

CASE NARRATIVE

Monthly Data Pall Life Sciences
Project: 1,4-Dioxane Remediation
Date: October 2020

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. d/b/a Pall Life Sciences (PLS) attests to the validity of the laboratory data generated by PLS's Ann Arbor, Michigan Environmental Laboratory facilities reported herein. All analyses performed by PLS's Environmental Laboratory facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. PLS'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.

One drinking water sample, and six Outfall samples were analyzed for 1,4-dioxane while six HC/HR samples were analyzed for bromate while analyst was on vacation. The balance of samples were analyzed for 1,4-dioxane and bromate at Pall Corporation's Environmental Laboratory. All 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 acid (HCl)-preserved vials to a pH of ≤ 2 , with the exception of the Pall ozone treatment samples. These samples have chemicals that, when mixed with the HCl, 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 ($\pm 2^\circ\text{C}$) 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 1.0ppb (part per billion, micrograms per liter, µg/L). All quality control parameters were within the acceptance limits. All data is reported with two significant figures.

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. All data is reported with 2 significant figures.

Qualifiers

1,4-Dioxane Qualifier Codes:

<u>Qualifier Code</u>	<u>Description</u>
nd:	The compound was analyzed for, but was 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:

<u>Qualifier Code</u>	<u>Description</u>
nd:	The compound was analyzed for, 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: Susan E.O. Peters Susan E.O. Peters Date: 11-09-20

