Gelman Sciences Inc.
642 South Wagner Road
Ann Arbor, MI 48103
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CASE NARRATIVE

Monthly Data Gelman Sciences
Project: 1,4-Dioxane Remediation
Date: August 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.

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: 9/10/21

Report Checked by: *Ray Woods* _____ Date: 9/10/21

Sample Analysis Report

August, 2021

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

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								
5005 Jackson Rd-08-30-21-12:31-1	13	1.0						o
Extraction Wells								
C3								
DOLPH-08-03-21-10:50-1	130	10						d,o
DOLPH-08-27-21-10:45-1	120	10						d,o
TW-10-08-18-21-09:15-1	620	10						d,o
TW-10-08-27-21-08:30-1	660	10						d,o
TW-14-08-18-21-09:18-1	85	1.0						o
TW-14-08-27-21-08:25-1	94	1.0						o
TW-20-08-18-21-09:10-1	540	10						d,o
TW-20-08-27-21-08:40-1	600	20						d,o
TW-24-08-03-21-11:00-1	1800	100						d,o
TW-24-08-27-21-11:00-1	2100	100						d,o
D2								
LB-4-08-03-21-09:50-1	400	20						d,o
LB-4-08-27-21-10:15-1	400	10						d,o
TW-21-08-03-21-10:25-1	270	10						d,o
TW-21-08-27-21-10:30-1	240	10						d,o
TW-9-08-18-21-09:25-1	390	10						d,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-9-08-27-21-08:35-1	430	10						d,o
E								
TW-17-08-18-21-09:20-1	130	10						d,o
TW-17-08-27-21-08:20-1	86	10						d,o
TW-18-08-03-21-10:40-1	210	10						d,o
TW-18-08-27-21-10:35-1	220	10						d,o
TW-23-08-03-21-09:55-1	330	20						d,o
TW-23-08-27-21-10:20-1	320	10						d,o
Marshy								
PW-1-08-03-21-10:45-1	680	20						d,o
PW-1-08-27-21-10:40-1	530	10						d,o
SW								
TW-22-08-03-21-11:10-1	460	10						d,o
TW-22-08-27-21-08:50-1	460	20						d,o
TW-28-08-03-21-11:15-1	620	20						d,o
TW-28-08-27-21-08:55-1	620	20						d,o
Monitoring Wells								
C3								
MW-15d-08-09-21-13:09-1	5	1.0						o
MW-15s-08-09-21-14:00-1	3	1.0						o
MW-18d-08-17-21-14:32-1	29	1.0						o
MW-20-08-27-21-13:09-1	nd	1.0						o
MW-32-08-10-21-12:21-1	13	1.0						o
MW-34s-08-26-21-10:04-1	nd	1.0						o
MW-35-08-17-21-13:17-1	2	1.0						o
MW-36-08-27-21-09:46-1	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-38s-08-26-21-11:23-1	nd	1.0						o
MW-39s-08-25-21-14:26-1	2	1.0						o
D0								
110 Parkland Plaza-08-27-21-11:17-1	1	1.0						o
4401 Park West-08-27-21-14:31-1	5	1.0						o
4742 Park Rd-08-30-21-10:58-1	4	1.0						o
A2 Cleaning Supply-08-02-21-12:30-1	38	1.0						o
MW-31-08-30-21-09:31-1	nd	1.0						o
MW-40d-08-31-21-12:54-1	nd	1.0						o
MW-40s-08-31-21-14:05-1	nd	1.0						o
MW-53d-08-02-21-08:50-1	nd	1.0						o
MW-53i-08-02-21-12:08-1	37	1.0						o
MW-53s-08-02-21-10:36-1	nd	1.0						o
MW-59s-08-25-21-12:57-1	nd	1.0						o
MW-60-08-27-21-15:45-1	3	1.0						o
D2								
MW-11d-08-11-21-14:00-1	290	10						d,o
MW-126s-08-25-21-10:30-1	nd	1.0						o
MW-34d-08-26-21-08:54-1	nd	1.0						o
MW-38d-08-26-21-12:33-1	33	1.0						o
MW-39d-08-25-21-15:34-1	20	1.0						o
MW-4d-08-10-21-13:42-1	320	10						d,o
E								
MW-100-08-04-21-13:16-1	2000	100						d,o
MW-103s-08-03-21-11:13-1	78	10						d,o
MW-112i-08-03-21-09:56-1	8	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-112s-08-03-21-08:46-1	2	1.0						o
MW-115-08-04-21-11:52-1	520	10						d,o
MW-116-08-04-21-10:36-1	660	10						d,o
MW-126d-08-25-21-09:16-1	nd	1.0						o
MW-59d-08-25-21-11:48-1	nd	1.0						o
MW-64-08-31-21-11:18-1	34	1.0						o
MW-66-08-17-21-12:06-1	2	1.0						o
MW-72d-08-05-21-13:53-1	510	20						d,o
MW-76i-08-03-21-12:30-1	94	10						d,o
MW-76s-08-03-21-13:40-1	260	10						d,o
MW-81-08-04-21-09:16-1	140	10						d,o
MW-84s-08-02-21-14:00-1	310	10						d,o
SW								
MW-10d-08-31-21-09:59-1	230	10						d,o
MW-52d-08-26-21-13:54-1	nd	1.0						o
MW-52i-08-26-21-15:05-1	1	1.0						o
Surface Water								
Not Applicable								
HC/HR-08-02-21-10:00-1			nd	2.0				
HC/HR-08-03-21-09:40-1			nd	2.0				
HC/HR-08-04-21-11:00-1			nd	2.0				
HC/HR-08-05-21-08:00-1			nd	2.0				
HC/HR-08-06-21-08:15-1			nd	2.0				
HC/HR-08-09-21-09:00-1			nd	2.0				
HC/HR-08-10-21-09:00-1			nd	2.0				
HC/HR-08-11-21-09:00-1			nd	2.0				

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)
HC/HR-08-16-21-13:18-1			nd	2.0				
HC/HR-08-17-21-08:15-1			nd	2.0				
HC/HR-08-18-21-08:35-1			nd	2.0				
HC/HR-08-19-21-07:35-1			nd	2.0				
HC/HR-08-20-21-07:20-1			nd	2.0				
HC/HR-08-23-21-07:45-1			nd	2.0				
HC/HR-08-27-21-10:00-1			nd	2.0				
HC/HR-08-30-21-11:00-1			nd	2.0				
HC/HR-08-31-21-09:00-1			nd	2.0				
Treatment System								
OUTFALL-08-01-21-2			7.2	5.0				
OUTFALL-08-01-21-1	8	1.0						o
OUTFALL-08-02-21-2			8.8	5.0				
OUTFALL-08-02-21-1	8	1.0						o
OUTFALL-08-03-21-2			10	5.0				
OUTFALL-08-03-21-1	8	1.0						o
OUTFALL-08-04-21-2			8.8	5.0				
OUTFALL-08-04-21-1	8	1.0						o
OUTFALL-08-05-21-2			9.6	5.0				
OUTFALL-08-05-21-1	8	1.0						o
OUTFALL-08-08-21-2			11	5.0				
OUTFALL-08-08-21-1	8	1.0						o
OUTFALL-08-09-21-2			9.0	5.0				
OUTFALL-08-09-21-1	8	1.0						o
OUTFALL-08-10-21-2			6.7	5.0				
OUTFALL-08-10-21-1	9	1.0						o
OUTFALL-08-11-21-2			10	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-08-11-21-1	9	1.0						o
OUTFALL-08-16-21-2			10	5.0				
OUTFALL-08-16-21-1	8	1.0						o
OUTFALL-08-17-21-2			10	5.0				
OUTFALL-08-17-21-1	9	1.0						o
OUTFALL-08-18-21-2			5.8	5.0				
OUTFALL-08-18-21-1	9	1.0						o
OUTFALL-08-19-21-2			8.0	5.0				
OUTFALL-08-19-21-1	8	1.0						o
OUTFALL-08-22-21-2			9.6	5.0				
OUTFALL-08-22-21-1	8	1.0						o
OUTFALL-08-26-21-2			6.0	5.0				
OUTFALL-08-26-21-1	5	1.0						o
OUTFALL-08-27-21-1			5.4	5.0				
OUTFALL-08-27-21-2	6	1.0						o
OUTFALL-08-28-21-2			4.9	5.0				
OUTFALL-08-28-21-1	6	1.0						o
OUTFALL-08-29-21-2			6.4	5.0				
OUTFALL-08-29-21-1	6	1.0						o
OUTFALL-08-30-21-2			7.5	5.0				
OUTFALL-08-30-21-1	6	1.0						o
OUTFALL-08-31-21-2			5.5	5.0				
OUTFALL-08-31-21-1	6	1.0						o
Red Pond-08-02-21-08:15-1	450	10						d,o
Red Pond-08-09-21-08:50-1	410	20						d,o
Red Pond-08-17-21-07:54-1	410	10						d,o
Red Pond-08-27-21-07:05-1	310	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)
Red Pond-08-30-21-07:30-1	300	20						d,o

ATS
310 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): Org_SRF_Aug_PO3919
Client PO Number: 4504293919

Project Description: This data report contains the results of 105 water samples, received by ATS during the month of August, 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.): 211

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

Additional Message:

Date: 9/8/21 **Signed:**

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

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ATS
ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s):

0802211	0805211	0810211	0816212	0819211	0826211
0803211	0806211	0811211	0817211	0820211	0827211
0804211	0809211	0816211	0818211	0823211	0827212

Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 105 samples that were received at Ann Arbor Technical Services, Inc. (ATS) during the month of August under PO number 4504293919, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/2/21				
Outfall	8/1/21	Urgent	1,4-Dioxane	Water
Red Pond	8/2/21	Standard	1,4-Dioxane	Water
Received 8/3/21				
Outfall	8/2/21	Urgent	1,4-Dioxane	Water
Received 8/4/21				
Outfall	8/3/21	Urgent	1,4-Dioxane	Water
A2 Cleaning Supply	8/2/21	Standard	1,4-Dioxane	Water
MW-53s	8/2/21	Standard	1,4-Dioxane	Water
MW-53d	8/2/21	Standard	1,4-Dioxane	Water
MW-84s	8/2/21	Standard	1,4-Dioxane	Water
MW-53i	8/2/21	Standard	1,4-Dioxane	Water
Dolph	8/3/21	Standard	1,4-Dioxane	Water
TW-18	8/3/21	Standard	1,4-Dioxane	Water
TW-21	8/3/21	Standard	1,4-Dioxane	Water
TW-22	8/3/21	Standard	1,4-Dioxane	Water
LB-4	8/3/21	Standard	1,4-Dioxane	Water
PW-1	8/3/21	Standard	1,4-Dioxane	Water
TW-23	8/3/21	Standard	1,4-Dioxane	Water
TW-28	8/3/21	Standard	1,4-Dioxane	Water
TW-24	8/3/21	Standard	1,4-Dioxane	Water
MW-76s	8/3/21	Standard	1,4-Dioxane	Water
MW-76i	8/3/21	Standard	1,4-Dioxane	Water
MW-103s	8/3/21	Standard	1,4-Dioxane	Water
MW-112i	8/3/21	Standard	1,4-Dioxane	Water
MW-112s	8/3/21	Standard	1,4-Dioxane	Water
Received 8/5/21				
Eff-OC-1A	8/4/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/4/21	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

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Outfall	8/4/21	Urgent	1,4-Dioxane	Water
Received 8/5/21				
Outfall	8/5/21	Urgent	1,4-Dioxane	Water
Received 8/9/21				
Outfall	8/8/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/9/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/9/21	Urgent	1,4-Dioxane	Water
Red Pond	8/9/21	Urgent	1,4-Dioxane	Water
MW-97d	7/20/21	Urgent	1,4-Dioxane	Water
Received 8/10/21				
Outfall	8/9/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/10/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/10/21	Urgent	1,4-Dioxane	Water
Received 8/11/21				
Outfall	8/10/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/11/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/11/21	Urgent	1,4-Dioxane	Water
Received 8/16/21				
Outfall	8/16/21	Urgent	1,4-Dioxane	Water
MW-15d	8/9/21	Standard	1,4-Dioxane	Water
MW-15s	8/9/21	Standard	1,4-Dioxane	Water
MW-32	8/10/21	Standard	1,4-Dioxane	Water
MW-4d	8/10/21	Standard	1,4-Dioxane	Water
MW-72d	8/5/21	Standard	1,4-Dioxane	Water
MW-11d	8/11/21	Standard	1,4-Dioxane	Water
MW-100	8/4/21	Standard	1,4-Dioxane	Water
MW-115	8/4/21	Standard	1,4-Dioxane	Water
MW-116	8/4/21	Standard	1,4-Dioxane	Water
MW-81	8/4/21	Standard	1,4-Dioxane	Water
Received 8/17/21				
Eff-OC-1A	8/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/17/21	Urgent	1,4-Dioxane	Water
Outfall	8/16/21	Urgent	1,4-Dioxane	Water
Outfall	8/11/21	Urgent	1,4-Dioxane	Water
Red Pond	8/17/21	Standard	1,4-Dioxane	Water
Received 8/18/21				
Outfall	8/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/18/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/18/21	Urgent	1,4-Dioxane	Water
MW-18d	8/17/21	Standard	1,4-Dioxane	Water
MW-35	8/17/21	Standard	1,4-Dioxane	Water
MW-66	8/17/21	Standard	1,4-Dioxane	Water
Received 8/19/21				
Outfall	8/18/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/19/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/19/21	Urgent	1,4-Dioxane	Water
Received 8/20/21				
Outfall	8/19/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/20/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/20/21	Urgent	1,4-Dioxane	Water
TW-9	8/18/21	Standard	1,4-Dioxane	Water
TW-17	8/18/21	Standard	1,4-Dioxane	Water
TW-14	8/18/21	Standard	1,4-Dioxane	Water
TW-10	8/18/21	Standard	1,4-Dioxane	Water

ATS

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
TW-20	8/18/21	Standard	1,4-Dioxane	Water
Received 8/23/21				
Outfall	8/22/21	Urgent	1,4-Dioxane	Water
Received 8/26/21				
MW-126d	8/25/21	Standard	1,4-Dioxane	Water
MW-126s	8/25/21	Standard	1,4-Dioxane	Water
MW-59d	8/25/21	Standard	1,4-Dioxane	Water
MW-59s	8/25/21	Standard	1,4-Dioxane	Water
MW-39s	8/25/21	Standard	1,4-Dioxane	Water
MW-39d	8/25/21	Standard	1,4-Dioxane	Water
Received 8/27/21				
Outfall – Grab (19:15)	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/26/21	Urgent	1,4-Dioxane	Water
Outfall	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/27/21	Urgent	1,4-Dioxane	Water
Red Pond	8/27/21	Urgent	1,4-Dioxane	Water
MW-34d	8/26/21	Standard	1,4-Dioxane	Water
MW-34s	8/26/21	Standard	1,4-Dioxane	Water
MW-38s	8/26/21	Standard	1,4-Dioxane	Water
MW-38d	8/26/21	Standard	1,4-Dioxane	Water
MW-52d	8/26/21	Standard	1,4-Dioxane	Water
MW-52i	8/26/21	Standard	1,4-Dioxane	Water
TW-17	8/27/21	Standard	1,4-Dioxane	Water
TW-14	8/27/21	Standard	1,4-Dioxane	Water
TW-10	8/27/21	Standard	1,4-Dioxane	Water
TW-9	8/27/21	Standard	1,4-Dioxane	Water
TW-20	8/27/21	Standard	1,4-Dioxane	Water
TW-22	8/27/21	Standard	1,4-Dioxane	Water
TW-28	8/27/21	Standard	1,4-Dioxane	Water
LB-4	8/27/21	Standard	1,4-Dioxane	Water
TW-23	8/27/21	Standard	1,4-Dioxane	Water
TW-21	8/27/21	Standard	1,4-Dioxane	Water
TW-18	8/27/21	Standard	1,4-Dioxane	Water
PW-1	8/27/21	Standard	1,4-Dioxane	Water
Dolph	8/27/21	Standard	1,4-Dioxane	Water
TW-24	8/27/21	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	• 40 Samples+ 2 Matrix Spikes + 2 Matrix Spike Duplicates
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 65 Samples + 5 Matrix Spikes + 5 Matrix Spike Duplicates

ATS

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.

