		14:39							15	
16.	MW-17		15:30							16	
17.	MW-92		13:50							17	
18.	MW-135		15:46							18	
19.											
20.											

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0200 Fax. 734/995-3721
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pall

LABORATORY INFORMATION: PO#4504963225

SAMPLE CUSTODIAN (Print & Signature): Gage Trendel

RELINQUISHED BY (Print & Signature): [signature] — DATE/TIME: 12/5/21

RECEIVED BY (Print & Signature): [signature] Jim Bradley 9:42 12/15/21 — DATE/TIME:

RELINQUISHED BY (Print & Signature): — DATE/TIME: 9:05

RECEIVED BY (Print & Signature): — DATE/TIME:

COMMENTS (Preservation, etc.): Samples needed by 1/6 — 45 day hold time - OK — Outfall Eff → unpreserved — All others → HCl preserved

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Day Dissolved	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	Outfall	12/9/21				Urgent	1			12152 11-1	
2.	Comb Eff	12/15/21	7:40							2	
3.	Eff - OC - 1A		7:48							3	
4.	Eff - OC - 2A		7:45							4	
5.	BP-1		7:50							5	
6.	Outfall Test		8:00							6	
7.	Outfall Grab		7:56							7	
8.	Rock Pond		7:55							8	
9.	MW-90	12/9/21	[illegible]							9	
10.	MW-94D		[illegible]							10	
11.	MW-94S		[illegible]							11	
12.	MW-17		[illegible]							12	
13.	MW-77		[illegible]							13	
14.	MW-71		11:43							14	
15.	MW-135		12:48							15	
16.	MW-98 D		13:50							16	
17.	MW-95		15:08							17	
18.	MW-96		15:51							18	
19.	MW-57		8:36							19	
20.											

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0200 Fax. 734/995-3721
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Pall

LABORATORY INFORMATION:

SAMPLE CUSTODIAN (Print & Signature):

RELINQUISHED BY (Print & Signature): — DATE/TIME: 12/13/21 10:32

RECEIVED BY (Print & Signature): Jim Bradley

RELINQUISHED BY (Print & Signature): — DATE/TIME:

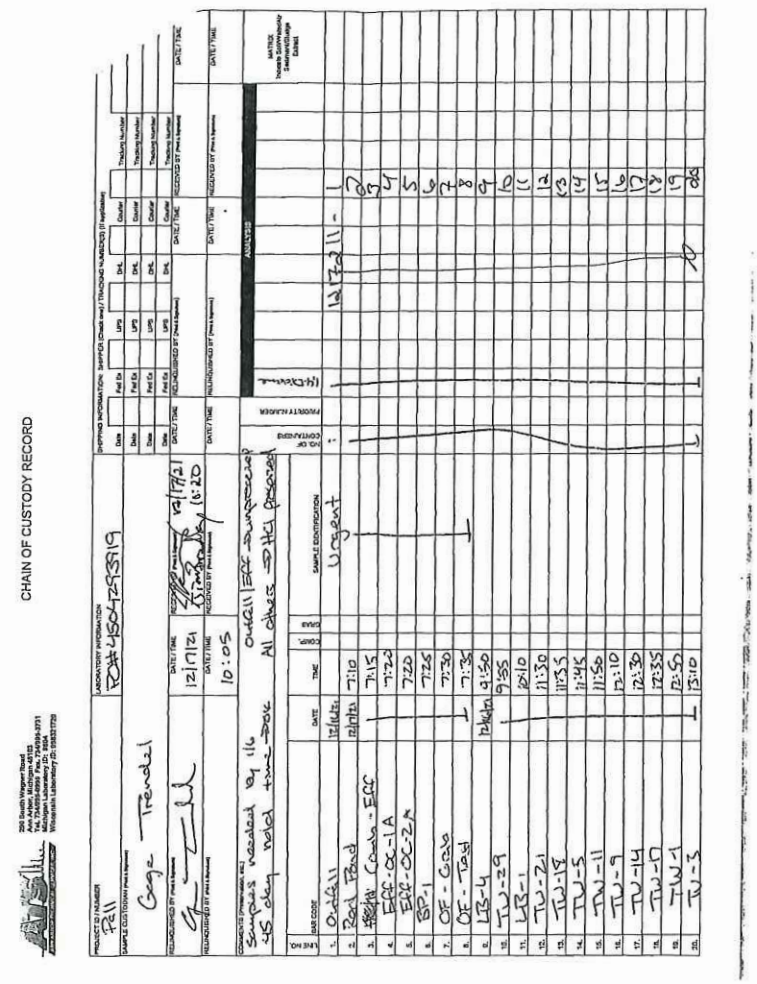
RECEIVED BY (Print & Signature): — DATE/TIME:

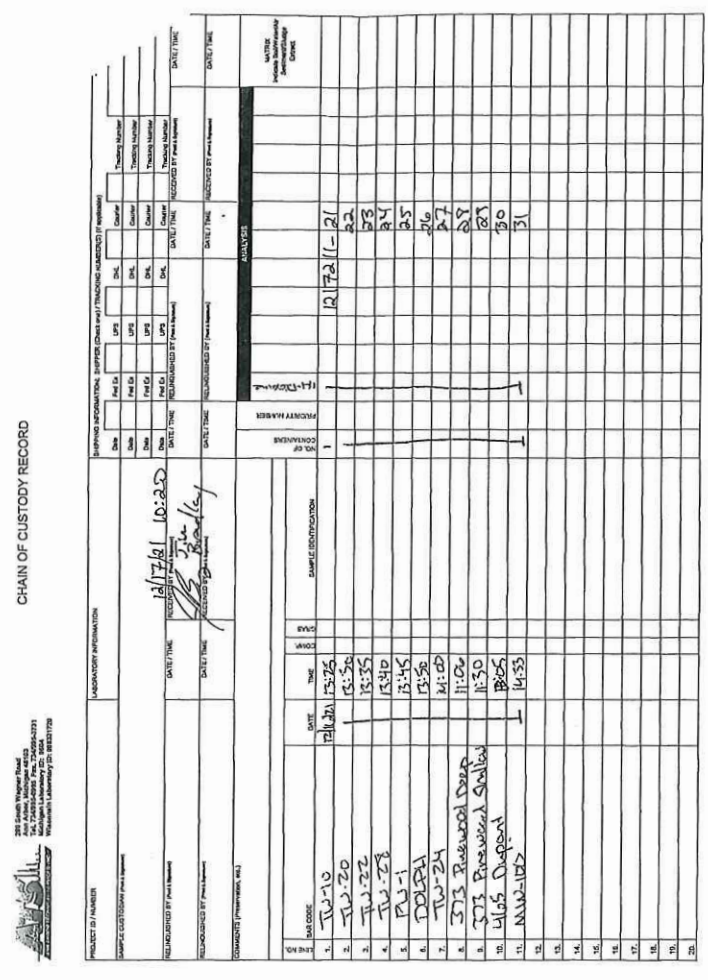
COMMENTS (Preservation, etc.):

SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)

Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number
Date		Fed Ex		UPS		DHL		Courier	Tracking Number

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	14-Day Dissolved	ANALYSIS	MATRIX (Indicate Soil/Water/Air Sediment/Sludge Extract)
1.	TW-6	12/14/21	13:35				1		1	12132 11-21	
2.	MW-81	1	15:30				1		1	22	
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											
13.											
14.											
15.											
16.											
17.											
18.											
19.											
20.											





ATS ANN ARBOR TECHNICAL SERVICES, INC.
293 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0993 Fax. 734/995-3731
Michigan Laboratory ID: 9934
Wisconsin Laboratory ID: 998331720

Inorganic Analysis
Data Summary Sheet

For: Mr. Gage Trendel
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 1/6/22
ATS SRF: 1213211

Sample Identification: MW-2SS
ATS Lab ID: 1213211-9

Sample Date: 12/10/21
Sample Time: 12:35 PM
Sampled By: Client
Laboratory Receipt Date: 12/13/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Preparation Date	Analysis Completion Date & Time		Analyst
Carbon Analysis								
Total Inorganic Carbon	APHA 5310C	mg/L	210	10	-	12/16/21	16:10	DMS

Comments
All methods are 40 CFR 136 & 141 approved, unless otherwise noted.
APHA Standard methods (18th and 21st edition).
Preparation Date is the date analysis was started, per 40 CFR Part 136.3 Table II
na - Indicates Not Applicable / Not Available