Report Checked by: Ray Woods Ray Woods Date: 11/9/20

Sample Analysis Report

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

October, 2020

Analyst Initials: SEP
Date: 11-09-20

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								
Not Determined								
697 South Wagner Rd-10-26-20-14:12-1	nd	1.0						O
Miscellaneous Wells								
Bethlehem Cemetery-10-26-20-11:00-1	nd	1.0						
Extraction Wells								
C3								
DOLPH-10-06-20-10:25-1	140	1.0						
TW-20-10-06-20-10:29-1	860	10.0						D
D2								
LB-4-10-06-20-09:45-1	470	10.0						D
TW-21-10-06-20-10:22-1	280	10.0						D
E								
TW-18-10-06-20-10:23-1	250	10.0						D
TW-19-10-06-20-09:50-1	460	10.0						D
TW-23-10-06-20-10:20-1	480	10.0						D
Marshy								
PW-1-10-06-20-10:27-1	570	10.0						D
SW								
TW-22-10-06-20-10:30-1	430	10.0						D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
TW-28-10-06-20-10:32-1	690	10.0						D
Monitoring Wells								
C3								
MW-18d-10-07-20-09:00-1	35	1.0						
MW-20-10-16-20-14:24-1	nd	1.0						
MW-32-10-07-20-10:14-1	18	1.0						
MW-34s-10-09-20-14:39-1	nd	1.0						
MW-35-10-14-20-10:09-1	2.7	1.0						
MW-38s-10-09-20-11:06-1	nd	1.0						
MW-39s-10-16-20-11:50-1	2.3	1.0						
D0								
A2 Cleaning Supply-10-01-20-12:25-1	56	1.0						
MW-53d-10-01-20-09:35-1	nd	1.0						
MW-53i-10-01-20-12:09-1	22	1.0						
MW-53s-10-01-20-10:54-1	nd	1.0						
D2								
2819 Dexter Rd-10-29-20-11:04-1	180	1.0						
456 Clarendon-10-28-20-11:51-1	500	10.0						D
MW-107-10-21-20-13:01-1	670	10.0						D
MW-113-10-29-20-09:41-1	110	1.0						
MW-117-10-26-20-12:17-1	nd	1.0						
MW-118-10-27-20-10:22-1	54	1.0						
MW-11d-10-07-20-11:27-1	250	10.0						D
MW-120s-10-12-20-14:11-1	nd	1.0						
MW-121s-10-08-20-09:07-1	nd	1.0						
MW-122s-10-22-20-11:42-1	260	2.5						D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-123s-10-15-20-10:52-1	nd	1.0						
MW-124s-10-26-20-10:34-1	nd	1.0						
MW-126s-10-16-20-10:26-1	nd	1.0						
MW-129i-10-08-20-13:09-1	nd	1.0						
MW-129s-10-08-20-11:40-1	nd	1.0						
MW-130i-10-12-20-11:40-1	6.2	1.0						
MW-130s-10-12-20-09:25-1	nd	1.0						
MW-34d-10-09-20-13:33-1	nd	1.0						
MW-38d-10-09-20-12:13-1	28	1.0						
MW-39d-10-16-20-13:04-1	20	1.0						
MW-4d-10-07-20-12:42-1	320	10.0						D
MW-54d-10-19-20-11:45-1	55	1.0						
MW-54s-10-19-20-10:34-1	nd	1.0						
MW-77-10-21-20-14:22-1	960	25.0						D
MW-92-10-21-20-11:40-1	72	1.0						
MW-BE-1d-10-22-20-13:02-1	590	10.0						D
MW-BE-1s-10-22-20-14:12-1	650	5.0						D
MW-KD-1d-10-28-20-10:18-1	390	10.0						D
MW-KD-1s-10-28-20-09:09-1	140	1.0						
E								
MW-100-10-28-20-13:30-1	2200	50.0						D
MW-101-10-15-20-14:45-1	96	1.0						
MW-103s-10-06-20-12:03-1	99	1.0						
MW-103s-10-20-20-11:56-1	92	1.0						
MW-104-10-15-20-12:13-1	22	1.0						
MW-106s-10-27-20-11:40-1	210	5.0						D
MW-108d-10-27-20-14:09-1	660	10.0						D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-108s-10-27-20-12:58-1	210	5.0						D
MW-110-10-15-20-13:30-1	94	1.0						
MW-112i-10-02-20-12:23-1	8.9	1.0						
MW-112s-10-02-20-11:11-1	nd	1.0						
MW-119-10-19-20-09:11-1	33	1.0						
MW-120d-10-12-20-13:01-1	nd	1.0						
MW-121d-10-08-20-10:19-1	2.3	1.0						
MW-122d-10-22-20-10:30-1	nd	1.0						
MW-123d-10-15-20-09:37-1	nd	1.0						
MW-124d-10-26-20-09:26-1	nd	1.0						
MW-126d-10-16-20-09:13-1	nd	1.0						
MW-129d-10-08-20-14:18-1	1.9	1.0						
MW-130d-10-12-20-10:29-1	nd	1.0						
MW-135-10-26-20-13:43-1	nd	1.0						
MW-64-10-07-20-14:20-1	42	1.0						
MW-66-10-14-20-08:57-1	2.0	1.0						
MW-71-10-29-20-14:36-1	700	10.0						D
MW-76i-10-06-20-13:17-1	89	1.0						
MW-76s-10-06-20-14:33-1	290	10.0						D
MW-79d-10-20-20-09:24-1	nd	1.0						
MW-79s-10-20-20-10:35-1	260	10.0						D
MW-81-10-20-20-14:05-1	170	2.5						D
MW-84s-10-01-20-14:00-1	300	5.0						D
MW-85-10-19-20-14:33-1	600	10.0						D
MW-88-10-19-20-13:05-1	150	5.0						D
MW-90-10-21-20-08:46-1	4.3	1.0						
MW-91-10-21-20-10:14-1	170	2.5						D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-98d-10-29-20-12:34-1	21	1.0						
SW								
MW-10d-10-14-20-12:56-1	320	10.0						D
MW-50-10-14-20-14:13-1	800	10.0						D
MW-52s-10-14-20-11:34-1	150	10.0						D
Surface Water								
Not Applicable								
HC/HR-10-01-20-09:35-1				nd	2.0			
HC/HR-10-02-20-09:40-1				nd	2.0			
HC/HR-10-05-20-08:05-1				nd	2.0			
HC/HR-10-06-20-08:10-1				nd	2.0		ATS	O
HC/HR-10-07-20-09:20-1				nd	2.0		ATS	O
HC/HR-10-08-20-07:30-1				nd	2.0		ATS	O
HC/HR-10-09-20-08:00-1				nd	2.0		ATS	O
HC/HR-10-12-20-09:40-1				nd	2.0		ATS	O
HC/HR-10-13-20-08:00-1				nd	2.0		ATS	O
HC/HR-10-14-20-07:45-1				nd	2.0			
HC/HR-10-15-20-09:40-1				nd	2.0			
HC/HR-10-16-20-09:15-1				nd	2.0			
HC/HR-10-19-20-08:20-1				nd	2.0			
HC/HR-10-20-20-08:30-1				nd	2.0			
HC/HR-10-21-20-09:15-1				nd	2.0			
HC/HR-10-22-20-08:20-1				nd	2.0			
HC/HR-10-23-20-08:20-1				nd	2.0			
HC/HR-10-26-20-09:10-1				nd	2.0			
HC/HR-10-27-20-08:00-1				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-10-28-20-07:55-1			nd	2.0				
HC/HR-10-29-20-08:30-1			nd	2.0				
HC/HR-10-30-20-08:05-1			nd	2.0				
Treatment System								
Green Pond-10-02-20-09:10-1	150	1.0						
OUTFALL-10-01-20-1	5.5	1.0						
OUTFALL-10-01-20-2			8.4	5.0				
OUTFALL-10-04-20-1	5.4	1.0						
OUTFALL-10-04-20-2			7.8	5.0				
OUTFALL-10-05-20-1	6	1.0					ATS	O
OUTFALL-10-05-20-02			9.3	5.0				
OUTFALL-10-06-20-1	4	1.0					ATS	O
OUTFALL-10-06-20-02			8.3	5.0				
OUTFALL-10-07-20-1	4	1.0					ATS	O
OUTFALL-10-07-20-02			9.3	5.0				
OUTFALL-10-08-20-1	5	1.0					ATS	O
OUTFALL-10-08-20-02			8.1	5.0				
OUTFALL-10-11-20-1	5	1.0					ATS	O
OUTFALL-10-11-20-01	4.9	1.0						
OUTFALL-10-11-20-02			8.6	5.0				
OUTFALL-10-12-20-1	5	1.0					ATS	O
OUTFALL-10-12-20-01	5.5	1.0						
OUTFALL-10-12-20-02			9.0	5.0				
OUTFALL-10-13-20-1	5.2	1.0						
OUTFALL-10-13-20-2			8.3	5.0				
OUTFALL-10-14-20-1	4.9	1.0						
OUTFALL-10-14-20-2			8.6	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-10-15-20-1	5.0	1.0						
OUTFALL-10-15-20-2			8.3	5.0				
OUTFALL-10-18-20-1	5.3	1.0						
OUTFALL-10-18-20-2			8.4	5.0				
OUTFALL-10-19-20-1	4.9	1.0						
OUTFALL-10-19-20-2			8.4	5.0				
OUTFALL-10-20-20-1	5.5	1.0						
OUTFALL-10-20-20-2			8.2	5.0				
OUTFALL-10-21-20-1	6.3	1.0						
OUTFALL-10-21-20-2			8.0	5.0				
OUTFALL-10-22-20-1	5.2	1.0						
OUTFALL-10-22-20-2			8.4	5.0				
OUTFALL-10-25-20-1	5.7	1.0						
OUTFALL-10-25-20-2			8.3	5.0				
OUTFALL-10-26-20-1	5.4	1.0						
OUTFALL-10-26-20-2			7.5	5.0				
OUTFALL-10-27-20-1	5.3	1.0						
OUTFALL-10-27-20-2			8.2	5.0				
OUTFALL-10-28-20-1	5.2	1.0						
OUTFALL-10-28-20-2			8.2	5.0				
OUTFALL-10-29-20-1	4.8	1.0						
OUTFALL-10-29-20-2			8.5	5.0				
Red Pond-10-05-20-08:25-1	370	10.0						D
Red Pond-10-12-20-09:50-1	300	10.0					ATS	O, D
Red Pond-10-19-20-08:40-1	380	10.0						D
Red Pond-10-26-20-09:40-1	340	10.0						D