Mark A. DeLong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

Philip B. Simon (Laboratory Director)

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0802211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following two samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/2/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/2/21				
Outfall	8/1/21	Urgent	1,4-Dioxane	Water
Red Pond	8/2/21	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	1 Sample
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

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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 8/2/21

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0802211.doc

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Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0802211

Sample Identification: Red Pond

Sample Date:	8/2/21
Sample Time:	8:15 AM
Sampled By:	Client
Laboratory Receipt Date:	8/2/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.45	0.01	8/3/21	7:21	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0802211

Sample Identification: Outfall 001

Sample Date:	8/1/21
Sample Time:	na
Sampled By:	Client
Laboratory Receipt Date:	8/2/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/2/21	15:51	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0801211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 MW-108s 7/26/21 Matrix Spike	0.51 mg/L	0.48 mg/L	0.49 mg/L	5.1

SPIKES and/or QC CHECK SAMPLES

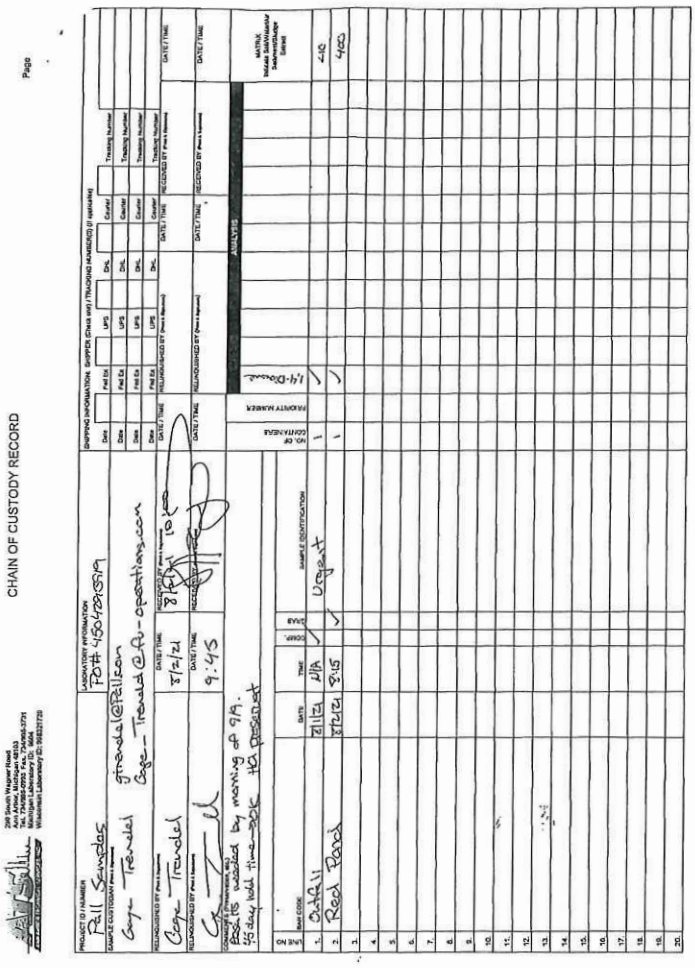
Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.011 mg/L	108.5
MW-108s 7/26/21 Matrix Spike	0.26 mg/L	0.25 mg/L	0.51 mg/L	97.5
MW-108s 7/26/21 Matrix Spike Duplicate	0.26 mg/L	0.25 mg/L	0.48 mg/L	87.5

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)



ATS
ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0803211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following one sample that was received at Ann Arbor Technical Services, Inc. (ATS) on 8/3/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/3/21				
Outfall	8/2/21	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	• 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).

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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.

- None

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

290 South Wagner Road
Ann Arbor, Michigan 48103
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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0803211

Sample Identification: Outfall 001

Sample Date: 8/2/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/3/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/3/21	20:02	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control
Data Summary

QC Batch Number: QCORG0803211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Ann Arbor Tap Water 8/3/21 Matrix Spike	0.010 mg/L	0.010 mg/L	0.010 mg/L	3.2

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.009 mg/L	94
Ann Arbor Tap Water 8/3/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	102.5
Ann Arbor Tap Water 8/3/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	105.8

BLANK ANALYSIS

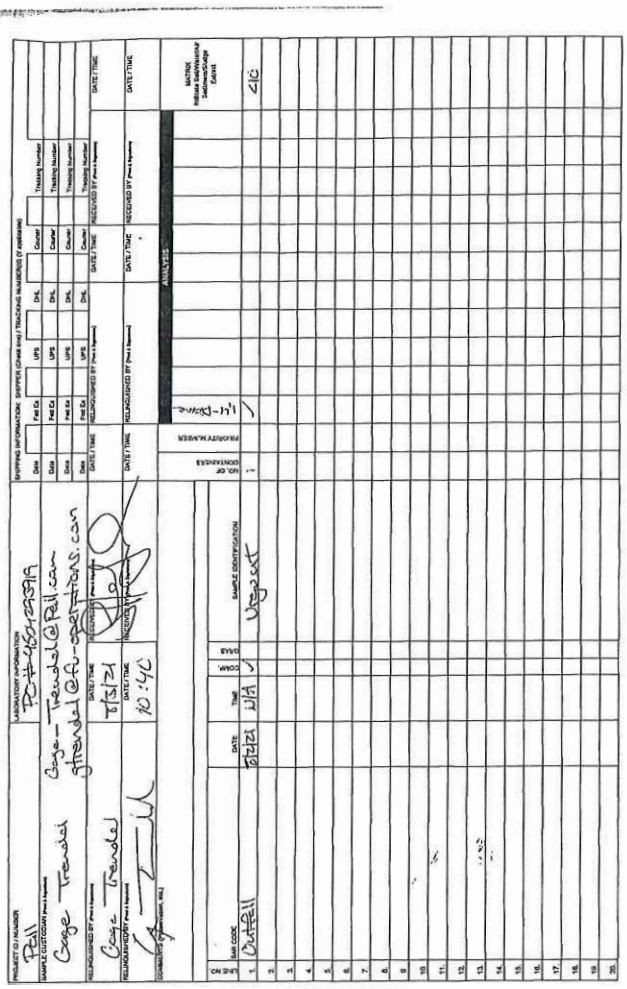
Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

Page 1

CHAIN OF CUSTODY RECORD



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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0804211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following twenty samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/4/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/4/21				
Outfall	8/3/21	Urgent	1,4-Dioxane	Water
A2 Cleaning Supply	8/2/21	Standard	1,4-Dioxane	Water
MW-53s	8/2/21	Standard	1,4-Dioxane	Water
MW-53d	8/2/21	Standard	1,4-Dioxane	Water
MW-84s	8/2/21	Standard	1,4-Dioxane	Water
MW-53i	8/2/21	Standard	1,4-Dioxane	Water
Dolph	8/3/21	Standard	1,4-Dioxane	Water
TW-18	8/3/21	Standard	1,4-Dioxane	Water
TW-21	8/3/21	Standard	1,4-Dioxane	Water
TW-22	8/3/21	Standard	1,4-Dioxane	Water
LB-4	8/3/21	Standard	1,4-Dioxane	Water
PW-1	8/3/21	Standard	1,4-Dioxane	Water
TW-23	8/3/21	Standard	1,4-Dioxane	Water
TW-28	8/3/21	Standard	1,4-Dioxane	Water
TW-24	8/3/21	Urgent	1,4-Dioxane	Water
MW-76s	8/3/21	Standard	1,4-Dioxane	Water
MW-76i	8/3/21	Standard	1,4-Dioxane	Water
MW-103s	8/3/21	Standard	1,4-Dioxane	Water
MW-112i	8/3/21	Standard	1,4-Dioxane	Water
MW-112s	8/3/21	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	• 2 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 18 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**

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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:

- MW-84s 8/3/21
- MW-21 8/3/21
- PW-1 8/3/21
- TW-24 8/3/21
- MW-103s 8/3/21
- Dolph 8/3/21
- TW-22 8/3/21
- TW-23 8/3/21
- MW-76s 8/3/21
- TW-18 8/3/21
- LB-4 8/3/21
- TW-28 8/3/21
- MW-76i 8/3/21

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0804211.doc

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Ann Arbor, Michigan 48103
Tel. 734/995-0915 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: Outfall 001

Sample Date: 8/3/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/4/21	17:58	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: A2 Cleaning Supply

Sample Date: 8/2/21
Sample Time: 12:30 PM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.038	0.001	8/31/21	14:45	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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Ann Arbor, Michigan 48103
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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: MW-53s

Sample Date: 8/2/21
Sample Time: 10:36 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	8/27/21	21:10	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: MW-53d

Sample Date: 8/2/21
Sample Time: 8:50 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	8/27/21	21:54	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: MW-84s

Sample Date: 8/2/21
Sample Time: 2:00 PM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.31	0.01	8/31/21	15:29	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998331720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: MW-53I

Sample Date: 8/2/21
Sample Time: 12:08 PM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.037	0.001	8/27/21	23:22	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998331720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: Dolph

Sample Date: 8/3/21
Sample Time: 10:50 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.13	0.01	8/28/21	0:06	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998331720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: TW-18

Sample Date: 8/3/21
Sample Time: 10:40 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.21	0.01	8/28/21	7:59	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998331720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: TW-21

Sample Date: 8/3/21
Sample Time: 10:25 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.27	0.01	8/28/21	8:43	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: TW-22

Sample Date: 8/3/21
Sample Time: 11:10 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.46	0.01	8/28/21	9:27	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: LB-4

Sample Date: 8/3/21
Sample Time: 9:50 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.40	0.02	8/28/21	10:11	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

390 South Wagner Road
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Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: PW-1

Sample Date: 8/3/21
Sample Time: 10:45 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.68	0.02	8/28/21	10:56	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: TW-23

Sample Date: 8/3/21
Sample Time: 9:55 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.33	0.02	8/28/21	11:40	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: TW-28

Sample Date: 8/3/21
Sample Time: 11:15 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.62	0.02	8/28/21	20:59	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: TW-24

Sample Date: 8/3/21
Sample Time: 11:00 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	1.8	0.1	8/5/21	8:28	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: MW-76s

Sample Date: 8/3/21
Sample Time: 1:40 PM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.26	0.01	8/28/21	22:27	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: MW-76I

Sample Date: 8/3/21
Sample Time: 12:30 PM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.094	0.01	8/28/21	23:11	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: MW-103s

Sample Date: 8/3/21
Sample Time: 11:13 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.078	0.01	8/28/21	23:55	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: MW-112i

Sample Date: 8/3/21
Sample Time: 9:56 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/29/21	0:39	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0804211

Sample Identification: MW-112s

Sample Date: 8/3/21
Sample Time: 8:46 AM
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.002	0.001	8/29/21	1:23	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control
Data Summary

QC Batch Number: QCORG0084211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Ann Arbor Tap Water 8/4/21 Matrix Spike	0.012 mg/L	0.011 mg/L	0.011 mg/L	1.8

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.01	97.2
Ann Arbor Tap Water 8/4/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.012 mg/L	115.2
Ann Arbor Tap Water 8/4/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.011 mg/L	113.2

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0827211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Dolph 8/3/21 Matrix Spike	0.31 mg/L	0.31 mg/L	0.31 mg/L	1.1

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	99.3
Dolph 8/3/21 Matrix Spike	0.13 mg/L	0.20 mg/L	0.31 mg/L	90.8
Dolph 8/3/21 Matrix Spike Duplicate	0.13 mg/L	0.20 mg/L	0.31 mg/L	92.4

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Control Sample Recovery (85 - 115%)
- Matrix Spike Recovery (80 - 120%)

Relative Range
- Replicates (<20%)

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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0831211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
TW-24 8/3/21 Matrix Spike	4.2 mg/L	4.2 mg/L	4.2 mg/L	0.3

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	97.4
TW-24 8/3/21 Matrix Spike	1.8 mg/L	2.0 mg/L	4.2 mg/L	119.1
TW-24 8/3/21 Matrix Spike Duplicate	1.8 mg/L	2.0 mg/L	4.2 mg/L	119.6