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1202211	Preparation Date	12/02/2021
Client Sample ID	Outfall 001	Analysis Date	12/02/2021 13:08:09
Laboratory Sample ID	1202211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/01/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1202211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1202211	Preparation Date	12/02/2021
Client Sample ID	Red Pond	Analysis Date	12/02/2021 18:42:44
Laboratory Sample ID	1202211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/02/2021 7:15	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1202211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.33	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1202211	Preparation Date	12/02/2021
Client Sample ID	MW-53I	Analysis Date	12/02/2021 22:21:27
Laboratory Sample ID	1202211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/01/2021 13:55	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1202211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.040	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1202211	Preparation Date	12/02/2021
Client Sample ID	MW-53s	Analysis Date	12/02/2021 23:05:13
Laboratory Sample ID	1202211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/01/2021 12:20	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1202211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1203211	Preparation Date	12/03/2021
Client Sample ID	Outfall 001	Analysis Date	12/03/2021 09:18:14
Laboratory Sample ID	1203211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/02/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1203211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1203211	Preparation Date	12/03/2021
Client Sample ID	Red Pond	Analysis Date	12/03/2021 14:44:29
Laboratory Sample ID	1203211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/03/2021 7:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1203211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.30	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1203211	Preparation Date	12/03/2021
Client Sample ID	MW-112i	Analysis Date	12/03/2021 16:58:05
Laboratory Sample ID	1203211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/02/2021 15:20	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1203211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.009	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1203211	Preparation Date	12/03/2021
Client Sample ID	MW-112s	Analysis Date	12/03/2021 17:41:55
Laboratory Sample ID	1203211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/02/2021 14:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1203211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.003	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1203211	Preparation Date	12/03/2021
Client Sample ID	MW-103s	Analysis Date	12/03/2021 18:25:45
Laboratory Sample ID	1203211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/02/2021 12:20	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1203211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.076	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1203211	Preparation Date	12/03/2021
Client Sample ID	A2 Cleaning Supply	Analysis Date	12/03/2021 19:09:33
Laboratory Sample ID	1203211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/02/2021 10:15	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1203211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.051	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1206211	Preparation Date	12/06/2021
Client Sample ID	Outfall 001	Analysis Date	12/06/2021 13:50:57
Laboratory Sample ID	1206211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/05/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1206211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1206211	Preparation Date	12/06/2021
Client Sample ID	Red Pond	Analysis Date	12/06/2021 20:42:42
Laboratory Sample ID	1206211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/06/2021 7:35	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1206211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.33	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1207211	Preparation Date	12/07/2021
Client Sample ID	Outfall 001	Analysis Date	12/07/2021 10:16:23
Laboratory Sample ID	1207211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/06/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1207211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1207211	Preparation Date	12/07/2021
Client Sample ID	Red Pond	Analysis Date	12/07/2021 16:20:02
Laboratory Sample ID	1207211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 7:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1207211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.31	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1207211	Preparation Date	12/07/2021
Client Sample ID	MW-76S	Analysis Date	12/08/2021 18:32:52
Laboratory Sample ID	1207211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/06/2021 12:29	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1207211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.27	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1207211	Preparation Date	12/07/2021
Client Sample ID	MW-76I	Analysis Date	12/07/2021 17:47:41
Laboratory Sample ID	1207211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/06/2021 14:59	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	4
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1207211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.10	0.004		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1207211	Preparation Date	12/07/2021
Client Sample ID	MW-84S	Analysis Date	12/07/2021 18:31:31
Laboratory Sample ID	1207211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/06/2021 16:16	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1207211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.33	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1207211	Preparation Date	12/07/2021
Client Sample ID	697 S. Wagner Rd.	Analysis Date	12/07/2021 20:42:40
Laboratory Sample ID	1207211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/06/2021 16:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1207211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211a	Preparation Date	12/08/2021
Client Sample ID	Outfall 001	Analysis Date	12/08/2021 10:56:33
Laboratory Sample ID	1208211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211a	Preparation Date	12/08/2021
Client Sample ID	Red Pond	Analysis Date	12/08/2021 16:21:14
Laboratory Sample ID	1208211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/08/2021 6:55	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.26	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	**Percent Moisture**	100.0
ATS SDG Number	1208211b	**Preparation Date**	12/08/2021
Client Sample ID	MW-62d	**Analysis Date**	12/11/2021 01:10:48
Laboratory Sample ID	1208211-9	**Instrument**	2100V
Matrix	Water	**Subsample (mL)**	5.000
Sample Date	12/07/2021 9:04	**Final Volume (mL)**	5.000
Analytical Method (USEPA)	USEPA 1624	**Dilution Factor**	1
Preparation Method (USEPA)	USEPA 1624	**Basis**	Wet
QC Batch Number	QCORG1208212	**Units**	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	**Percent Moisture**	100.0
ATS SDG Number	1208211b	**Preparation Date**	12/08/2021
Client Sample ID	MW-62l	**Analysis Date**	12/11/2021 01:54:33
Laboratory Sample ID	1208211-10	**Instrument**	2100V
Matrix	Water	**Subsample (mL)**	5.000
Sample Date	12/07/2021 10:15	**Final Volume (mL)**	5.000
Analytical Method (USEPA)	USEPA 1624	**Dilution Factor**	1
Preparation Method (USEPA)	USEPA 1624	**Basis**	Wet
QC Batch Number	QCORG1208212	**Units**	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	**Percent Moisture**	100.0
ATS SDG Number	1208211b	**Preparation Date**	12/08/2021
Client Sample ID	MW-56d	**Analysis Date**	12/11/2021 03:21:59
Laboratory Sample ID	1208211-12	**Instrument**	2100V
Matrix	Water	**Subsample (mL)**	5.000
Sample Date	12/07/2021 12:39	**Final Volume (mL)**	5.000
Analytical Method (USEPA)	USEPA 1624	**Dilution Factor**	1
Preparation Method (USEPA)	USEPA 1624	**Basis**	Wet
QC Batch Number	QCORG1208212	**Units**	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	**Percent Moisture**	100.0
ATS SDG Number	1208211b	**Preparation Date**	12/08/2021
Client Sample ID	MW-28	**Analysis Date**	12/11/2021 04:05:44
Laboratory Sample ID	1208211-13	**Instrument**	2100V
Matrix	Water	**Subsample (mL)**	5.000
Sample Date	12/07/2021 12:30	**Final Volume (mL)**	5.000
Analytical Method (USEPA)	USEPA 1624	**Dilution Factor**	1
Preparation Method (USEPA)	USEPA 1624	**Basis**	Wet
QC Batch Number	QCORG1208212	**Units**	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	MW-56s	Analysis Date	12/11/2021 04:49:23