PLS Qualifier Codes:

- nd: The compound was analyzed for, but was not detected at or above the detection limit indicated.
- D: Analyte value quantified from a dilution, reporting limit is raised to reflect dilution.
- H: Sample was analyzed past 45 day hold time, but within 45 days used by ATS for same method with EPA approval.
- O: Samples analyzed in outside laboratory, Ann Arbor Technical Services (ATS).

Data Transmittal Cover Page

LABORATORY OPERATIONS
 CASE NARRATIVE

Project Name: Pall Corporation
 ATS Project Number: G001-002
 ATS Report Number(s): Org_Inorg_SRF_1006_1013
 Client PO Number: 4604293919

ATS Project Number: G001-002
 Report Date: 10/30/20
 SRF / SDG Numbers: 1006201,1007201,1008201,1009201,1012201,1013201

Project Description: This data report contains the results of 19 water samples, received by ATS between 10/8/20 and 10/13/20, to be analyzed for 1,4-Dioxane and Bromate.

Case Narrative Summary

This case narrative applies to the following 19 samples that were received at Ann Arbor Technical Services, Inc. (ATS) between 10/6/20 and 10/13/20, and associated matrix-specific QA/QC:

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 Laboratory, 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.

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 10/8/20				
Outfall 001	10/8/20	Urgent	1,4-Dioxane	Treated Water
HCHR	10/8/20	Urgent	Bromate	Water
Test	10/8/20	Urgent	Bromate	Water
Received 10/7/20				
Outfall	10/7/20	Urgent	1,4-Dioxane	Treated Water
HCHR	10/7/20	Urgent	Bromate	Water
Test	10/7/20	Urgent	Bromate	Water
Received 10/8/20				
Outfall	10/7/20	Urgent	1,4-Dioxane	Treated Water
HCHR	10/8/20	Urgent	Bromate	Water
Test	10/8/20	Urgent	Bromate	Water
Received 10/9/20				
Outfall	10/9/20	Urgent	1,4-Dioxane	Treated Water
HCHR	10/9/20	Urgent	Bromate	Water
Test	10/9/20	Urgent	Bromate	Water
Received 10/12/20				
Outfall	10/11/20	Urgent	1,4-Dioxane	Treated Water
HCHR	10/12/20	Urgent	Bromate	Water
Test	10/12/20	Urgent	Bromate	Water
RP	10/12/20	Standard	1,4-Dioxane	Ground Water
Received 10/13/20				
Outfall	10/12/20	Urgent	1,4-Dioxane	Treated Water
HCHR	10/13/20	Urgent	Bromate	Water
Test	10/13/20	Urgent	Bromate	Water

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No. of Pages (including cover pg.): 43