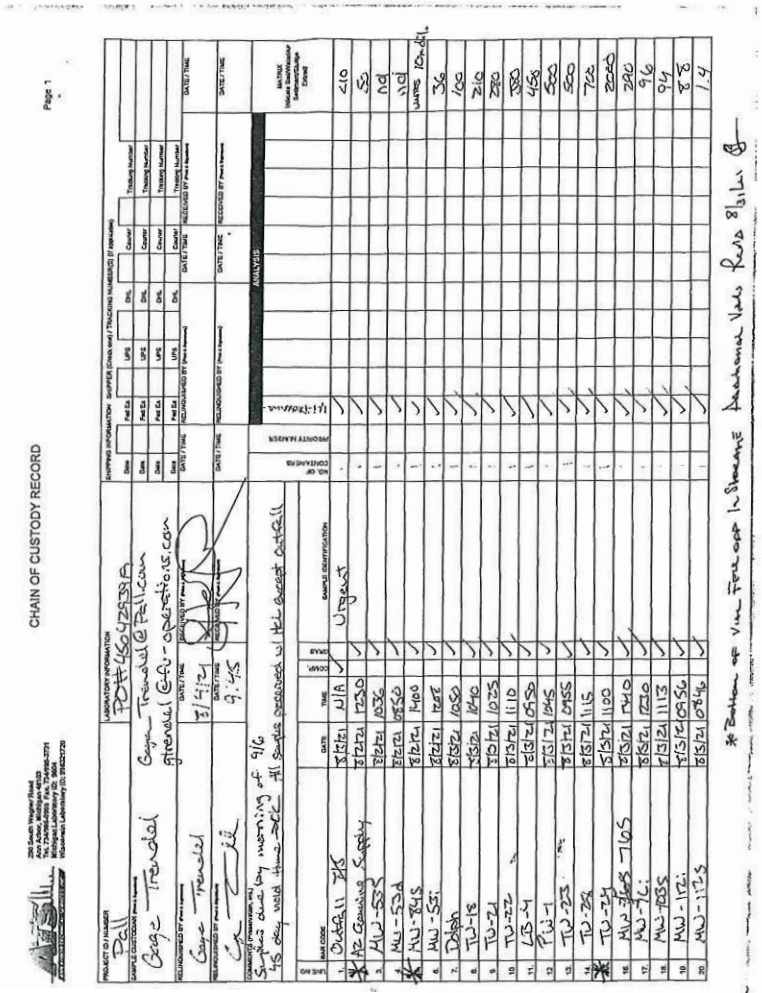
BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Control Sample Recovery (85 - 115%)
- Matrix Spike Recovery (80 - 120%)

Relative Range
- Replicates (<20%)



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0805211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following three samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/5/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/5/21				
Outfall	8/4/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/4/21	Urgent	1,4-Dioxane	Water
Eff-IC-2A	8/4/21	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	• 3 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

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:

- None

Mark DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

Philip B. Simon (Laboratory Director)

290 South Wagner Road
Ann Arbor, Michigan 48103
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Michigan Laboratory ID: 9604
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Organic 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: 9/7/21
ATS SRF: 0805211

Sample Identification: Eff-OC-1A

Sample Date:	8/4/21
Sample Time:	1:20 PM
Sampled By:	Client
Laboratory Receipt Date:	8/4/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/5/21	22:04	SLS

Comments

All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0805211

Sample Identification: Eff-OC-2A

Sample Date:	8/4/21
Sample Time:	1:20 PM
Sampled By:	Client
Laboratory Receipt Date:	8/4/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/5/21	22:51	SLS

Comments

All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

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

Organic 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: 9/7/21
ATS SRF: 0805211

Sample Identification: Outfall 001

Sample Date: 8/4/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/4/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/6/21	0:08	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

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

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0805211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Ann Arbor Tap Water 8/5/21 Matrix Spike	0.010 mg/L	0.010 mg/L	0.010 mg/L	4.4

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	103.4
Ann Arbor Tap Water 8/5/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	104.2
Ann Arbor Tap Water 8/5/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	108.9

BLANK ANALYSIS

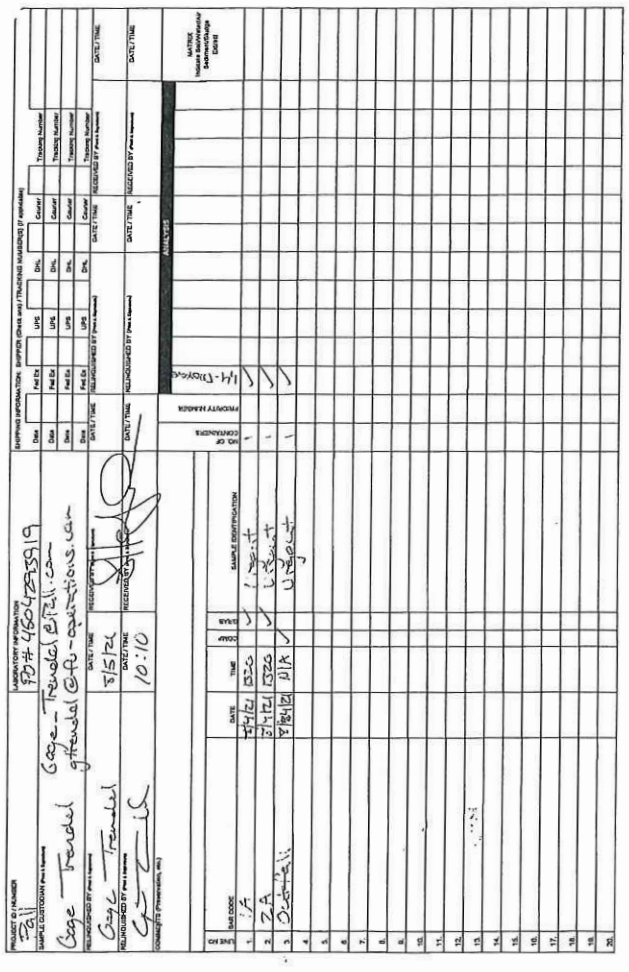
Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

CHAIN OF CUSTODY RECORD

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



ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0806211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following sample that was received at Ann Arbor Technical Services, Inc. (ATS) on 8/6/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/6/21				
Outfall	8/5/21	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	• 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

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

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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:

- None

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

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290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0993 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0806211

Sample Identification: Outfall 001

Sample Date:	8/5/21
Sample Time:	na
Sampled By:	Client
Laboratory Receipt Date:	8/6/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/6/21	10:52	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

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

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0806211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Ann Arbor Tap Water 8/6/21 Matrix Spike	0.009 mg/L	0.010 mg/L	0.009 mg/L	10.5

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	96.6
Ann Arbor Tap Water 8/6/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.009 mg/L	87.4
Ann Arbor Tap Water 8/6/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	97.1

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (65 - 115%)
Matrix Spike Recovery (60 - 120%)
Relative Range
Replicates (<20%)

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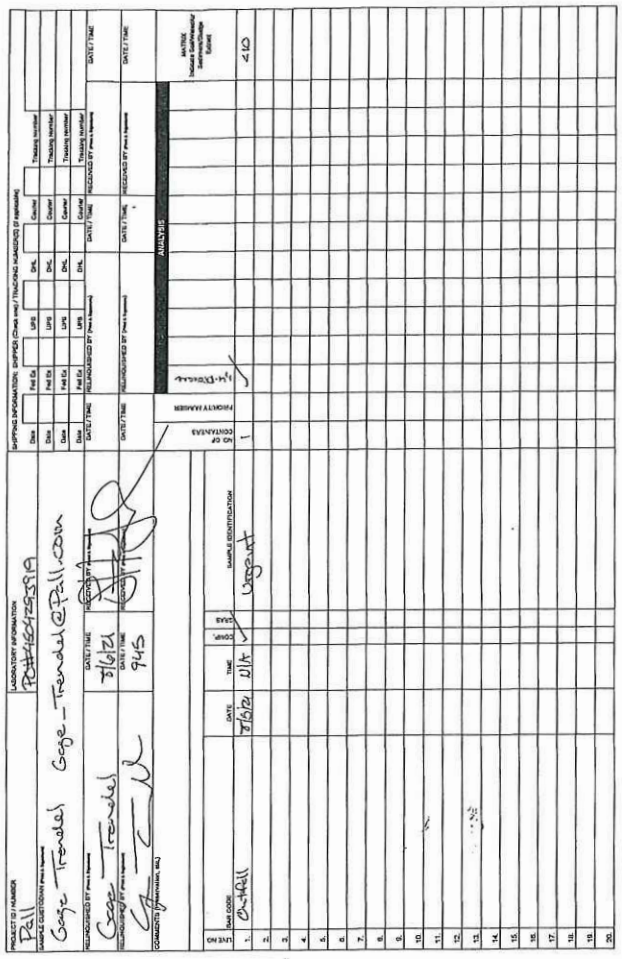
CHAIN OF CUSTODY RECORD

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



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0809211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following five samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/9/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/9/21				
Outfall	8/8/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/9/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/9/21	Urgent	1,4-Dioxane	Water
Red Pond	8/9/21	Urgent	1,4-Dioxane	Water
MW-97d	7/20/21	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	• 5 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

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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 8/9/21

Mark A DeLong

/September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/September 7, 2021

Philip B. Simon (Laboratory Director)

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ATS Environmental Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0855 Fax. 734/995-3731
Michigan Laboratory ID: 9904
Wisconsin Laboratory ID: 998311720

Organic 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: 9/7/21
ATS SRF: 0809211

Sample Identification: Outfall 001

Sample Date:	8/8/21
Sample Time:	na
Sampled By:	Client
Laboratory Receipt Date:	8/9/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/9/21	13:07	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS Environmental Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0855 Fax. 734/995-3731
Michigan Laboratory ID: 9904
Wisconsin Laboratory ID: 998311720

Organic 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: 9/7/21
ATS SRF: 0809211

Sample Identification: Eff-OC-1A

Sample Date:	8/9/21
Sample Time:	8:40 AM
Sampled By:	Client
Laboratory Receipt Date:	8/9/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/9/21	13:52	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0809211

Sample Identification: Eff-OC-2A

Sample Date: 8/9/21
Sample Time: 8:42 AM
Sampled By: Client
Laboratory Receipt Date: 8/9/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.007	0.001	8/9/21	14:36	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0809211

Sample Identification: Red Pond

Sample Date: 8/9/21
Sample Time: 8:50 AM
Sampled By: Client
Laboratory Receipt Date: 8/9/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.41	0.02	8/9/21	15:19	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0809211

Sample Identification: MW-97d

Sample Date: 7/20/21
Sample Time: 11:47 AM
Sampled By: Client
Laboratory Receipt Date: 8/9/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	8/9/21	11:55	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control
Data Summary

QC Batch Number: QCORG0809211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Red Pond 8/9/21 Matrix Spike	1.4 mg/L	1.3 mg/L	1.3 mg/L	8.3

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100.9
Red Pond 8/9/21 Matrix Spike	0.41 mg/L	1.0 mg/L	1.4 mg/L	94.6
Red Pond 8/9/21 Matrix Spike Duplicate	0.41 mg/L	1.0 mg/L	1.3 mg/L	86.3

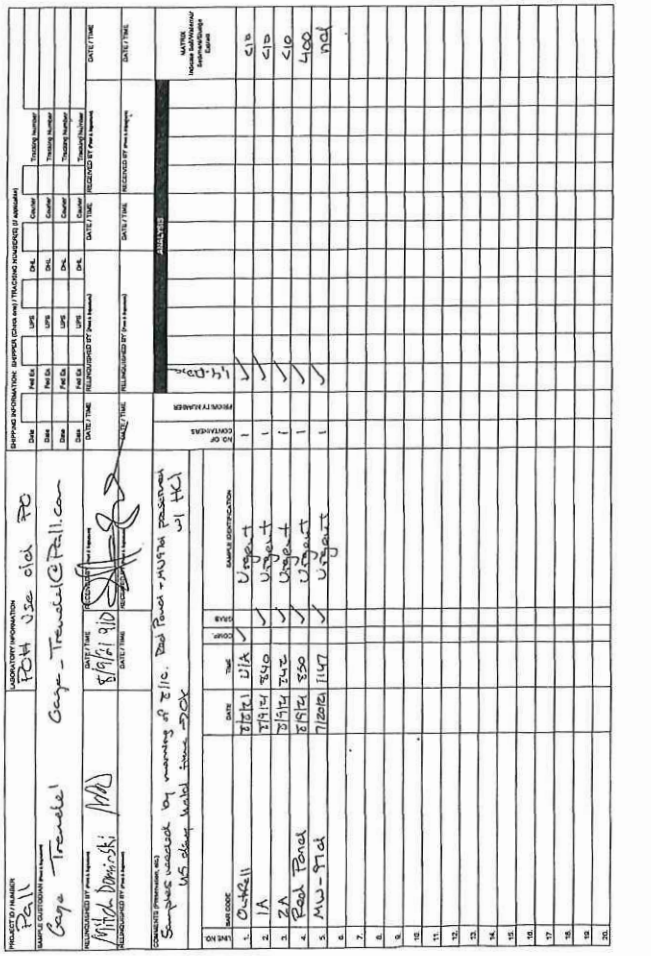
BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

CHAIN OF CUSTODY RECORD



ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0810211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following three samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/10/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/10/21				
Outfall	8/9/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/10/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/10/21	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	• 3 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

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:

- None

Mark A. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

Philip B. Simon (Laboratory Director)

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ATS
355 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0810211

Sample Identification: Outfall 001

Sample Date: 8/9/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/10/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/10/21	11:56	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
355 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0810211

Sample Identification: EFF-OC-1A

Sample Date: 8/10/21
Sample Time: 7:48 AM
Sampled By: Client
Laboratory Receipt Date: 8/10/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/10/21	12:56	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
355 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0810211

Sample Identification: EFF-OC-2A

Sample Date: 8/10/21
Sample Time: 7:50 AM
Sampled By: Client
Laboratory Receipt Date: 8/10/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/10/21	13:39	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

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

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0810211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Ann Arbor Tap Water 8/10/21 Matrix Spike	0.010 mg/L	0.009 mg/L	0.009 mg/L	8.4

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	101.6
Ann Arbor Tap Water 8/10/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	95.5
Ann Arbor Tap Water 8/10/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.009 mg/L	87.7