Laboratory Sample ID	1208211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 13:49	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.048	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	MW-20	Analysis Date	12/11/2021 05:33:02
Laboratory Sample ID	1208211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 15:09	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	MW-72S	Analysis Date	12/11/2021 08:28:05
Laboratory Sample ID	1208211-17	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 10:15	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.001	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	MW-138S	Analysis Date	12/11/2021 09:11:55
Laboratory Sample ID	1208211-18	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 12:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	MW-138I	Analysis Date	12/11/2021 09:55:44
Laboratory Sample ID	1208211-19	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 13:32	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.007	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	MW-138D	Analysis Date	12/11/2021 10:39:30
Laboratory Sample ID	1208211-20	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 11:51	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	MW-137D	Analysis Date	12/11/2021 11:23:11
Laboratory Sample ID	1208211-21	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 14:39	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	MW-137S	Analysis Date	12/11/2021 12:07:04
Laboratory Sample ID	1208211-22	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 15:27	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1208211b	Preparation Date	12/08/2021
Client Sample ID	TW-14	Analysis Date	12/11/2021 12:50:55
Laboratory Sample ID	1208211-23	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/07/2021 10:20	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1208212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.11	0.010		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1209211	Preparation Date	12/09/2021
Client Sample ID	Outfall 001	Analysis Date	12/09/2021 13:13:35
Laboratory Sample ID	1209211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/08/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1209211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1209211	Preparation Date	12/09/2021
Client Sample ID	Red Pond	Analysis Date	12/09/2021 10:53:52
Laboratory Sample ID	1209211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/09/2021 7:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1209211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.34	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1209211	Preparation Date	12/09/2021
Client Sample ID	MW-79S	Analysis Date	12/09/2021 18:20:30
Laboratory Sample ID	1209211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/08/2021 12:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1209211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.26	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1209211	Preparation Date	12/09/2021
Client Sample ID	MW-65I	Analysis Date	12/09/2021 19:04:20
Laboratory Sample ID	1209211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/08/2021 9:17	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1209211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.004	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1209211	Preparation Date	12/09/2021
Client Sample ID	MW-65D	Analysis Date	12/09/2021 19:48:14
Laboratory Sample ID	1209211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/08/2021 10:15	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1209211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.016	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1209211	Preparation Date	12/09/2021
Client Sample ID	MW-65s	Analysis Date	12/09/2021 20:31:59
Laboratory Sample ID	1209211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/08/2021 11:18	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1209211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.005	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1209211	Preparation Date	12/09/2021
Client Sample ID	MW-20 or ~~MW-30~~	Analysis Date	12/09/2021 21:15:42
Laboratory Sample ID	1209211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/08/2021 12:09	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1209211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.033	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1209211	Preparation Date	12/09/2021
Client Sample ID	MW-79d	Analysis Date	12/09/2021 21:59:25
Laboratory Sample ID	1209211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/08/2021 13:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1209211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1209211	Preparation Date	12/09/2021
Client Sample ID	MW-88	Analysis Date	12/09/2021 22:43:01
Laboratory Sample ID	1209211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/08/2021 15:40	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1209211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.13	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1210211	Preparation Date	12/10/2021
Client Sample ID	Outfall 001	Analysis Date	12/10/2021 10:21:01
Laboratory Sample ID	1210211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/09/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1210211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1210211	Preparation Date	12/10/2021
Client Sample ID	Red Pond	Analysis Date	12/10/2021 11:18:39
Laboratory Sample ID	1210211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 7:45	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1210211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.35	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1210211	Preparation Date	12/10/2021
Client Sample ID	MW-139S	Analysis Date	12/10/2021 17:53:09
Laboratory Sample ID	1210211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/09/2021 9:58	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1210211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1210211	Preparation Date	12/10/2021
Client Sample ID	MW-139D	Analysis Date	12/10/2021 18:37:03
Laboratory Sample ID	1210211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/09/2021 11:07	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1210211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.001	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1210211	Preparation Date	12/10/2021
Client Sample ID	MW-139I	Analysis Date	12/10/2021 19:20:52
Laboratory Sample ID	1210211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/09/2021 12:13	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1210211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1210211	Preparation Date	12/10/2021
Client Sample ID	4601 Park 4Inch	Analysis Date	12/10/2021 20:04:43
Laboratory Sample ID	1210211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/09/2021 13:43	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1210211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.001	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1210211	Preparation Date	12/10/2021
Client Sample ID	4601 Park 6Inch	Analysis Date	12/10/2021 20:48:27
Laboratory Sample ID	1210211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/09/2021 14:59	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1210211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.002	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1210211	Preparation Date	12/10/2021
Client Sample ID	MW-141d	Analysis Date	12/10/2021 21:32:08
Laboratory Sample ID	1210211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/09/2021 16:34	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1210211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.004	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1210211	Preparation Date	12/10/2021
Client Sample ID	MW-141S	Analysis Date	12/10/2021 22:15:52
Laboratory Sample ID	1210211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/09/2021 17:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1210211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.003	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211a	Preparation Date	12/13/2021
Client Sample ID	Outfall 001	Analysis Date	12/13/2021 13:09:21
Laboratory Sample ID	1213211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/12/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.005	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211a	Preparation Date	12/13/2021
Client Sample ID	Red Pond	Analysis Date	12/13/2021 14:01:23