From: Sarah Stubblefield Email: Sarah.Stubblefield@AnnArborTechnicalServices.com
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Additional Message:

[Signature]

Date: 11.2.20 Signed:

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Consultants in Chemistry & Environmental Science
 280 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0955 Fax 734/995-3731

Upon receipt, samples were scheduled for the following analyses:

Analysis	Number of Samples
1,4-Dioxane (US EPA 1624) (Urgent Turn)	6 + 6 Matrix Spike / 6 Matrix Spike Duplicate
1,4-Dioxane (US EPA 1624) (Standard Turn)	1
Bromate (ATS 300.1 MOD) (Urgent Turn)	12 + 6 Matrix Spike / 6 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 presented in the "Chain of Custody and Sample Receipt Documentation" section of this report.

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 US EPA. 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 in accordance with US EPA 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.

Bromate Analysis (IC): Samples were analyzed in accordance with ATS modified method 300.1 (Determination of Inorganic Anions in Drinking Waters by Ion Chromatography). An initial calibration with at least five levels was used to quantitate Bromate. Samples were reported to project specific reporting limits.

Anomalies Noted:
 • None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the running of a mid-level initial calibration verification (CV) standard at a frequency of every 24 hours (1,4-Dioxane) or 10 samples (bromate). All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Instrument blanks were analyzed at a frequency of every 24 hours (1,4-Dioxane) or 10 samples (bromate). All blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

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 and Matrix Spikes

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

- None

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

Lab Sample ID	Concentration	Percent Recovery	Acceptance Limits
HCHR 10/13/20 Matrix Spike	Bromate	133.2	70-130%

Matrix Duplicates

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

- None

Sample Dilutions

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

- RP 10/12/20

Mark T. DeLong

/ October 30, 2020

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon

/ October 30, 2020

Philip B. Simon (Laboratory Director)

ANN ARBOR TECHNICAL SERVICES, INC.
for PALL / GELMAN SCIENCES

1,4-Dioxane Analysis				Bromate Analysis			
Sample ID	Sample Date	Sample Time	Result (mg/L)	Sample ID	Sample Date	Sample Time	Result (mg/L)
Outfall 001	10/5/20	na	0.005	HC/HR	10/5/20	8:10	<0.001
Outfall 001	10/9/20	na	0.004	Test	10/9/20	8:15	<0.001
Outfall 001	10/7/20	na	0.004	HC/HR	10/7/20	9:35	<0.002
Outfall 001	10/9/20	na	0.005	Test	10/7/20	9:35	<0.002
Outfall 001	10/11/20	na	0.005	HC/HR	10/8/20	7:30	<0.002
Outfall 001	10/11/20	na	0.005	Test	10/8/20	7:35	<0.002
				HC/HR	10/9/20	8:00	<0.001
				Test	10/9/20	8:05	<0.002
				HC/HR	10/11/20	9:40	<0.002
				Test	10/11/20	9:45	<0.002
				HC/HR	10/13/20	8:00	<0.002
				Test	10/13/20	8:05	<0.001

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rev. 10/30/20

4/10/20

G001-002.20\CH_October.doc



Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20
ATS SR#: 1006201 (Urgent)

Sample Identification: Outfall 001

Sample Date: 10/5/20
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	0.008	0.001	10/5/20	13:21	JEB

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



Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20
ATS SR#: 1007201 (Urgent)

Sample Identification: Outfall 001

Sample Date: 10/5/20
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/7/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	0.004	0.001	10/7/20	12:46	SLS

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

**Organic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pall Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20
 ATS SRF: 1068201 (Urgent)

Sample Identification: Outfall 001

Sample Date: 10/7/20
 Sample Time: na
 Sampled By: Client
 Laboratory Receipt Date: 10/8/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	0.004	0.001	10/8/20	13:23	SLS

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

X:\0001-002\20\October Samples\ORG_SRF_OCT

rev. 10/30/20

**Organic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pall Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20
 ATS SRF: 1009201 (Urgent)

Sample Identification: Outfall 001

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

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	0.005	0.001	10/9/20	12:18	SLS

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

X:\0001-002\20\October Samples\ORG_SRF_OCT

rev. 10/30/20

**Organic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pall Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20
 ATS SRF: 1012201 (Urgent)

Sample Identification: Outfall 001

Sample Date: 10/11/20
 Sample Time: na
 Sampled By: Client
 Laboratory Receipt Date: 10/12/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	0.005	0.001	10/12/20	12:20	SLS

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

X:\0001-002\20\October Samples\ORG_SRF_OCT

rev. 10/30/20

**Organic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pall Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20
 ATS SRF: 1012201

Sample Identification: REP

Sample Date: 10/12/20
 Sample Time: 9:50 AM
 Sampled By: Client
 Laboratory Receipt Date: 10/12/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	0.30	0.01	10/13/20	17:35	SLS

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

X:\0001-002\20\October Samples\ORG_SRF_OCT

rev. 10/30/20

**Organic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pail Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pail Corporation #G001-002
 Report Date: 10/30/20
 ATS SRF: 1013201 (Urgent)