BLANK ANALYSIS

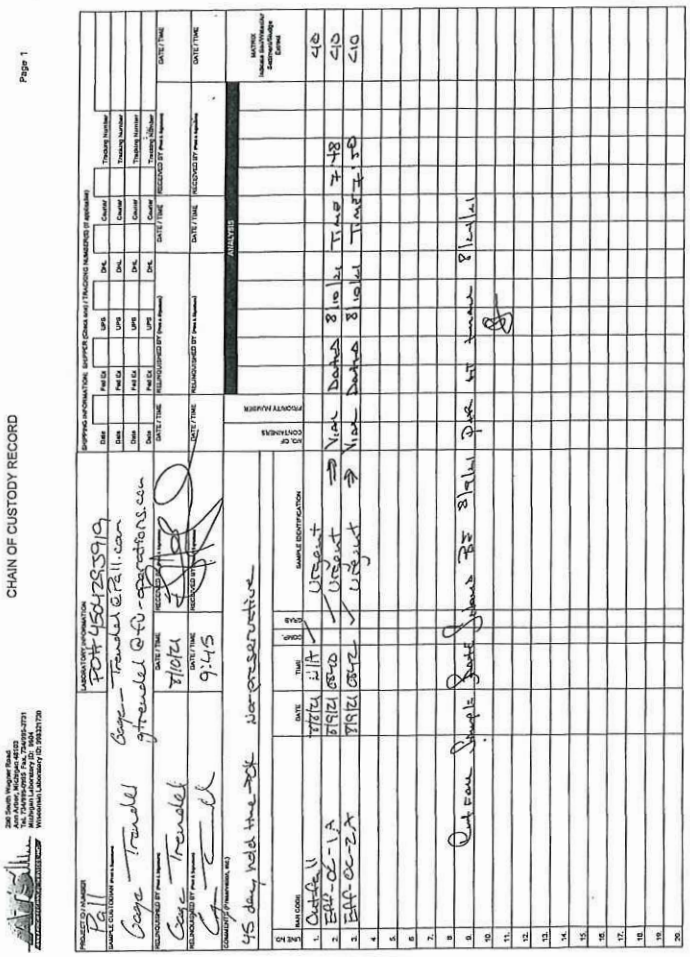
Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Control Sample Recovery (85 - 115%)
- Matrix Spike Recovery (80 - 120%)

Relative Range
- Replicates (<20%)

CHAIN OF CUSTODY RECORD



ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0811211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following three samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/11/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/11/21				
Outfall	8/10/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/11/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/11/21	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	• 3 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:

- None

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0811211.doc

ATS Environmental Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0811211

Sample Identification: Outfall 001

Sample Date: 8/10/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/11/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/11/21	12:12	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS Environmental Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0811211

Sample Identification: EFF-OC-1A

Sample Date: 8/11/21
Sample Time: 8:35 AM
Sampled By: Client
Laboratory Receipt Date: 8/11/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/11/21	12:56	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0811211

Sample Identification: EFF-OC-2A

Sample Date: 8/11/21
Sample Time: 8:37 AM
Sampled By: Client
Laboratory Receipt Date: 8/11/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/11/21	13:40	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0811211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Ann Arbor Tap Water 8/11/21 Matrix Spike	0.010 mg/L	0.010 mg/L	0.010 mg/L	2.9

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100.3
Ann Arbor Tap Water 8/11/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	105.3
Ann Arbor Tap Water 8/11/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	102.3

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

CHAIN OF CUSTODY RECORD

Project ID / Number: PALL
Laboratory Information: Use previous PO
Sample Custodian: Mitch Dominski MD 248 227 8595
Relinquished by: Mitch Dominski MD — 8/11/21 955
Comments: Please Rush all 3 samples + send results to Keith.Patterson@pall.com. All samples are unpreserved.

Line No.	Date	Time	Comp.	Grab	Sample Identification	No. of Containers	1,4-Dioxane	Matrix
1	8/10/21		X		Outfall 001	1	X	W
2	8/11/21	835		X	EFF-OC-1A	1	X	W
3	8/11/21	837		X	EFF-OC-2A	1	X	W

ATS — ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0816211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 11 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/16/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/16/21				
Outfall	8/16/21	Urgent	1,4-Dioxane	Water
MW-15d	8/9/21	Standard	1,4-Dioxane	Water
MW-15s	8/9/21	Standard	1,4-Dioxane	Water
MW-32	8/10/21	Standard	1,4-Dioxane	Water
MW-4d	8/10/21	Standard	1,4-Dioxane	Water
MW-72d	8/5/21	Standard	1,4-Dioxane	Water
MW-11d	8/11/21	Standard	1,4-Dioxane	Water
MW-100	8/4/21	Standard	1,4-Dioxane	Water
MW-115	8/4/21	Standard	1,4-Dioxane	Water
MW-116	8/4/21	Standard	1,4-Dioxane	Water
MW-81	8/4/21	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	1
1,4-Dioxane (USEPA 1624) – Standard TAT	10 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

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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:

- MW-4d 8/10/21
- MW-72d 8/5/21
- MW-11d 8/11/21
- MW-100 8/4/21
- MW-115 8/4/21
- MW-116 8/4/21
- MW-81 8/4/21

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0816211.doc

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: Outfall 001 Grab

Sample Date:	8/16/21
Sample Time:	11:38 AM
Sampled By:	Client
Laboratory Receipt Date:	8/16/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.010	0.001	8/16/21	17:43	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-15d

Sample Date: 8/9/21
Sample Time: 1:09 PM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	8/29/21	5:03	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-15s

Sample Date: 8/9/21
Sample Time: 2:03 PM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.003	0.001	8/29/21	5:47	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-32

Sample Date: 8/10/21
Sample Time: 12:21 PM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.013	0.001	8/29/21	6:31	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-4d

Sample Date: 8/10/21
Sample Time: 1:42 PM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.32	0.01	8/29/21	7:15	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-72d

Sample Date: 8/5/21
Sample Time: 1:53 PM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.51	0.02	8/29/21	10:11	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-11d

Sample Date: 8/11/21
Sample Time: 2:00 PM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.29	0.01	8/29/21	10:55	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-100

Sample Date: 8/4/21
Sample Time: 1:16 PM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	2.0	0.1	8/29/21	11:39	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-115

Sample Date: 8/4/21
Sample Time: 11:52 AM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.52	0.01	8/29/21	12:23	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-116

Sample Date: 8/4/21
Sample Time: 10:36 AM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.66	0.01	8/29/21	13:07	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0816211

Sample Identification: MW-81

Sample Date: 8/4/21
Sample Time: 9:16 AM
Sampled By: Client
Laboratory Receipt Date: 8/16/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.14	0.01	8/29/21	13:51	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control
Data Summary

QC Batch Number: QCORG0816211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Ann Arbor Tap Water 8/16/21 Matrix Spike	0.010 mg/L	0.010 mg/L	0.010 mg/L	1.6

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	98.9
Ann Arbor Tap Water 8/16/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	97.7
Ann Arbor Tap Water 8/16/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	99.2

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control
Data Summary

QC Batch Number: QCORG0827212
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 MW-81 8/4/21 Matrix Spike	0.31 mg/L	0.33 mg/L	0.32 mg/L	7.5

SPIKES and/or QC CHECK SAMPLES

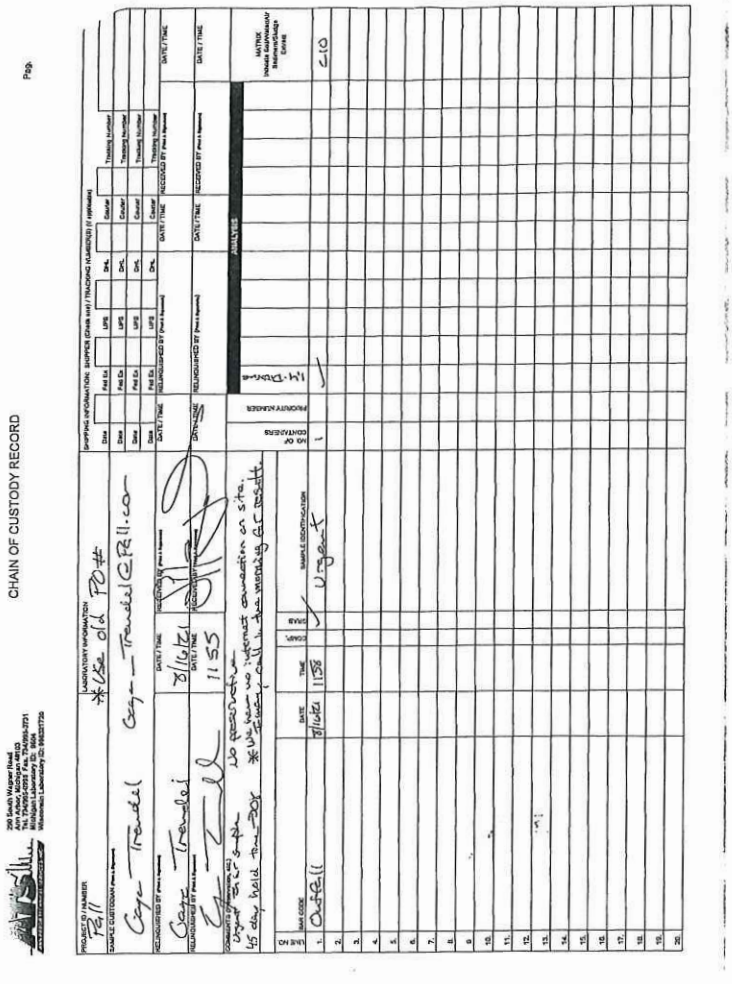
Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100.0
MW-81 8/4/21 Matrix Spike	0.14 mg/L	0.20 mg/L	0.31 mg/L	85.3
MW-81 8/4/21 Matrix Spike Duplicate	0.14 mg/L	0.20 mg/L	0.33 mg/L	97.3

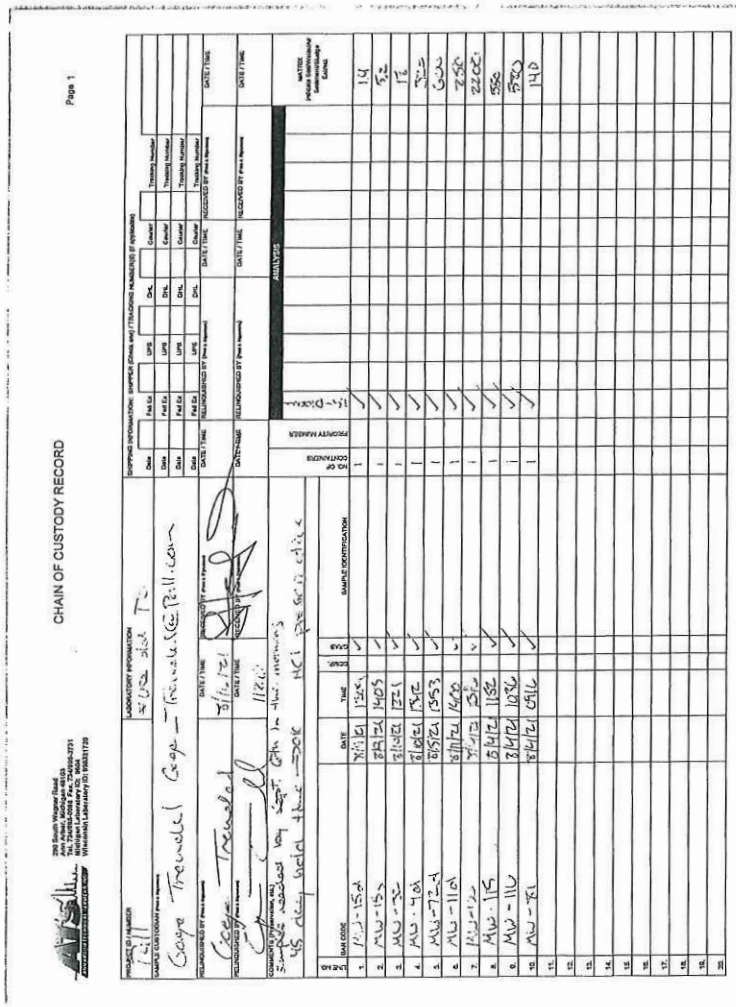
BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)





ATS
ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0817211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following five samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/17/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/17/21				
Eff-OC-1A	8/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/17/21	Urgent	1,4-Dioxane	Water
Outfall	8/16/21	Urgent	1,4-Dioxane	Water
Outfall	8/11/21	Urgent	1,4-Dioxane	Water
Red Pond	8/17/21	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	• 4 Samples
• 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

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ATS

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 8/17/21

Mark A DeLong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

Philip B. Simon (Laboratory Director)

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ATS
230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0993 Fax. 734/975-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0817211

Sample Identification: Eff-OC-1A

Sample Date: 8/17/21
Sample Time: 7:50 AM
Sampled By: Client
Laboratory Receipt Date: 8/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/17/21	14:33	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0993 Fax. 734/975-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0817211

Sample Identification: Eff-OC-2A

Sample Date: 8/17/21
Sample Time: 7:52 AM
Sampled By: Client
Laboratory Receipt Date: 8/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/17/21	15:17	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0993 Fax. 734/975-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0817211

Sample Identification: Outfall 001

Sample Date: 8/16/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/17/21	16:02	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0817211

Sample Identification: Outfall 001

Sample Date: 8/11/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/17/21	16:48	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0817211

Sample Identification: Red Pond

Sample Date: 8/17/21
Sample Time: 7:54 AM
Sampled By: Client
Laboratory Receipt Date: 8/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.41	0.01	8/17/21	17:30	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control
Data Summary

QC Batch Number: QCORG0817211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Ann Arbor Tap Water 8/17/21 Matrix Spike	0.010 mg/L	0.010 mg/L	0.010 mg/L	1.6