Laboratory Sample ID	1213211-2	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/13/2021 7:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.37	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	MW-25S	Analysis Date	12/13/2021 22:46:50
Laboratory Sample ID	1213211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 12:35	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	20
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.12	0.02		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	MW-7S	Analysis Date	12/13/2021 23:30:27
Laboratory Sample ID	1213211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 13:40	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.33	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	MW-5d	Analysis Date	12/14/2021 01:41:04
Laboratory Sample ID	1213211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 14:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	80
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	7.5	0.08		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	MW-2S	Analysis Date	12/14/2021 02:24:43
Laboratory Sample ID	1213211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 14:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	MW-126d	Analysis Date	12/14/2021 03:08:13
Laboratory Sample ID	1213211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 9:56	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	MW-126s	Analysis Date	12/14/2021 03:51:48
Laboratory Sample ID	1213211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 11:11	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	MW-39d	Analysis Date	12/14/2021 04:35:17
Laboratory Sample ID	1213211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 12:36	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.021	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	MW-39s	Analysis Date	12/14/2021 05:18:49
Laboratory Sample ID	1213211-16	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 13:43	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.002	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	5005 Jackson Rd	Analysis Date	12/14/2021 06:02:25
Laboratory Sample ID	1213211-17	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/10/2021 15:06	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.012	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	TW-21	Analysis Date	12/14/2021 06:46:05
Laboratory Sample ID	1213211-18	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/11/2021 10:05	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.23	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	TW-24	Analysis Date	12/14/2021 07:29:40
Laboratory Sample ID	1213211-19	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/11/2021 10:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	2.1	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	TW-4	Analysis Date	12/14/2021 08:13:22
Laboratory Sample ID	1213211-20	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/11/2021 11:55	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.029	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	TW-6	Analysis Date	12/14/2021 08:57:09
Laboratory Sample ID	1213211-21	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/11/2021 13:35	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.07	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1213211b	Preparation Date	12/13/2021
Client Sample ID	MW-81	Analysis Date	12/14/2021 09:40:59
Laboratory Sample ID	1213211-22	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/11/2021 15:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1213212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.14	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1214211	Preparation Date	12/14/2021
Client Sample ID	Outfall 001	Analysis Date	12/14/2021 16:04:52
Laboratory Sample ID	1214211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/13/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1214211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1214211	Preparation Date	12/14/2021
Client Sample ID	Red Pond	Analysis Date	12/14/2021 16:48:46
Laboratory Sample ID	1214211-2	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 7:25	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1214211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.37	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1214211	Preparation Date	12/14/2021
Client Sample ID	MW-105d	Analysis Date	12/15/2021 04:27:58
Laboratory Sample ID	1214211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/13/2021 10:49	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1214211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.16	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1214211	Preparation Date	12/14/2021
Client Sample ID	MW-105s	Analysis Date	12/15/2021 05:11:38
Laboratory Sample ID	1214211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/13/2021 12:40	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1214211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.36	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1214211	Preparation Date	12/14/2021
Client Sample ID	MW-KD-1S	Analysis Date	12/15/2021 05:55:24
Laboratory Sample ID	1214211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/13/2021 14:24	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1214211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.13	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1214211	Preparation Date	12/14/2021
Client Sample ID	MW-KD-1D	Analysis Date	12/15/2021 06:39:07
Laboratory Sample ID	1214211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/13/2021 15:21	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1214211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.52	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1214211	Preparation Date	12/14/2021
Client Sample ID	MW-54S	Analysis Date	12/15/2021 07:22:54
Laboratory Sample ID	1214211-16	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/13/2021 16:17	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1214211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211a	Preparation Date	12/15/2021
Client Sample ID	Outfall 001	Analysis Date	12/15/2021 15:13:39
Laboratory Sample ID	1215211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211a	Preparation Date	12/15/2021
Client Sample ID	Red Pond	Analysis Date	12/15/2021 15:57:33
Laboratory Sample ID	1215211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 7:35	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.39	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-90	Analysis Date	12/19/2021 01:07:21
Laboratory Sample ID	1215211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 12:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.005	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-94D	Analysis Date	12/19/2021 01:50:51
Laboratory Sample ID	1215211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 8:29	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.004	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-94S	Analysis Date	12/19/2021 02:34:24
Laboratory Sample ID	1215211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 9:09	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	20
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.76	0.02		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-17	Analysis Date	12/19/2021 03:17:53
Laboratory Sample ID	1215211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 9:56	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.27	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-77	Analysis Date	12/19/2021 05:28:13
Laboratory Sample ID	1215211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 10:46	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	20
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.89	0.02		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-71	Analysis Date	12/19/2021 06:11:36
Laboratory Sample ID	1215211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 11:43	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	20
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.11	0.02		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-135	Analysis Date	12/19/2021 06:54:58
Laboratory Sample ID	1215211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 12:48	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-98D	Analysis Date	12/19/2021 07:38:30
Laboratory Sample ID	1215211-16	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 13:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.022	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-95	Analysis Date	12/19/2021 08:21:57