Sample Identification: Outfall001

Sample Date: 10/12/20
 Sample Time: na
 Sampled By: Client
 Laboratory Receipt Date: 10/13/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analized By
Organic Analysis 1,4-Dioxans	EPA 1624	mg/L	0.005	0.001	10/13/20	12:05	SLS

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

X:\001-002\001\001\Sample#001_SRF_OCT

rev. 10/30/20

**Inorganic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pail Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pail Corporation #G001-002
 Report Date: 10/30/20
 ATS SRF: 1006201 (Urgent)

Sample Identification: TEST

Sample Date: 10/30/20
 Sample Time: 8:15 AM
 Sampled By: Client
 Laboratory Receipt Date: 10/30/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analized By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/30/20	15:55	SLS

Comments
 All methods reference USEPA methods unless otherwise noted.
 na - Indicates not available / applicable.
 *Elevated reporting limit due to matrix interference.

rev. 10/30/20

**Inorganic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pail Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pail Corporation #G001-002
 Report Date: 10/30/20
 ATS SRF: 1005201 (Urgent)

Sample Identification: HCRR

Sample Date: 10/29/20
 Sample Time: 8:10 AM
 Sampled By: Client
 Laboratory Receipt Date: 10/29/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analized By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/29/20	15:09	SLS

Comments
 All methods reference USEPA methods unless otherwise noted.
 na - Indicates not available / applicable.
 *Elevated reporting limit due to matrix interference.

X:\001-002\001\001\Sample#001_SRF_OCT

rev. 10/30/20

**Inorganic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pail Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pail Corporation #G001-002
 Report Date: 10/30/20
 ATS SRF: 1007201 (Urgent)

Sample Identification: HCRR

Sample Date: 10/7/20
 Sample Time: 9:20 AM
 Sampled By: Client
 Laboratory Receipt Date: 10/7/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analized By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/7/20	12:03	SLS

Comments
 All methods reference USEPA methods unless otherwise noted.
 na - Indicates not available / applicable.
 *Elevated reporting limit due to matrix interference.

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rev. 10/30/20



Inorganic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20
ATS SRF: 1007291 (Urgent)

Sample Identification: TEST

Sample Date: 10/7/20
Sample Time: 9:25 AM
Sampled By: Client
Laboratory Receipt Date: 10/7/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analized By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/7/20	12:58	SLS

Comments

All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.
*Elevated reporting limit due to matrix interference.

X:\0001-002\20\October Sample\ORIG_SRF_OCT

rev. 10/30/20



Inorganic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20
ATS SRF: 1006201 (Urgent)

Sample Identification: HCHR

Sample Date: 10/8/20
Sample Time: 7:30 AM
Sampled By: Client
Laboratory Receipt Date: 10/8/20
Sample Matrix: Water

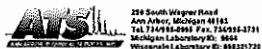
Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analized By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/8/20	10:27	SLS

Comments

All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.
*Elevated reporting limit due to matrix interference.

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rev. 10/30/20



Inorganic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20
ATS SRF: 1008201 (Urgent)

Sample Identification: TEST

Sample Date: 10/8/20
Sample Time: 7:35 AM
Sampled By: Client
Laboratory Receipt Date: 10/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analized By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/8/20	11:13	SLS

Comments

All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.
*Elevated reporting limit due to matrix interference.

rev. 10/30/20

rev. 10/30/20



Inorganic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20
ATS SRF: 1009201 (Urgent)

Sample Identification: HCHR

Sample Date: 10/9/20
Sample Time: 8:00 AM
Sampled By: Client
Laboratory Receipt Date: 10/9/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analized By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/9/20	10:58	SLS

Comments

All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.
*Elevated reporting limit due to matrix interference.

X:\0001-002\20\October Sample\ORIG_SRF_OCT

rev. 10/30/20

**Inorganic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pall Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20
 ATS SRP: 1009201 (Urgent)

Sample Identification: TEST

Sample Date: 10/9/20
 Sample Time: 8:05 AM
 Sampled By: Client
 Laboratory Receipt Date: 10/9/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/9/20	11:44	SLS

Comments
 All methods reference USEPA methods unless otherwise noted.
 na - Indicates not available / applicable.
 *Elevated reporting limit due to matrix interference.

X:\001-002\20\October 6 Sample\Q09_BRF_OCT

rev. 10/30/20

**Inorganic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pall Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20
 ATS SRP: 1012201 (Urgent)

Sample Identification: HCHTR

Sample Date: 10/12/20
 Sample Time: 9:40 AM
 Sampled By: Client
 Laboratory Receipt Date: 10/12/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/12/20	11:23	SLS

Comments
 All methods reference USEPA methods unless otherwise noted.
 na - Indicates not available / applicable.
 *Elevated reporting limit due to matrix interference.