SPIKES and/or QC CHECK SAMPLES

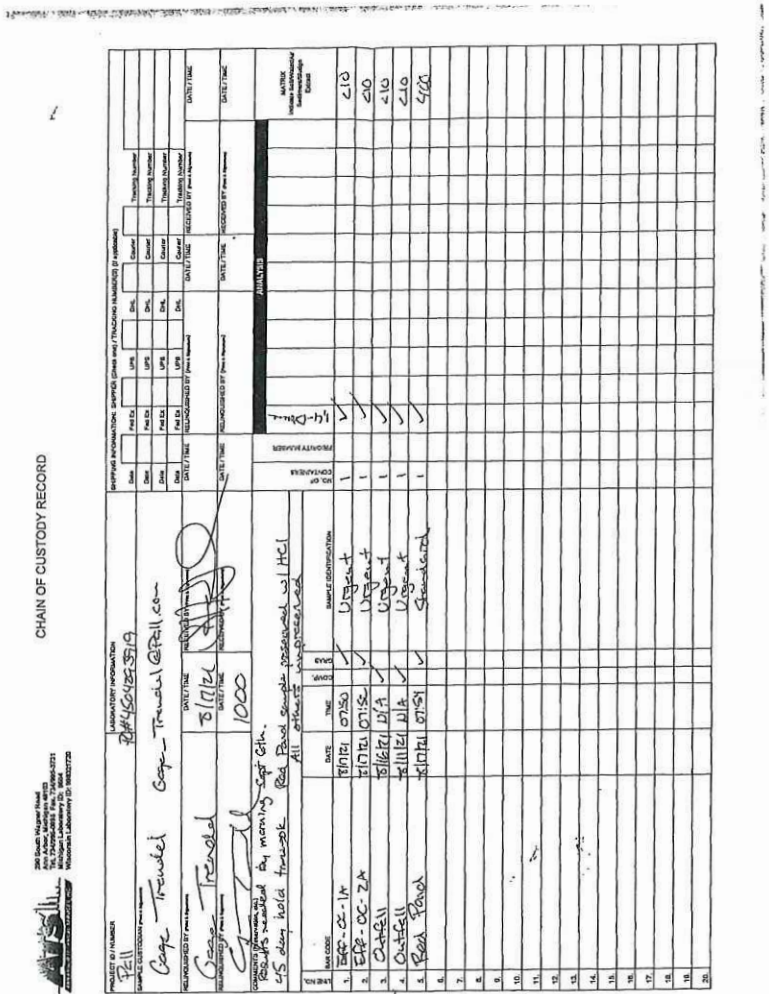
Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	98.9
Ann Arbor Tap Water 8/17/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	102.0
Ann Arbor Tap Water 8/17/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100.4

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)



ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0818211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following six samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/17/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/17/21				
Outfall	8/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/18/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/18/21	Urgent	1,4-Dioxane	Water
MW-18d	8/17/21	Standard	1,4-Dioxane	Water
MW-35	8/17/21	Standard	1,4-Dioxane	Water
MW-66	8/17/21	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	• 3 Samples
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 3 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

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

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:

- None

Mark A DeLong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

Philip B. Simon (Laboratory Director)

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

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9924
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0818211

Sample Identification: Outfall 001

Sample Date: 8/17/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/18/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/18/21	11:15	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
ns - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0855 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0818211

Sample Identification: Eff-OC-1A

Sample Date: 8/18/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/18/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/18/21	12:00	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0855 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0818211

Sample Identification: Eff-OC-2A

Sample Date: 8/18/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/18/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.011	0.001	8/18/21	12:44	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0855 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0818211

Sample Identification: MW-18d

Sample Date: 8/17/21
Sample Time: 2:32 PM
Sampled By: Client
Laboratory Receipt Date: 8/18/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.029	0.001	8/30/21	16:55	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0855 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0818211

Sample Identification: MW-35

Sample Date: 8/17/21
Sample Time: 1:17 PM
Sampled By: Client
Laboratory Receipt Date: 8/18/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.002	0.001	8/30/21	18:23	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0818211

Sample Identification: MW-66

Sample Date:	8/17/21
Sample Time:	12:06 PM
Sampled By:	Client
Laboratory Receipt Date:	8/18/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.002	0.001	8/30/21	9:07	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0818211
Parameter: 1,4-Dioxane (EPA 1624)
ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Ann Arbor Tap Water 8/18/21 Matrix Spike	0.008 mg/L	0.008 mg/L	0.008 mg/L	0.6

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.009 mg/L	91.4
Ann Arbor Tap Water 8/18/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.008 mg/L	82.4
Ann Arbor Tap Water 8/18/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.008 mg/L	81.9

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0830211
Parameter: 1,4-Dioxane (EPA 1624)
ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
TW-20 8/18/21 Matrix Spike	1.3 mg/L	1.2 mg/L	1.2 mg/L	5.8

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.009 mg/L	90.7
TW-20 8/18/21 Matrix Spike	0.54 mg/L	0.80 mg/L	1.3 mg/L	93.2
TW-20 8/18/21 Matrix Spike Duplicate	0.54 mg/L	0.80 mg/L	1.2 mg/L	84.2

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

CHAIN OF CUSTODY RECORD

Page 1

Project ID / Number: Pall
Sample Custodian: Gage Trendel gage_trendel@Pall.com
Relinquished by: Gage Trendel — Date/Time: 8/18/21 9:30
Comments: [illegible]

Line No.	Sample Identification	Date	Time	Sample Identification	Matrix
1	Outfall	8/17/21	N/A	Urgent	[illegible]
2	EFF-OC-1*	8/18/21	N/A	Urgent	[illegible]
3	EFF-OC-2*	8/18/21	N/A	Urgent	[illegible]
4	MW-18d	8/17/21	[illegible]		35
5	MW-35	8/17/21	[illegible]		2.7
6	MW-66	8/17/21	[illegible]		2.0

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0819211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following three samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/19/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/19/21				
Outfall	8/18/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/19/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/19/21	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	• 3 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**

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

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:

- **None**

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

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**

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9034
Wisconsin Laboratory ID: 998521720

Organic 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: 9/7/21
ATS SRF: 0819211

Sample Identification: Outfall 001

Sample Date: 8/18/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/19/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/19/21	12:38	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9104
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0819211

Sample Identification: Eff-OC-1A

Sample Date: 8/19/21
Sample Time: 7:53 AM
Sampled By: Client
Laboratory Receipt Date: 8/19/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/19/21	11:07	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9104
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0819211

Sample Identification: Eff-OC-2A

Sample Date: 8/19/21
Sample Time: 7:54 AM
Sampled By: Client
Laboratory Receipt Date: 8/19/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.007	0.001	8/19/21	11:52	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9104
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control
Data Summary

QC Batch Number: QCORG0819211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Ann Arbor Tap Water 8/19/21 Matrix Spike	0.011 mg/L	0.010 mg/L	0.010 mg/L	2.2

SPIKES and/or QC CHECK SAMPLES

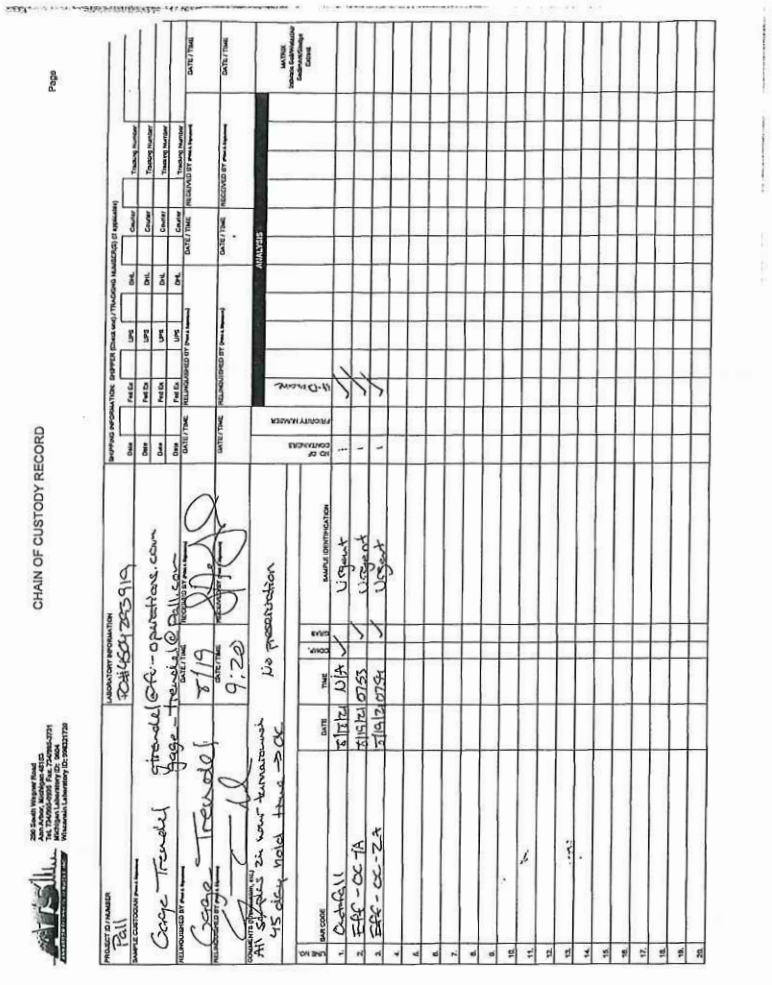
Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	101.0
Ann Arbor Tap Water 8/19/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.011 mg/L	108.3
Ann Arbor Tap Water 8/19/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	104.0

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)



ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0820211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following eight samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/20/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/20/21				
Eff-OC-1A	8/20/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/20/21	Urgent	1,4-Dioxane	Water
Outfall	8/19/21	Urgent	1,4-Dioxane	Water
TW-9	8/18/21	Standard	1,4-Dioxane	Water
TW-17	8/18/21	Standard	1,4-Dioxane	Water
TW-14	8/18/21	Standard	1,4-Dioxane	Water
TW-10	8/18/21	Standard	1,4-Dioxane	Water
TW-20	8/18/21	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	• 3 Samples
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 5 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

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:

- TW-9 8/18/21
- TW-17 8/18/21
- TW-10 8/18/21
- TW-20 8/18/21

Mark A. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0820211

Sample Identification: Outfall 001

Sample Date:	8/19/21
Sample Time:	na
Sampled By:	Client
Laboratory Receipt Date:	8/20/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/20/21	10:33	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0820211

Sample Identification: Eff-OC-1A

Sample Date:	8/20/21
Sample Time:	8:13 AM
Sampled By:	Client
Laboratory Receipt Date:	8/20/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/20/21	11:18	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0820211

Sample Identification: Eff-OC-2A

Sample Date:	8/20/21
Sample Time:	8:12 AM
Sampled By:	Client
Laboratory Receipt Date:	8/20/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.007	0.001	8/20/21	12:02	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0820211

Sample Identification: TW-9

Sample Date:	8/18/21
Sample Time:	9:25 AM
Sampled By:	Client
Laboratory Receipt Date:	8/20/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.39	0.01	8/30/21	19:52	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0820211

Sample Identification: TW-17

Sample Date: 8/18/21
Sample Time: 9:20 AM
Sampled By: Client
Laboratory Receipt Date: 8/20/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.13	0.01	8/30/21	20:36	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0820211

Sample Identification: TW-14

Sample Date: 8/18/21
Sample Time: 9:18 AM
Sampled By: Client
Laboratory Receipt Date: 8/20/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.085	0.001	8/30/21	21:20	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0820211

Sample Identification: TW-10

Sample Date: 8/18/21
Sample Time: 9:15 AM
Sampled By: Client
Laboratory Receipt Date: 8/20/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.62	0.01	8/30/21	22:04	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0820211

Sample Identification: TW-20

Sample Date: 8/18/21
Sample Time: 9:10 AM
Sampled By: Client
Laboratory Receipt Date: 8/20/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.54	0.01	8/30/21	22:48	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0820211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Ann Arbor Tap Water 8/20/21 Matrix Spike	0.010 mg/L	0.010 mg/L	0.010 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	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100.7
Ann Arbor Tap Water 8/20/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	105.2
Ann Arbor Tap Water 8/20/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	101.7

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

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

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0830211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 TW-20 8/18/21 Matrix Spike	1.3 mg/L	1.2 mg/L	1.2 mg/L	5.8

SPIKES and/or QC CHECK SAMPLES

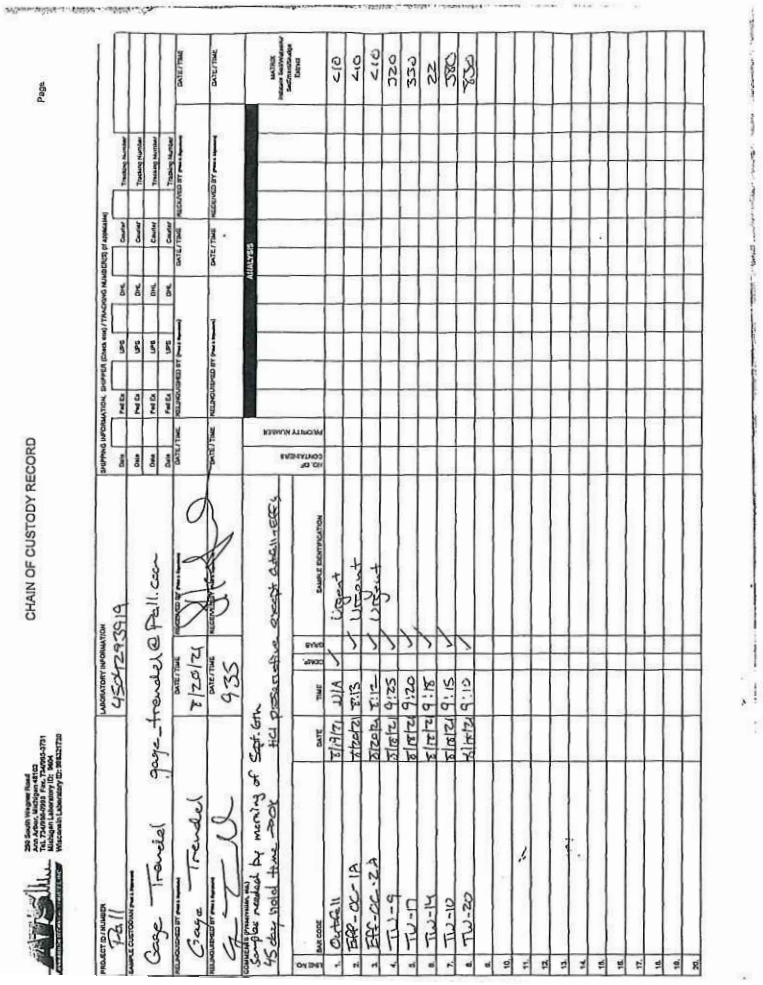
Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.009 mg/L	90.7
TW-20 8/18/21 Matrix Spike	0.54 mg/L	0.80 mg/L	1.3 mg/L	93.2
TW-20 8/18/21 Matrix Spike Duplicate	0.54 mg/L	0.80 mg/L	1.2 mg/L	84.2

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)



ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0823211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following one sample that was received at Ann Arbor Technical Services, Inc. (ATS) on 8/23/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/23/21				
Outfall	8/22/21	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	• 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).

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

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.