Laboratory Sample ID	1215211-17	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 15:08	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.017	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (VDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-96	Analysis Date	12/19/2021 09:05:23
Laboratory Sample ID	1215211-18	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 15:51	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.12	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (VDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1215211b	Preparation Date	12/15/2021
Client Sample ID	MW-57	Analysis Date	12/19/2021 09:48:50
Laboratory Sample ID	1215211-19	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/14/2021 8:38	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1215212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.004	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (VDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	Outfall 001	Analysis Date	12/16/2021 10:01:58
Laboratory Sample ID	1216211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (VDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	Red Pond	Analysis Date	12/16/2021 10:53:53
Laboratory Sample ID	1216211-2	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 7:15	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.39	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	2819 Dexter Rd	Analysis Date	12/16/2021 17:28:56
Laboratory Sample ID	1216211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 9:25	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.15	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	MW-140D	Analysis Date	12/16/2021 18:12:56
Laboratory Sample ID	1216211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 10:22	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	MW-140S	Analysis Date	12/16/2021 18:56:47
Laboratory Sample ID	1216211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 10:58	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	MW-136D	Analysis Date	12/16/2021 19:40:38
Laboratory Sample ID	1216211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 11:58	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	MW-136I	Analysis Date	12/16/2021 20:24:25
Laboratory Sample ID	1216211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 12:38	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	MW-136s	Analysis Date	12/16/2021 21:08:06
Laboratory Sample ID	1216211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 13:40	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	456 Clarendon	Analysis Date	12/16/2021 21:51:42
Laboratory Sample ID	1216211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 14:39	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.43	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	MW-117	Analysis Date	12/16/2021 22:35:18
Laboratory Sample ID	1216211-16	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 15:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	MW-92	Analysis Date	12/16/2021 23:19:04
Laboratory Sample ID	1216211-17	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 13:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	5
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.069	0.005		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1216211	Preparation Date	12/16/2021
Client Sample ID	MW-83S	Analysis Date	12/17/2021 00:02:47
Laboratory Sample ID	1216211-18	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/15/2021 15:40	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1216211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.40	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.22	Percent Moisture	100.0
ATS SDG Number	0110221	Preparation Date	01/10/2022
Client Sample ID	TW-23	Analysis Date	01/10/2022 19:23:36
Laboratory Sample ID	0110221-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 12:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG0110221	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.40	0.01		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	Outfall 001	Analysis Date	12/17/2021 10:43:36
Laboratory Sample ID	1217211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.007	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	Red Pond	Analysis Date	12/17/2021 11:38:00
Laboratory Sample ID	1217211-2	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/17/2021 7:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.38	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	LB-4	Analysis Date	12/17/2021 20:05:39
Laboratory Sample ID	1217211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 9:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.43	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-29	Analysis Date	12/17/2021 20:49:20
Laboratory Sample ID	1217211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 9:55	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.40	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	LB-1	Analysis Date	12/17/2021 21:32:56
Laboratory Sample ID	1217211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 10:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.33	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-21	Analysis Date	12/17/2021 22:16:39
Laboratory Sample ID	1217211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 11:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.23	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-18	Analysis Date	12/17/2021 23:00:24
Laboratory Sample ID	1217211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 11:35	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.23	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-5	Analysis Date	12/17/2021 23:44:04
Laboratory Sample ID	1217211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 11:45	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	20
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.75	0.02		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-11	Analysis Date	12/18/2021 08:24:13
Laboratory Sample ID	1217211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 11:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.15	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-9	Analysis Date	12/18/2021 09:07:59
Laboratory Sample ID	1217211-16	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 12:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.38	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-14	Analysis Date	12/18/2021 09:51:44
Laboratory Sample ID	1217211-17	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 12:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	5
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.11	0.005		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-17	Analysis Date	12/18/2021 10:35:28
Laboratory Sample ID	1217211-18	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 12:35	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	5
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.056	0.005		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-1	Analysis Date	12/18/2021 11:19:16
Laboratory Sample ID	1217211-19	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 12:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.052	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211a	Preparation Date	12/17/2021
Client Sample ID	TW-3	Analysis Date	12/18/2021 12:03:01
Laboratory Sample ID	1217211-20	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 13:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.040	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	TW-10	Analysis Date	12/18/2021 14:14:15
Laboratory Sample ID	1217211-21	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 13:25	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.47	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	TW-20	Analysis Date	12/18/2021 14:57:54
Laboratory Sample ID	1217211-22	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 13:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.77	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	TW-22	Analysis Date	12/18/2021 15:41:32
Laboratory Sample ID	1217211-23	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 13:35	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.47	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	TW-28	Analysis Date	12/18/2021 17:52:07
Laboratory Sample ID	1217211-24	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 13:40	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.68	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	PW-1	Analysis Date	12/18/2021 18:35:38
Laboratory Sample ID	1217211-25	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 13:45	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.88	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	DOLPH	Analysis Date	12/18/2021 19:19:13