X:\001-002\20\October 6 Sample\Q09_BRF_OCT

rev. 10/30/20

**Inorganic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pall Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20
 ATS SRP: 1012201 (Urgent)

Sample Identification: TEST

Sample Date: 10/12/20
 Sample Time: 9:45 AM
 Sampled By: Client
 Laboratory Receipt Date: 10/12/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/12/20	12:09	SLS

Comments
 All methods reference USEPA methods unless otherwise noted.
 na - Indicates not available / applicable.
 *Elevated reporting limit due to matrix interference.

rev. 10/30/20

**Inorganic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pall Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20
 ATS SRP: 1012201 (Urgent)

Sample Identification: HCHTR

Sample Date: 10/13/20
 Sample Time: 8:00 AM
 Sampled By: Client
 Laboratory Receipt Date: 10/13/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Inorganic Analysis Bromate	ATS 300.1 MOD	mg/L	<0.002	0.002*	10/13/20	10:32	SLS

Comments
 All methods reference USEPA methods unless otherwise noted.
 na - Indicates not available / applicable.
 *Elevated reporting limit due to matrix interference.

rev. 10/30/20



Inorganic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20
ATS SRF: 1013201 (Urgent)

Sample Identification: TEST

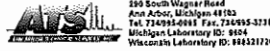
Sample Date: 10/13/20
Sample Time: 8:05 AM
Sampled By: Client
Laboratory Receipt Date: 10/13/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Inorganic Analysis Bromate	ATS 300.1 M00	mg/L	<0.002	0.002*	10/13/20	11:18	SLS

Comments:
All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.
*Elevated reporting limit due to matrix interference.

X:\2001-002\20\October Samples\ORU_SRF_OCT

rev. 10/30/20



Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG1068201
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Outfall 10/5/20 Matrix Spike	0.028 mg/L	0.029 mg/L	0.028 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	0.011 mg/L	113.4
Outfall 10/5/20 Matrix Spike	0.008 mg/L	0.020 mg/L	0.028 mg/L	108.2
Outfall 10/5/20 Matrix Spike Duplicate	0.008 mg/L	0.025 mg/L	0.029 mg/L	114.2

BLANK ANALYSIS

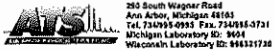
Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

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

X:\2001-002\20\October Samples\ORU_SRF_OCT

rev 10/30/20



Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG1007201
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Outfall 10/6/20 Matrix Spike	0.012 mg/L	0.012 mg/L	0.012 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	0.008 mg/L	85.8
Outfall 10/6/20 Matrix Spike	0.004 mg/L	0.010 mg/L	0.012 mg/L	82.0
Outfall 10/6/20 Matrix Spike Duplicate	0.004 mg/L	0.010 mg/L	0.012 mg/L	82.9

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

rev 10/30/20



Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG1068201
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Outfall 10/7/20 Matrix Spike	0.013 mg/L	0.014 mg/L	0.014 mg/L	7.2

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	0.008 mg/L	85.0
Outfall 10/7/20 Matrix Spike	0.004 mg/L	0.010 mg/L	0.013 mg/L	88.6
Outfall 10/7/20 Matrix Spike Duplicate	0.004 mg/L	0.010 mg/L	0.014 mg/L	93.6

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

rev 10/30/20

**Quality Assurance / Quality Control
 Data Summary**

QC Batch Number: QCORG1009201 ATS Project: Pall Corporation #G001-002
 Parameter: 1,4-Dioxane (EPA 1624) Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Out#1 10/20/20 Matrix Spike	0.014 mg/L	0.013 mg/L	0.014 mg/L	6.3

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	91.5
Out#1 10/20/20 Matrix Spike	0.005 mg/L	0.010 mg/L	0.014 mg/L	90.5
Out#1 10/20/20 Matrix Spike Duplicate	0.005 mg/L	0.010 mg/L	0.013 mg/L	92.0

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%)

10G001-002.20/October Samples\DRG_SRF_OCT

rev 10/20/20

**Quality Assurance / Quality Control
 Data Summary**

QC Batch Number: QCORG1012201 ATS Project: Pall Corporation #G001-002
 Parameter: 1,4-Dioxane (EPA 1624) Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Out#1 10/11/20 Matrix Spike	0.016 mg/L	0.015 mg/L	0.015 mg/L	0.6

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	94.7
Out#1 10/11/20 Matrix Spike	0.005 mg/L	0.010 mg/L	0.015 mg/L	91.7
Out#1 10/11/20 Matrix Spike Duplicate	0.005 mg/L	0.010 mg/L	0.016 mg/L	92.4

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%)

X1G001-002.20/October Samples\DRG_SRF_OCT

rev 10/20/20

**Quality Assurance / Quality Control
 Data Summary**

QC Batch Number: QCORG1013201 ATS Project: Pall Corporation #G001-002
 Parameter: 1,4-Dioxane (EPA 1624) Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Out#1 10/11/20 Matrix Spike	0.015 mg/L	0.014 mg/L	0.015 mg/L	2.2