- None

Mark A. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0823211.doc

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0955 Fax. 734/975-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0823211

Sample Identification: Outfall 001

Sample Date:	8/22/21
Sample Time:	na
Sampled By:	Client
Laboratory Receipt Date:	8/23/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.008	0.001	8/23/21	15:40	SLS

Comments

All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

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Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0823211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Ann Arbor Tap Water 8/23/21 Matrix Spike	0.010 mg/L	0.010 mg/L	0.010 mg/L	2.6

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.009 mg/L	93.1
Ann Arbor Tap Water 8/23/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100.8
Ann Arbor Tap Water 8/23/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	98.3

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

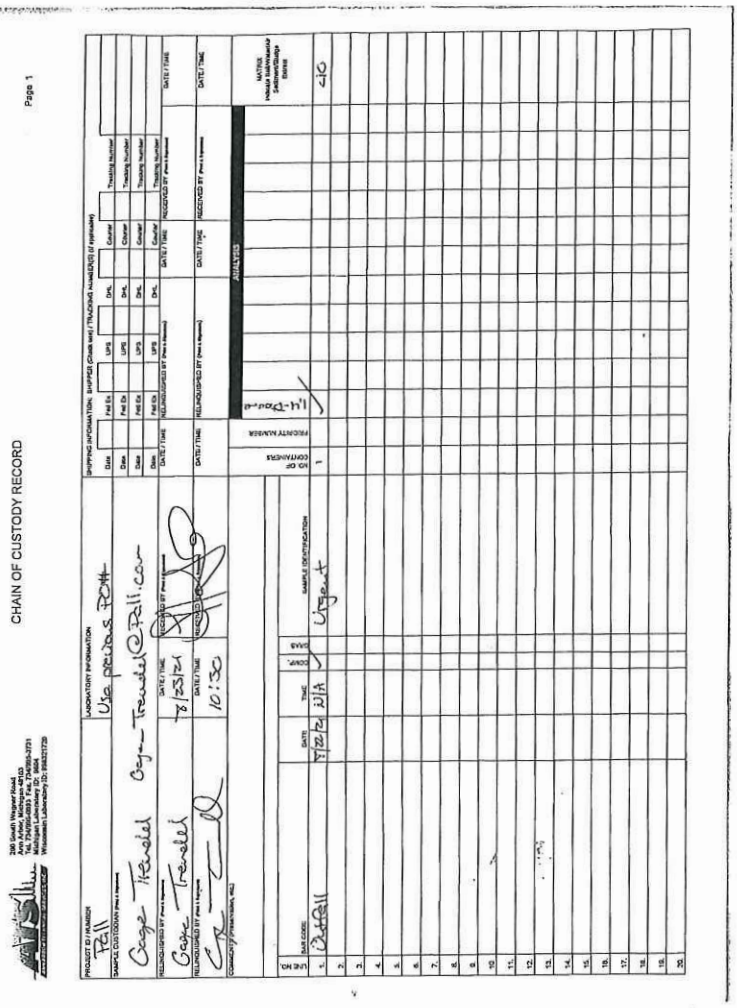
Comments:

Calculations performed prior to rounding.

Control Limits:

Recoveries
- Laboratory Control Sample Recovery (85 - 115%)
- Matrix Spike Recovery (80 - 120%)

Relative Range
- Replicates (<20%)



ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0826211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following six samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/26/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/26/21				
MW-126d	8/25/21	Standard	1,4-Dioxane	Water
MW-126s	8/25/21	Standard	1,4-Dioxane	Water
MW-59d	8/25/21	Standard	1,4-Dioxane	Water
MW-59s	8/25/21	Standard	1,4-Dioxane	Water
MW-39s	8/25/21	Standard	1,4-Dioxane	Water
MW-39d	8/25/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis	Number of Samples
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 6 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

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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:

- None

Mark A DeLong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

Philip B. Simon (Laboratory Director)

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0955 Fax. 734/975-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0826211

Sample Identification: MW-126d

Sample Date: 8/25/21
Sample Time: 9:16 AM
Sampled By: Client
Laboratory Receipt Date: 8/26/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	8/31/21	18:25	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0955 Fax. 734/975-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0826211

Sample Identification: MW-126s

Sample Date: 8/25/21
Sample Time: 10:30 AM
Sampled By: Client
Laboratory Receipt Date: 8/26/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	8/31/21	19:09	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0955 Fax. 734/975-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0826211

Sample Identification: MW-59d

Sample Date: 8/25/21
Sample Time: 11:48 AM
Sampled By: Client
Laboratory Receipt Date: 8/26/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	8/31/21	19:53	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

230 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0955 Fax. 734/975-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0826211

Sample Identification: MW-59s

Sample Date: 8/25/21
Sample Time: 12:57 PM
Sampled By: Client
Laboratory Receipt Date: 8/26/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	8/31/21	20:37	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0826211

Sample Identification: MW-39s

Sample Date: 8/25/21
Sample Time: 2:20 PM
Sampled By: Client
Laboratory Receipt Date: 8/26/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.002	0.001	8/31/21	21:21	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0826211

Sample Identification: MW-39d

Sample Date: 8/25/21
Sample Time: 3:34 PM
Sampled By: Client
Laboratory Receipt Date: 8/26/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.020	0.001	8/31/21	22:06	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0831211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 TW-24 8/3/21 Matrix Spike	4.2 mg/L	4.2 mg/L	4.2 mg/L	0.3

SPIKES and/or QC CHECK SAMPLES

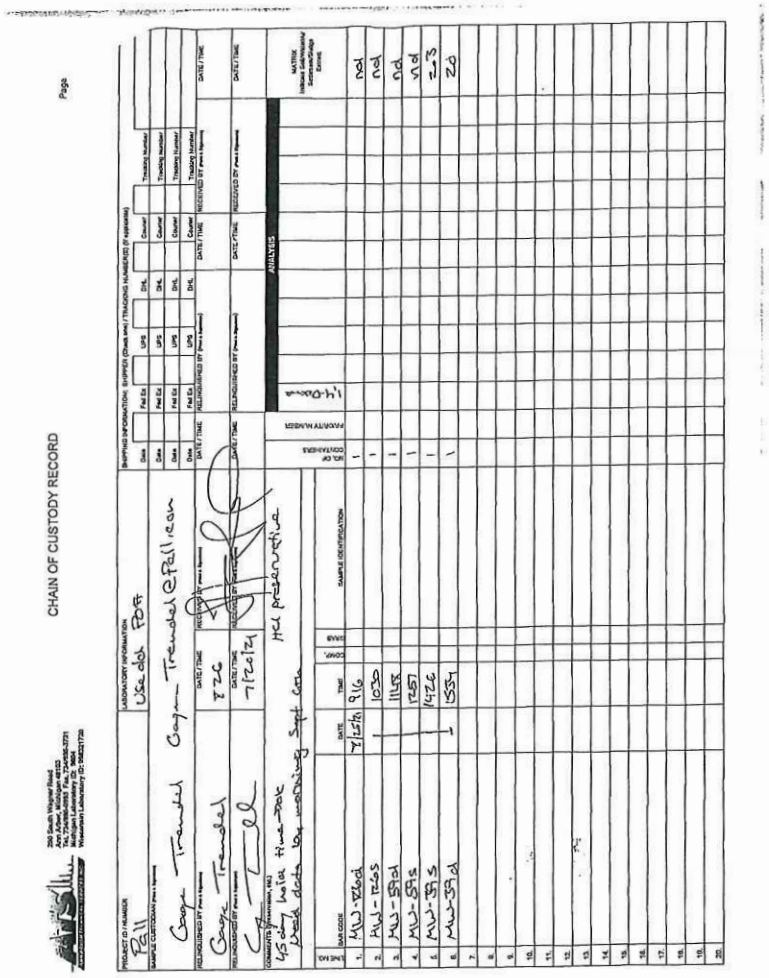
Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	97.4
TW-24 8/3/21 Matrix Spike	1.8 mg/L	2.0 mg/L	4.2 mg/L	119.1
TW-24 8/3/21 Matrix Spike Duplicate	1.8 mg/L	2.0 mg/L	4.2 mg/L	119.6

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)



ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0827211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following seven samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/27/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/27/21				
Outfall-Grab	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/26/21	Urgent	1,4-Dioxane	Water
Outfall	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/27/21	Urgent	1,4-Dioxane	Water
Red Pond	8/27/21	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	• 7 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
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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 8/27/21

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

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

290 South Wagner Road
Ann Arbor, Michigan 48103
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Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998331720

Organic 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: 9/7/21
ATS SRF: 0827211

Sample Identification: Outfall - Grab

Sample Date: 8/26/21
Sample Time: 7:15 PM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/27/21	11:20	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827211

Sample Identification: Eff-OC-1A

Sample Date:	8/26/21
Sample Time:	7:25 PM
Sampled By:	Client
Laboratory Receipt Date:	8/27/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.007	0.001	8/27/21	9:52	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827211

Sample Identification: Eff-OC-2A

Sample Date:	8/26/21
Sample Time:	7:25 PM
Sampled By:	Client
Laboratory Receipt Date:	8/27/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	8/27/21	10:36	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827211

Sample Identification: Outfall

Sample Date:	8/26/21
Sample Time:	na
Sampled By:	Client
Laboratory Receipt Date:	8/27/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	8/27/21	12:04	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827211

Sample Identification: Eff-OC-1A

Sample Date:	8/27/21
Sample Time:	7:00 AM
Sampled By:	Client
Laboratory Receipt Date:	8/27/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.007	0.001	8/27/21	8:24	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827211

Sample Identification: Eff-OC-2A

Sample Date: 8/27/21
Sample Time: 7:00 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.004	0.001	8/27/21	9:08	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827211

Sample Identification: Red Pond

Sample Date: 8/27/21
Sample Time: 7:08 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.31	0.01	8/27/21	13:22	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG027211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Red Pond 8/27/21 Matrix Spike	0.98 mg/L	0.98 mg/L	0.98 mg/L	0.8

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	101.2
Red Pond 8/27/21 Matrix Spike	0.31 mg/L	0.80 mg/L	0.98 mg/L	84.9
Red Pond 8/27/21 Matrix Spike Duplicate	0.31 mg/L	0.80 mg/L	0.98 mg/L	83.8

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

CHAIN OF CUSTODY RECORD

Page 1

Project ID / Number: Pall
Laboratory Information: Use previous PO#
Sample Custodian: Gage Trendel — Gage-Trendel@Pall.com
Relinquished By: Gage Trendel — Date/Time: 8/27/21
Relinquished By: [signature] — Date/Time: 07:30
Analysis: 1,4-Dioxane

Line No.	Bar Code	Date	Time	Comp.	Grab	Sample Identification	No. of Containers	1,4-Dioxane	Matrix
1.	Outfall - Grab	8/26/21	19:15		✓	Urgent	1	✓	<10
2.	Eff-OC-1A	8/26/21	19:25		✓	Urgent	1	✓	<10
3.	Eff-OC-2A	8/26/21	19:25		✓	Urgent	1	✓	<10
4.	Outfall	8/26/21	24h	✓		Urgent	1	✓	<10
5.	Eff-OC-1A	8/27/21	07:00		✓	Urgent	1	✓	<10
6.	Eff-OC-2A	8/27/21	07:00		✓	Urgent	1	✓	<10
7.	Red Pond	8/27/21	07:08		✓	Urgent	1	✓	400

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0827212
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following twenty samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/27/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/27/21				
MW-34d	8/26/21	Standard	1,4-Dioxane	Water
MW-34s	8/26/21	Standard	1,4-Dioxane	Water
MW-38s	8/26/21	Standard	1,4-Dioxane	Water
MW-38d	8/26/21	Standard	1,4-Dioxane	Water
MW-52d	8/26/21	Standard	1,4-Dioxane	Water
MW-52i	8/26/21	Standard	1,4-Dioxane	Water
TW-17	8/27/21	Standard	1,4-Dioxane	Water
TW-14	8/27/21	Standard	1,4-Dioxane	Water
TW-10	8/27/21	Standard	1,4-Dioxane	Water
TW-9	8/27/21	Standard	1,4-Dioxane	Water
TW-20	8/27/21	Standard	1,4-Dioxane	Water
TW-22	8/27/21	Standard	1,4-Dioxane	Water
TW-28	8/27/21	Standard	1,4-Dioxane	Water
LB-4	8/27/21	Standard	1,4-Dioxane	Water
TW-23	8/27/21	Standard	1,4-Dioxane	Water
TW-21	8/27/21	Standard	1,4-Dioxane	Water
TW-18	8/27/21	Standard	1,4-Dioxane	Water
PW-1	8/27/21	Standard	1,4-Dioxane	Water
Dolph	8/27/21	Standard	1,4-Dioxane	Water
TW-24	8/27/21	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) – Standard TAT	• 20 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:

- TW-17 8/27/21
- TW-20 8/27/21
- LB-4 8/27/21
- TW-18 8/27/21
- TW-24 8/27/21
- TW-10 8/27/21
- TW-22 8/27/21
- TW-23 8/27/21
- PW-1 8/27/21
- TW-9 8/27/21
- TW-28 8/27/21
- TW-21 8/27/21
- Dolph 8/27/21

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: MW-34d

Sample Date: 8/26/21
Sample Time: 8:59 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/1/21	1:02	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: MW-34s

Sample Date: 8/26/21
Sample Time: 10:04 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/1/21	1:46	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: MW-38s

Sample Date: 8/26/21
Sample Time: 11:23 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/1/21	2:30	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: MW-38d

Sample Date: 8/26/21
Sample Time: 12:33 PM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.033	0.001	9/1/21	3:14	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

200 South Wagner Road
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Tel. 734/975-0985 Fax. 734/975-3731
Michigan Laboratory ID: 9504
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: MW-52d

Sample Date: 8/26/21
Sample Time: 1:54 PM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/1/21	3:59	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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Michigan Laboratory ID: 9504
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: MW-52l

Sample Date: 8/26/21
Sample Time: 3:05 PM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.001	0.001	9/1/21	4:43	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

200 South Wagner Road
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Tel. 734/975-0985 Fax. 734/975-3731
Michigan Laboratory ID: 9504
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-17

Sample Date: 8/27/21
Sample Time: 8:20 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.086	0.01	9/1/21	5:27	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

200 South Wagner Road
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Michigan Laboratory ID: 9504
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-14

Sample Date: 8/27/21
Sample Time: 8:25 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.094	0.001	9/1/21	6:11	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-10