Laboratory Sample ID	1217211-26	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 13:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	5
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.13	0.005		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	TW-24	Analysis Date	12/18/2021 20:02:50
Laboratory Sample ID	1217211-27	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 14:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	2.2	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	373 Pinewood Deep	Analysis Date	12/18/2021 20:46:19
Laboratory Sample ID	1217211-28	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 11:06	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	373 Pinewood Shallow	Analysis Date	12/18/2021 21:29:53
Laboratory Sample ID	1217211-29	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 11:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.18	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	465 Dupont	Analysis Date	12/18/2021 22:13:26
Laboratory Sample ID	1217211-30	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 13:05	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.84	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1217211b	Preparation Date	12/17/2021
Client Sample ID	MW-100	Analysis Date	12/18/2021 22:56:54
Laboratory Sample ID	1217211-31	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/16/2021 14:33	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1217212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	2.0	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1220211	Preparation Date	12/20/2021
Client Sample ID	Outfall 001	Analysis Date	12/20/2021 11:02:12
Laboratory Sample ID	1220211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/19/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1220211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.008	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at a dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1220211	Preparation Date	12/20/2021
Client Sample ID	Red Pond	Analysis Date	12/20/2021 16:34:44
Laboratory Sample ID	1220211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 7:35	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1220211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.38	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1220211	Preparation Date	12/20/2021
Client Sample ID	MW-134S	Analysis Date	12/20/2021 18:46:10
Laboratory Sample ID	1220211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/19/2021 12:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1220211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.009	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1220211	Preparation Date	12/20/2021
Client Sample ID	MW-134I	Analysis Date	12/20/2021 19:30:02
Laboratory Sample ID	1220211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/19/2021 13:40	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1220211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.008	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1220211	Preparation Date	12/20/2021
Client Sample ID	MW-61s	Analysis Date	12/20/2021 20:13:50
Laboratory Sample ID	1220211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/19/2021 10:07	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1220211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.003	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1220211	Preparation Date	12/20/2021
Client Sample ID	MW-61d	Analysis Date	12/20/2021 20:57:31
Laboratory Sample ID	1220211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/19/2021 11:17	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1220211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.010	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1220211	Preparation Date	12/20/2021
Client Sample ID	MW-93	Analysis Date	12/21/2021 07:37:12
Laboratory Sample ID	1220211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/19/2021 12:45	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1220211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	Outfall 001	Analysis Date	12/21/2021 10:38:37
Laboratory Sample ID	1221211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.008	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	Red Pond	Analysis Date	12/21/2021 16:20:21
Laboratory Sample ID	1221211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 7:45	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.38	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-128D	Analysis Date	12/22/2021 22:39:07
Laboratory Sample ID	1221211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 8:37	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-128S	Analysis Date	12/22/2021 23:22:45
Laboratory Sample ID	1221211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 9:16	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.002	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-37	Analysis Date	12/23/2021 00:06:18
Laboratory Sample ID	1221211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 10:03	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.22	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-58S	Analysis Date	12/23/2021 01:33:19
Laboratory Sample ID	1221211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 11:44	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.17	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-127D	Analysis Date	12/23/2021 02:16:47
Laboratory Sample ID	1221211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 13:11	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-127S	Analysis Date	12/23/2021 03:00:14
Laboratory Sample ID	1221211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 13:49	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-125	Analysis Date	12/23/2021 03:43:46
Laboratory Sample ID	1221211-16	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 14:50	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.24	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-122d	Analysis Date	12/23/2021 04:27:20
Laboratory Sample ID	1221211-17	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 11:15	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-122s	Analysis Date	12/23/2021 05:10:55
Laboratory Sample ID	1221211-18	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 12:26	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.28	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-131s	Analysis Date	12/23/2021 05:54:32
Laboratory Sample ID	1221211-19	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 13:51	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1221211	Preparation Date	12/21/2021
Client Sample ID	MW-131d	Analysis Date	12/23/2021 06:38:12
Laboratory Sample ID	1221211-20	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 15:10	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1221211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211a	Preparation Date	12/22/2021
Client Sample ID	Outfall 001	Analysis Date	12/22/2021 15:21:29
Laboratory Sample ID	1222211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.007	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211a	Preparation Date	12/22/2021
Client Sample ID	Red Pond	Analysis Date	12/22/2021 16:05:22
Laboratory Sample ID	1222211-2	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/22/2021 7:15	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.39	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	NMW-2S	Analysis Date	12/23/2021 08:49:22
Laboratory Sample ID	1222211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 13:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	2.2	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	NMW-1S	Analysis Date	12/23/2021 09:33:03
Laboratory Sample ID	1222211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 13:45	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	1.6	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	MW-124d	Analysis Date	12/23/2021 10:16:55
Laboratory Sample ID	1222211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 9:11	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	MW-124s	Analysis Date	12/23/2021 11:00:39
Laboratory Sample ID	1222211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 10:20	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	MW-91	Analysis Date	12/23/2021 11:44:24
Laboratory Sample ID	1222211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 11:42	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	20
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.15	0.02		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	MW-54d	Analysis Date	12/23/2021 13:55:36