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	95.2
Out#1 10/11/20 Matrix Spike	0.005 mg/L	0.010 mg/L	0.015 mg/L	100.9
Out#1 10/11/20 Matrix Spike Duplicate	0.005 mg/L	0.010 mg/L	0.014 mg/L	97.7

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%)

**Quality Assurance / Quality Control
 Data Summary**

QC Batch Number: QCORG1006201 ATS Project: Pall Corporation #G001-002
 Parameter: Bromate (ATS 300.1 MOD) Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 HCNR 10/6/20 Matrix Spike	0.009 mg/L	0.010 mg/L	0.009 mg/L	13.4

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	105.8
HCNR 10/6/20 Matrix Spike	<0.002 mg/L**	0.010 mg/L	0.009 mg/L	95.7
HCNR 10/6/20 Matrix Spike Duplicate	<0.002 mg/L**	0.010 mg/L	0.010 mg/L	99.0

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

Comments:
 Calculations performed prior to rounding.
 ** Elevated reporting limit due to matrix interference.

Control Limits:
 Recoveries
 Laboratory Control Sample Recovery (88 - 120%)
 Matrix Spike Recovery (70 - 130%)
 Relative Range
 Replicates (<20%)

**Quality Assurance / Quality Control
 Data Summary**

QC Batch Number: QCORG1007201
 Parameter: Bromate (ATS 300.1 MOD)

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 HCNR 10/7/20 Matrix Spike	0.009 mg/L	0.009 mg/L	0.009 mg/L	0.3

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	94.6
HCNR 10/7/20 Matrix Spike	<0.002 mg/L**	0.010 mg/L	0.009 mg/L	85.6
HCNR 10/7/20 Matrix Spike Duplicate	<0.002 mg/L**	0.010 mg/L	0.009 mg/L	88.6

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

Comments:
 Calculations performed prior to rounding.
 ** Elevated reporting limit due to matrix interference.

Control Limits:
 Recoveries
 Laboratory Control Sample Recovery (80 - 120%)
 Matrix Spike Recovery (70 - 130%)
 Relative Range
 Replicates (<20%)

**Quality Assurance / Quality Control
 Data Summary**

QC Batch Number: QCORG1009201
 Parameter: Bromate (ATS 300.1 MOD)

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 HCNR 10/9/20 Matrix Spike	0.012 mg/L	0.012 mg/L	0.012 mg/L	1.0

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	112.0
HCNR 10/9/20 Matrix Spike	<0.002 mg/L**	0.010 mg/L	0.012 mg/L	124.0
HCNR 10/9/20 Matrix Spike Duplicate	<0.002 mg/L**	0.010 mg/L	0.012 mg/L	122.7

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

Comments:
 Calculations performed prior to rounding.
 ** Elevated reporting limit due to matrix interference.

Control Limits:
 Recoveries
 Laboratory Control Sample Recovery (80 - 120%)
 Matrix Spike Recovery (70 - 130%)
 Relative Range
 Replicates (<20%)

**Quality Assurance / Quality Control
 Data Summary**

QC Batch Number: QCORG1008201
 Parameter: Bromate (ATS 300.1 MOD)

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 HCNR 10/8/20 Matrix Spike	0.008 mg/L	0.008 mg/L	0.008 mg/L	0.7

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	93.0
HCNR 10/8/20 Matrix Spike	<0.002 mg/L**	0.010 mg/L	0.008 mg/L	84.6
HCNR 10/8/20 Matrix Spike Duplicate	<0.002 mg/L**	0.010 mg/L	0.008 mg/L	84.0

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

Comments:
 Calculations performed prior to rounding.
 ** Elevated reporting limit due to matrix interference.

Control Limits:
 Recoveries
 Laboratory Control Sample Recovery (80 - 120%)
 Matrix Spike Recovery (70 - 130%)
 Relative Range
 Replicates (<20%)

**Quality Assurance / Quality Control
 Data Summary**

QC Batch Number: QCORG1012201
 Parameter: Bromate (ATS 300.1 MOD)

ATS Project: Pall Corporation #G001-002
 Report Date: 10/30/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 HCNR 10/12/20 Matrix Spike	0.012 mg/L	0.012 mg/L	0.012 mg/L	0.1

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002 Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.012 mg/L	119.0
HCNR 10/12/20 Matrix Spike	<0.002 mg/L**	0.010 mg/L	0.012 mg/L	124.9
HCNR 10/12/20 Matrix Spike Duplicate	<0.002 mg/L**	0.010 mg/L	0.012 mg/L	124.8

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

Comments:
 Calculations performed prior to rounding.
 ** Elevated reporting limit due to matrix interference.