Sample Date: 8/27/21
Sample Time: 8:30 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.66	0.01	9/1/21	13:15	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-9

Sample Date: 8/27/21
Sample Time: 8:35 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.43	0.01	9/1/21	13:59	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-20

Sample Date: 8/27/21
Sample Time: 8:40 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.60	0.02	9/1/21	14:43	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-22

Sample Date: 8/27/21
Sample Time: 8:50 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.46	0.02	9/1/21	15:33	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-28

Sample Date: 8/27/21
Sample Time: 8:55 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.62	0.02	9/1/21	19:57	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: LB-4

Sample Date: 8/27/21
Sample Time: 10:15 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.40	0.01	9/1/21	20:41	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-23

Sample Date: 8/27/21
Sample Time: 10:20 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.32	0.01	9/1/21	21:25	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-21

Sample Date: 8/27/21
Sample Time: 10:30 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.24	0.01	9/1/21	22:09	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-18

Sample Date: 8/27/21
Sample Time: 10:35 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.22	0.01	9/1/21	22:53	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: PW-1

Sample Date: 8/27/21
Sample Time: 10:40 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.53	0.01	9/1/21	23:38	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: Dolph

Sample Date: 8/27/21
Sample Time: 10:45 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.12	0.01	9/2/21	0:22	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-24

Sample Date: 8/27/21
Sample Time: 11:00 AM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	2.1	0.1	9/2/21	15:16	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0993 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0831211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
TW-24 8/3/21 Matrix Spike	4.2 mg/L	4.2 mg/L	4.2 mg/L	0.3

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	97.4
TW-24 8/3/21 Matrix Spike	1.8 mg/L	2.0 mg/L	4.2 mg/L	119.1
TW-24 8/3/21 Matrix Spike Duplicate	1.8 mg/L	2.0 mg/L	4.2 mg/L	119.6

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0993 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0901211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
TW-22 8/27/21 Matrix Spike	0.81 mg/L	0.81 mg/L	0.81 mg/L	0.5

SPIKES and/or QC CHECK SAMPLES

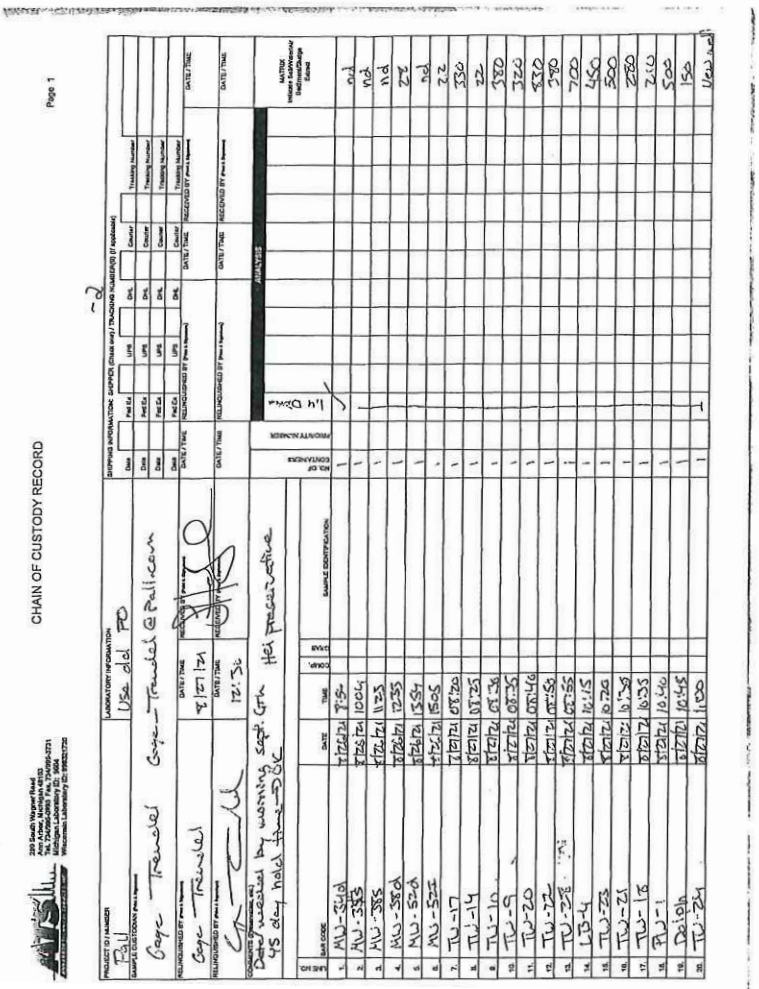
Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	99.9
TW-22 8/27/21 Matrix Spike	0.46 mg/L	0.40 mg/L	0.81 mg/L	87.6
TW-22 8/27/21 Matrix Spike Duplicate	0.46 mg/L	0.40 mg/L	0.81 mg/L	86.6

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)



290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 999321720

Data Transmittal Cover Page

Project Name: Pall Corporation
ATS Project Number: G001-002
ATS Report Number(s): Org_SRF_Aug_PO9621
Client PO Number: 4504859621

Project Description: This data report contains the results of 28 water samples, received by ATS during the months of August and September, 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.): 60

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

Additional Message:

Date: 9/8/21 **Signed:**

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

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Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Outfall	8/31/21	Urgent	1,4-Dioxane	Water
MW-40s	8/31/21	Standard	1,4-Dioxane	Water
MW-40d	8/31/21	Standard	1,4-Dioxane	Water
MW-64	8/31/21	Standard	1,4-Dioxane	Water
MW-10d	8/31/21	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	• 16 Samples
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 12 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).

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s):

0827213	0831211
0828211	0901211
0830211	

Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following 28 samples that were received at Ann Arbor Technical Services, Inc. (ATS) during the months of August and September under PO number 4504859621, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/27/21				
Eff-OC-1A (13:45)	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A (13:45)	8/27/21	Urgent	1,4-Dioxane	Water
Received 8/28/21				
Outfall	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/28/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/28/21	Urgent	1,4-Dioxane	Water
Received 8/30/21				
Eff-OC-1A	8/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/30/21	Urgent	1,4-Dioxane	Water
Outfall	8/28/21	Urgent	1,4-Dioxane	Water
Outfall	8/29/21	Urgent	1,4-Dioxane	Water
Red Pond	8/30/21	Urgent	1,4-Dioxane	Water
MW-69	8/27/21	Standard	1,4-Dioxane	Water
4401 Park West	8/27/21	Standard	1,4-Dioxane	Water
MW-20	8/27/21	Standard	1,4-Dioxane	Water
110 Parkland Plaza	8/27/21	Standard	1,4-Dioxane	Water
MW-36	8/27/21	Standard	1,4-Dioxane	Water
Received 8/31/21				
Outfall	8/28/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/30/21	Urgent	1,4-Dioxane	Water
MW-31	8/28/21	Standard	1,4-Dioxane	Water
4742 Park Road	8/28/21	Standard	1,4-Dioxane	Water
5005 Jackson Road	8/28/21	Standard	1,4-Dioxane	Water
Received 9/1/21				
Eff-OC-1A	9/1/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	9/1/21	Urgent	1,4-Dioxane	Water

G001-002.21/CN_AugustPO_9621.doc

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

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.

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_AugustPO_9621.doc

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/6/21
SRF / SDG Number(s): 0827213
Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following two samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/27/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/27/21				
Eff-OC-1A	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/27/21	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	• 2 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).

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290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

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:

- None

Mark A DeLong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

Philip B. Simon (Laboratory Director)

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

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel.734/995-0995 Fax.734/995-3731
Michigan Laboratory ID: 9014
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827213

Sample Identification: Eff-OC-1A

Sample Date: 8/27/21
Sample Time: 1:45 PM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/27/21	14:33	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0827213

Sample Identification: Eff-OC-2A

Sample Date: 8/27/21
Sample Time: 1:45 PM
Sampled By: Client
Laboratory Receipt Date: 8/27/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/27/21	15:17	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG027211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Red Pond 8/27/21 Matrix Spike	0.98 mg/L	0.98 mg/L	0.98 mg/L	0.8

SPIKES and/or QC CHECK SAMPLES

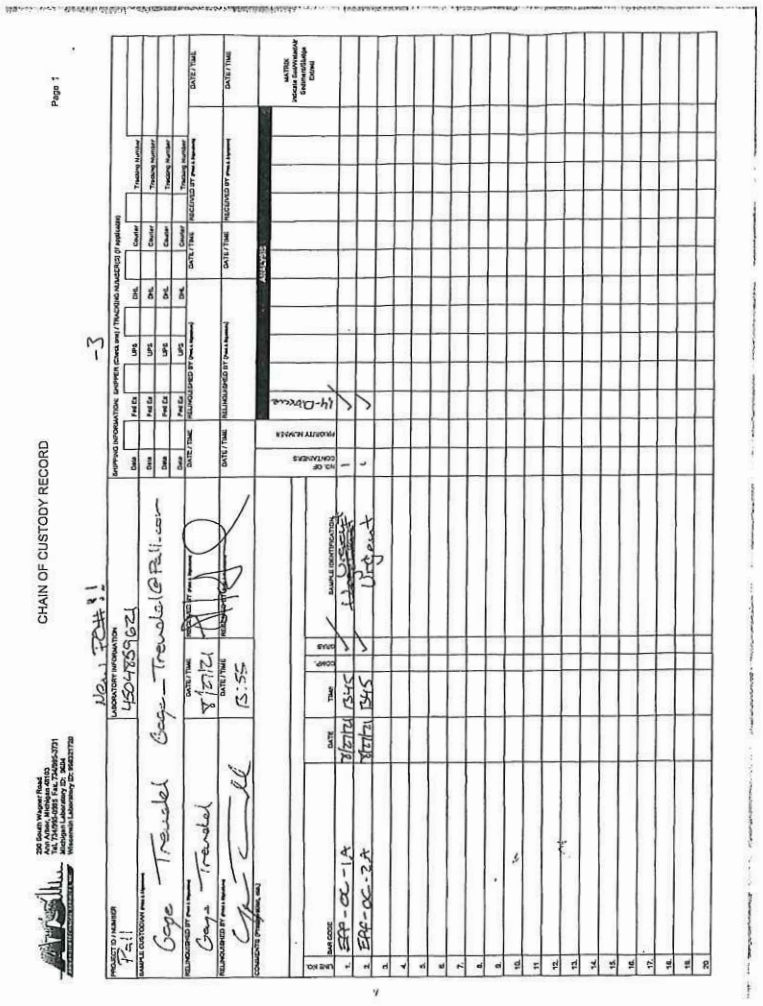
Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	101.2
Red Pond 8/27/21 Matrix Spike	0.31 mg/L	0.80 mg/L	0.93 mg/L	84.9
Red Pond 8/27/21 Matrix Spike Duplicate	0.31 mg/L	0.80 mg/L	0.98 mg/L	83.8

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)



ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0828211
Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following two samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/28/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/28/21				
Outfall	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/28/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/28/21	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	• 3 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.

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

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:

- None

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0828211.doc

200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9034
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0828211

Sample Identification: Outfall

Sample Date:	8/27/21
Sample Time:	na
Sampled By:	Client
Laboratory Receipt Date:	8/28/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/29/21	2:07	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9034
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0828211

Sample Identification: Eff-OC-1A

Sample Date:	8/28/21
Sample Time:	9:40 AM
Sampled By:	Client
Laboratory Receipt Date:	8/28/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/29/21	2:51	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS — 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0828211

Sample Identification: Eff-OC-2A

Sample Date:	8/28/21
Sample Time:	9:40 AM
Sampled By:	Client
Laboratory Receipt Date:	8/28/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/29/21	3:35	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS — 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0827212
Parameter: 1,4-Dioxane (EPA 1624)
ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
MW-81 8/4/21 Matrix Spike	0.31 mg/L	0.33 mg/L	0.32 mg/L	7.5

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100.0
MW-81 8/4/21 Matrix Spike	0.14 mg/L	0.20 mg/L	0.31 mg/L	85.3
MW-81 8/4/21 Matrix Spike Duplicate	0.14 mg/L	0.20 mg/L	0.33 mg/L	97.3

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

CHAIN OF CUSTODY RECORD

Project ID / Number: Pall/Gelman PO4504293919
Sample Custodian: Please send daily data to Keith Patterson and final report to Sue Peters.
Relinquished by: Ray Woods — Date/Time: 8/28/21 10:00
Comments: Bromates: EDA; 1,4-dioxane-none

Line	Date	Time	Comp.	Grab	Sample Identification	No. of Containers	1,4 Dioxane	bromate
1	8/27/21	—	X		Ourfall001	2	X	
2				X	HC/HR	1		X
3				X	Test	1		X
4	8/28/21	09:40		X	EFF-OC-1A	2	X	
5	8/28/21	09:40		X	EFF-OC-2A	2	X	

ATS — Ann Arbor Technical Services, Inc.