Laboratory Sample ID	1222211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 13:05	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.061	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	MW-71	Analysis Date	12/28/2021 23:28:15
Laboratory Sample ID	1222211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 14:36	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	20
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	1.1	0.02		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	MW-78	Analysis Date	12/23/2021 15:23:13
Laboratory Sample ID	1222211-16	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 8:52	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.021	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	Saginaw Forest Cabin #1	Analysis Date	12/23/2021 16:06:59
Laboratory Sample ID	1222211-17	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 9:45	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.007	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	Saginaw Forest Cabin #2	Analysis Date	12/23/2021 16:50:47
Laboratory Sample ID	1222211-18	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 10:44	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	MW-134D	Analysis Date	12/23/2021 17:34:37
Laboratory Sample ID	1222211-19	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 11:55	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	MW-68	Analysis Date	12/23/2021 18:18:27
Laboratory Sample ID	1222211-20	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 13:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1222211b	Preparation Date	12/22/2021
Client Sample ID	MW-1 Replacement	Analysis Date	12/23/2021 19:02:12
Laboratory Sample ID	1222211-21	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/21/2021 14:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	80
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1222212	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	1.6	0.08		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1228211	Preparation Date	12/28/2021
Client Sample ID	Outfall 001	Analysis Date	12/28/2021 10:54:16
Laboratory Sample ID	1228211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/23/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1228211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.006	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1228211	Preparation Date	12/28/2021
Client Sample ID	Outfall 001	Analysis Date	12/28/2021 11:47:41
Laboratory Sample ID	1228211-2	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/28/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1228211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.005	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1228211	Preparation Date	12/28/2021
Client Sample ID	Outfall 001	Analysis Date	12/28/2021 12:31:39
Laboratory Sample ID	1228211-3	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/27/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1228211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.005	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1228211	Preparation Date	12/28/2021
Client Sample ID	Red Pond	Analysis Date	12/28/2021 17:38:29
Laboratory Sample ID	1228211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/28/2021 7:40	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1228211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.36	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1228211	Preparation Date	12/28/2021
Client Sample ID	MW-51	Analysis Date	12/28/2021 19:50:07
Laboratory Sample ID	1228211-11	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/22/2021 11:45	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1228211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1228211	Preparation Date	12/28/2021
Client Sample ID	MW-72d	Analysis Date	12/28/2021 20:33:52
Laboratory Sample ID	1228211-12	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/22/2021 9:25	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1228211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.54	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1228211	Preparation Date	12/28/2021
Client Sample ID	MW-41s	Analysis Date	12/28/2021 21:17:30
Laboratory Sample ID	1228211-13	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/22/2021 10:45	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1228211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.012	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1228211	Preparation Date	12/28/2021
Client Sample ID	MW-41d	Analysis Date	12/28/2021 22:01:05
Laboratory Sample ID	1228211-14	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/22/2021 11:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1228211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.016	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1228211	Preparation Date	12/28/2021
Client Sample ID	MW-58d	Analysis Date	12/28/2021 22:44:41
Laboratory Sample ID	1228211-15	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/20/2021 11:08	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1228211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.014	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1229211	Preparation Date	12/29/2021
Client Sample ID	Outfall 001	Analysis Date	12/29/2021 16:33:08
Laboratory Sample ID	1229211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/22/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1229211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.007	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1229211	Preparation Date	12/29/2021
Client Sample ID	Red Pond	Analysis Date	12/29/2021 17:16:57
Laboratory Sample ID	1229211-2	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/23/2021 7:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1229211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.39	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1229211	Preparation Date	12/29/2021
Client Sample ID	Outfall 001	Analysis Date	12/29/2021 10:42:23
Laboratory Sample ID	1229211-3	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/28/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1229211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.005	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1229211	Preparation Date	12/29/2021
Client Sample ID	Red Pond	Analysis Date	12/29/2021 15:49:21
Laboratory Sample ID	1229211-10	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/29/2021 7:30	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1229211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.35	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1230211	Preparation Date	12/30/2021
Client Sample ID	Outfall 001	Analysis Date	12/30/2021 10:15:32
Laboratory Sample ID	1230211-1	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/29/2021 na	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	1
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1230211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.005	0.001		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1230211	Preparation Date	12/30/2021
Client Sample ID	Red Pond	Analysis Date	12/30/2021 15:22:21
Laboratory Sample ID	1230211-8	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/30/2021 7:00	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	40
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1230211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.36	0.04		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.21	Percent Moisture	100.0
ATS SDG Number	1230211	Preparation Date	12/30/2021
Client Sample ID	TW-18	Analysis Date	12/30/2021 17:34:04
Laboratory Sample ID	1230211-9	Instrument	2100V
Matrix	Water	Subsample (mL)	5.000
Sample Date	12/29/2021 13:35	Final Volume (mL)	5.000
Analytical Method (USEPA)	USEPA 1624	Dilution Factor	10
Preparation Method (USEPA)	USEPA 1624	Basis	Wet
QC Batch Number	QCORG1230211	Units	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.24	0.01		M

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

1,4-Dioxane by GC/MS
Data Summary Sheet

ATS Project Number	G001-002.22	**Percent Moisture**	100.0
ATS SDG Number	0110221	**Preparation Date**	01/10/2022
Client Sample ID	TW-23	**Analysis Date**	01/10/2022 19:23:36
Laboratory Sample ID	0110221-10	**Instrument**	2100V
Matrix	Water	**Subsample (mL)**	5.000
Sample Date	12/20/2021 12:50	**Final Volume (mL)**	5.000
Analytical Method (USEPA)	USEPA 1624	**Dilution Factor**	10
Preparation Method (USEPA)	USEPA 1624	**Basis**	Wet
QC Batch Number	QCORG0110221	**Units**	mg/L

Parameter	Chemical Identifier	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.40	0.01		

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731