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0830211
Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following ten samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/30/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/30/21				
Eff-OC-1A	8/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/30/21	Urgent	1,4-Dioxane	Water
Outfall	8/28/21	Urgent	1,4-Dioxane	Water
Outfall	8/29/21	Urgent	1,4-Dioxane	Water
Red Pond	8/30/21	Urgent	1,4-Dioxane	Water
MW-60	8/27/21	Standard	1,4-Dioxane	Water
4401 Park West	8/27/21	Standard	1,4-Dioxane	Water
Mw-20	8/27/21	Standard	1,4-Dioxane	Water
110 Parkland Plaza	8/27/21	Standard	1,4-Dioxane	Water
MW-36	8/27/21	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	5 Samples
1,4-Dioxane (USEPA 1624) – Standard TAT	5 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

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 8/30/21

Mark A. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0830211.doc

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: Eff-OC-1A

Sample Date: 8/30/21
Sample Time: 7:35 AM
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/30/21	11:27	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: Eff-OC-2A

Sample Date: 8/30/21
Sample Time: 7:35 AM
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	8/30/21	12:11	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

390 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: Outfall

Sample Date: 8/28/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/30/21	12:55	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

390 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: Outfall

Sample Date: 8/29/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/30/21	13:39	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

390 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: Red Pond

Sample Date: 8/30/21
Sample Time: 7:30 AM
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.30	0.02	8/30/21	16:11	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

390 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9624
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: MW-60

Sample Date: 8/27/21
Sample Time: 3:45 PM
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.003	0.001	9/2/21	16:44	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9034
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: 4401 Park West

Sample Date: 8/27/21
Sample Time: 2:31 PM
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	9/2/21	17:28	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9034
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: MW-20

Sample Date: 8/27/21
Sample Time: 1:09 PM
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/2/21	18:12	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9034
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: 110 Parkland Plaza

Sample Date: 8/27/21
Sample Time: 11:17 AM
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.001	0.001	9/2/21	18:56	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
200 South Wagner Road
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Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9034
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0830211

Sample Identification: MW-36

Sample Date: 8/27/21
Sample Time: 9:46 AM
Sampled By: Client
Laboratory Receipt Date: 8/30/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/2/21	19:40	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0830211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
TW-20 8/18/21 Matrix Spike	1.3 mg/L	1.2 mg/L	1.2 mg/L	5.8

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.009 mg/L	90.7
TW-20 8/18/21 Matrix Spike	0.54 mg/L	0.80 mg/L	1.3 mg/L	93.2
TW-20 8/18/21 Matrix Spike Duplicate	0.54 mg/L	0.80 mg/L	1.2 mg/L	84.2

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Control Sample Recovery (85 - 115%)
- Matrix Spike Recovery (80 - 120%)

Relative Range
- Replicates (<20%)

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Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0902211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
MW-10d 8/31/21 Matrix Spike	0.59 mg/L	0.55 mg/L	0.57 mg/L	7.4

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.009 mg/L	0.009 mg/L	92.3
MW-10d 8/31/21 Matrix Spike	0.23 mg/L	0.40 mg/L	0.59 mg/L	91.6
MW-10d 8/31/21 Matrix Spike Duplicate	0.23 mg/L	0.40 mg/L	0.55 mg/L	81.0

BLANK ANALYSIS

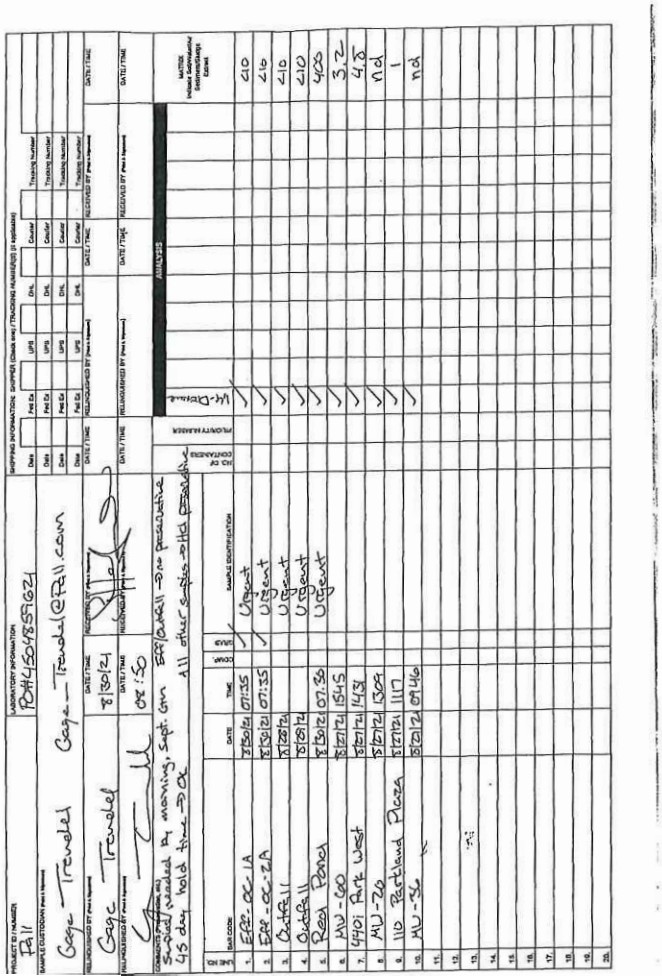
Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Control Sample Recovery (85 - 115%)
- Matrix Spike Recovery (80 - 120%)

Relative Range
- Replicates (<20%)

CHAIN OF CUSTODY RECORD



290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9404
Wisconsin Laboratory ID: 998321720

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0831211
Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following ten samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/31/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/31/21				
Outfall	8/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/31/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/31/21	Urgent	1,4-Dioxane	Water
MW-31	8/30/21	Standard	1,4-Dioxane	Water
4742 Park Rd.	8/30/21	Standard	1,4-Dioxane	Water
5005 Jackson Rd.	8/30/21	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	• 3 Samples
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 3 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:

- None

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0831211.doc

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel.734/955-0955 Fax. 734/955-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0831211

Sample Identification: Outfall

Sample Date:	8/30/21
Sample Time:	na
Sampled By:	Client
Laboratory Receipt Date:	8/31/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/31/21	13:21	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel.734/955-0955 Fax. 734/955-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0831211

Sample Identification: Eff-OC-1A

Sample Date:	8/31/21
Sample Time:	6:55 AM
Sampled By:	Client
Laboratory Receipt Date:	8/31/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	8/31/21	11:53	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0995 Fax. 734/975-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0831211

Sample Identification: Eff-OC-2A

Sample Date: 8/31/21
Sample Time: 6:55 AM
Sampled By: Client
Laboratory Receipt Date: 8/31/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.007	0.001	8/31/21	12:37	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0995 Fax. 734/975-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0831211

Sample Identification: MW-31

Sample Date: 8/30/21
Sample Time: 9:31 AM
Sampled By: Client
Laboratory Receipt Date: 8/31/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/2/21	22:36	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0995 Fax. 734/975-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0831211

Sample Identification: 4742 Park Rd.

Sample Date: 8/30/21
Sample Time: 10:58 AM
Sampled By: Client
Laboratory Receipt Date: 8/31/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.004	0.001	9/2/21	23:20	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/975-0995 Fax. 734/975-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0831211

Sample Identification: 5005 Jackson Rd.

Sample Date: 8/30/21
Sample Time: 12:31 PM
Sampled By: Client
Laboratory Receipt Date: 8/31/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.013	0.001	9/3/21	0:04	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

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

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0901211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 TW-22 8/27/21 Matrix Spike	0.81 mg/L	0.81 mg/L	0.81 mg/L	0.5

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	99.9
TW-22 8/27/21 Matrix Spike	0.46 mg/L	0.40 mg/L	0.81 mg/L	87.6
TW-22 8/27/21 Matrix Spike Duplicate	0.46 mg/L	0.40 mg/L	0.81 mg/L	86.6

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Control Sample Recovery (85 - 115%)
- Matrix Spike Recovery (60 - 120%)

Relative Range
- Replicates (<20%)

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

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0902211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 MW-10d 8/31/21 Matrix Spike	0.59 mg/L	0.55 mg/L	0.57 mg/L	7.4

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.009 mg/L	0.009 mg/L	92.3
MW-10d 8/31/21 Matrix Spike	0.23 mg/L	0.40 mg/L	0.59 mg/L	91.6
MW-10d 8/31/21 Matrix Spike Duplicate	0.23 mg/L	0.40 mg/L	0.55 mg/L	81.0

BLANK ANALYSIS

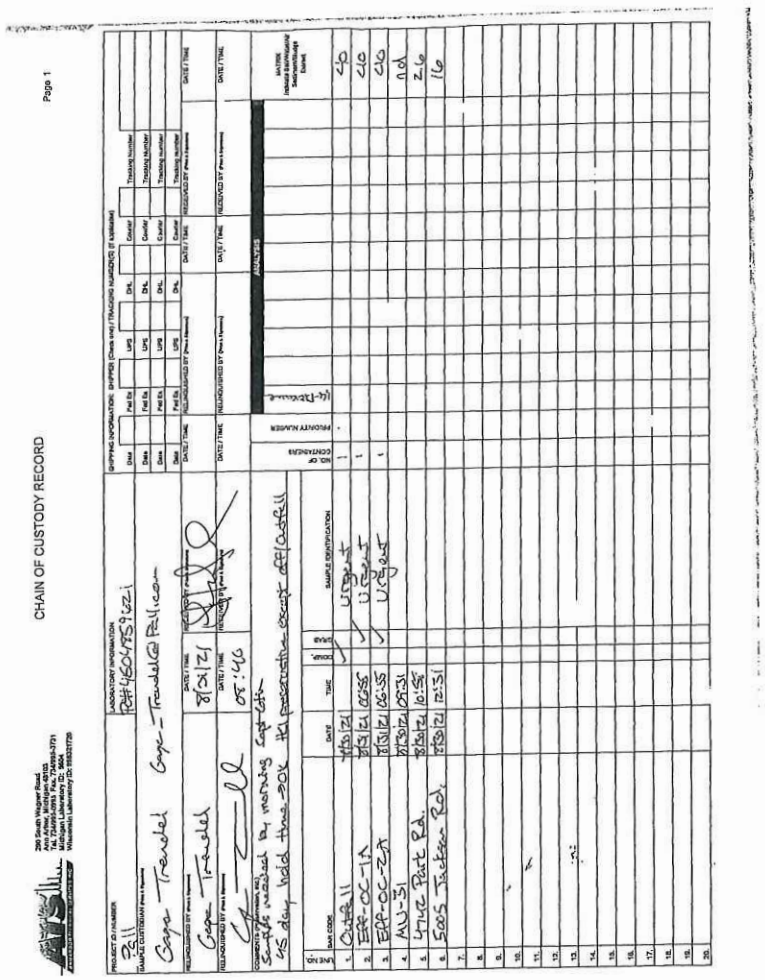
Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Control Sample Recovery (85 - 115%)
- Matrix Spike Recovery (60 - 120%)

Relative Range
- Replicates (<20%)

CHAIN OF CUSTODY RECORD



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

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 9/7/21
SRF / SDG Number(s): 0901211
Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following seven samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 9/1/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 9/1/21				
Eff-OC-1A	9/1/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	9/1/21	Urgent	1,4-Dioxane	Water
Outfall	8/31/21	Urgent	1,4-Dioxane	Water
MW-40s	8/31/21	Standard	1,4-Dioxane	Water
MW-40d	8/31/21	Standard	1,4-Dioxane	Water
MW-64	8/31/21	Standard	1,4-Dioxane	Water
MW-10d	8/31/21	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	• 3 Samples
• 1,4-Dioxane (USEPA 1624) – Standard TAT	• 4 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:

- MW-10d 8/31/21

Mark T. DeLong / September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0901211.doc

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0985 Fax. 734/995-3731
Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0901211

Sample Identification: Eff-OC-1A

Sample Date:	9/1/21
Sample Time:	7:00 AM
Sampled By:	Client
Laboratory Receipt Date:	9/1/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	9/1/21	10:19	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
200 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0985 Fax. 734/995-3731
Michigan Laboratory ID: 9024
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0901211

Sample Identification: Eff-OC-2A

Sample Date:	9/1/21
Sample Time:	7:00 AM
Sampled By:	Client
Laboratory Receipt Date:	9/1/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.007	0.001	9/1/21	11:03	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

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ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0901211

Sample Identification: Outfall

Sample Date: 8/31/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 9/1/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	9/1/21	11:47	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0901211

Sample Identification: MW-40s

Sample Date: 8/31/21
Sample Time: 2:05 PM
Sampled By: Client
Laboratory Receipt Date: 9/1/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/3/21	0:48	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0901211

Sample Identification: MW-40d

Sample Date: 8/31/21
Sample Time: 12:54 PM
Sampled By: Client
Laboratory Receipt Date: 9/1/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/3/21	1:32	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0901211

Sample Identification: MW-64

Sample Date: 8/31/21
Sample Time: 11:18 AM
Sampled By: Client
Laboratory Receipt Date: 9/1/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.034	0.001	9/3/21	2:16	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS — 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Organic 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: 9/7/21
ATS SRF: 0901211

Sample Identification: MW-10d

Sample Date: 8/31/21
Sample Time: 9:39 AM
Sampled By: Client
Laboratory Receipt Date: 9/1/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.23	0.01	9/3/21	3:00	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.

ATS — 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0901211
Parameter: 1,4-Dioxane (EPA 1624)
ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
TW-22 8/27/21 Matrix Spike	0.81 mg/L	0.81 mg/L	0.81 mg/L	0.5

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	99.9
TW-22 8/27/21 Matrix Spike	0.46 mg/L	0.40 mg/L	0.81 mg/L	87.6
TW-22 8/27/21 Matrix Spike Duplicate	0.46 mg/L	0.40 mg/L	0.81 mg/L	86.6

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

ATS — 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG0902211
Parameter: 1,4-Dioxane (EPA 1624)
ATS Project: Pall Corporation #G001-002
Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
MW-10d 8/31/21 Matrix Spike	0.59 mg/L	0.55 mg/L	0.57 mg/L	7.4

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.009 mg/L	0.009 mg/L	92.3
MW-10d 8/31/21 Matrix Spike	0.23 mg/L	0.40 mg/L	0.59 mg/L	91.6
MW-10d 8/31/21 Matrix Spike Duplicate	0.23 mg/L	0.40 mg/L	0.55 mg/L	81.0

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

CHAIN OF CUSTODY RECORD

Page 1

ATS — 290 South Wagner Road, Ann Arbor, Michigan 48103, Tel. 734/995-0995 Fax. 734/995-3731, Michigan Laboratory ID: 9604, Wisconsin Laboratory ID: 998321720

PROJECT ID / NUMBER: Pall
LABORATORY INFORMATION: Pall 4507059620.i
SAMPLE CUSTODIAN: Gage Trendel Gage_Trendel@Pall.com
RELINQUISHED BY: Gage Trendel — DATE / TIME: 9/1/21 — RECEIVED BY: [signature]
RELINQUISHED BY: [signature] — DATE / TIME: 9:10 — RECEIVED BY: [signature]
SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (if applicable): Date / Fed Ex / UPS / DHL / Courier / Tracking Number
COMMENTS: Samples needed by morning Sept. 6th. HCl preservative except eff. outfall. 45 day hold time 3DX

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	ANALYSIS	MATRIX
1.	EAP-OC-1A	9/1/21	07:00		✓	Urgent				<10
2.	EAP-OC-2S	9/1/21	07:00		✓	Urgent				<10
3.	Outfall	8/31/21			✓	Urgent				<10
4.	MW-40S	8/31/21	1405		✓					nd
5.	MW-40d	8/31/21	1254		✓					nd
6.	MW-6d	8/31/21	1115		✓					42
7.	MW-10d	8/31/21	0939		✓					320
8.										
9.										
10.										
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