Control Limits:
 Recoveries
 Laboratory Control Sample Recovery (80 - 120%)
 Matrix Spike Recovery (70 - 130%)
 Relative Range
 Replicates (<20%)

**Quality Assurance / Quality Control
 Data Summary**

IC Batch Number: **QCORG1013201**

ATS Project: **Pall Corporation**

#G001-002

Parameter: **Bromate (ATS 300.1 MOD)**

Report Date: **10/30/20**

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 HCHR 10/13/20 Matrix Spike	0.013 mg/L	0.012 mg/L	0.013 mg/L	6.6

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	100.6
HCHR 10/13/20 Matrix Spike	<0.002 mg/L**	0.010 mg/L	0.013 mg/L	133.2*
HCHR 10/13/20 Matrix Spike Duplicate	<0.002 mg/L**	0.010 mg/L	0.012 mg/L	122.2

BLANK ANALYSIS

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

Comments:
 Calculations performed prior to rounding.
 ** Elevated reporting limit due to matrix interference.
 * Outside standard control limits.

Control Limits:
 Recoveries
 Laboratory Control Sample Recovery (80 - 120%)
 Matrix Spike Recovery (70 - 130%)
 Relative Range
 Replicates (<20%)



CHAIN OF CUSTODY RECORD

PAAL/GELMAN PO4504293919

Please send daily data to Keith Patterson and final report to Sue Peters.

Ray Woods

Bromates: EDA; 1,4-dioxane-none

DATE	TIME	ANALYST	INSTRUMENT	CONCENTRATION	RECOVERY	REMARKS
10/30/20	10:15	Ray Woods	Chromat001	0.013	100.6	
10/30/20	10:15	Ray Woods	HCHR	0.013	133.2	
10/30/20	10:15	Ray Woods	Test	0.012	122.2	



CHAIN OF CUSTODY RECORD

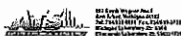
PAAL/GELMAN PO4504293919

Please send daily data to Keith Patterson and final report to Sue Peters.

Ray Woods

Bromates: EDA; 1,4-dioxane-none

DATE	TIME	ANALYST	INSTRUMENT	CONCENTRATION	RECOVERY	REMARKS
10/30/20	10:15	Ray Woods	Chromat001	0.013	100.6	
10/30/20	10:15	Ray Woods	HCHR	0.013	133.2	
10/30/20	10:15	Ray Woods	Test	0.012	122.2	



CHAIN OF CUSTODY RECORD

PAAL/GELMAN PO4504293919

Please send daily data to Keith Patterson and final report to Sue Peters.

Ray Woods

Bromates: EDA; 1,4-dioxane-none

DATE	TIME	ANALYST	INSTRUMENT	CONCENTRATION	RECOVERY	REMARKS
10/30/20	10:15	Ray Woods	Chromat001	0.013	100.6	
10/30/20	10:15	Ray Woods	HCHR	0.013	133.2	
10/30/20	10:15	Ray Woods	Test	0.012	122.2	

Client: Pall/Gelman PO4504293919
 Please send daily data to Keith Patterson and final report to Sue Peters.
 Analyzed by: Ray Woods
 Date: 11/16/00

Sample Description: Bromates; EDA; 1,4-dioxane-nona

DATE	TIME	BY	TEST	RESULTS	REMARKS
11/16/00	08:30	Ray Woods	OUTDOOR	2	
11/16/00	08:40	Ray Woods	HQNR	1	
11/16/00	08:50	Ray Woods	Test	1	

Client: Pall/Gelman PO4504293919
 Please send daily data to Keith Patterson and final report to Sue Peters.
 Analyzed by: Ray Woods
 Date: 11/16/00

Sample Description: Bromates; EDA; 1,4-dioxane-nona

DATE	TIME	BY	TEST	RESULTS	REMARKS
11/16/00	08:30	Ray Woods	OUTDOOR	2	
11/16/00	08:40	Ray Woods	HQNR	1	
11/16/00	08:50	Ray Woods	Test	1	
11/16/00	09:10	Ray Woods	RP	2	



Data Transmittal Cover Page

Project Name: Pall Corporation
 ATS Project Number: G001-002
 ATS Report Number(s): Org_SRF_1028201
 Client PO Number: 4504293919

Project Description: This data report contains the results of one water sample, received by ATS on 10/28/20, 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: Ms. Sue Peters Email: Sue_Peters@Pall.com
 FAX Number:

No. of Pages (including cover pg.): 7

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

Additional Message:

Date: 11/3/20 Signed: [Signature]

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

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LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 11/3/20
SRF / SDG Numbers: 1028201

Case Narrative Summary

This case narrative applies to the following sample that was received at Ann Arbor Technical Services, Inc. (ATS) on 10/28/20, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 10/28/20				
697 S. Wagner Rd.	10/28/20	Standard	1,4-Dioxane	Water

Upon receipt, samples were scheduled for the following analyses:

- | | |
|-----------------------------|---|
| <u>Analysis</u> | <u>Number of Samples</u> |
| • 1,4-Dioxane (US EPA 1624) | • 1 + 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. All samples were prepared and analyzed within the holding times cited in the corresponding analytical methods. The following exceptions were noted concerning sample condition upon receipt:

- None

G001-002.20/CN_1028201.doc

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 US EPA. 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 in accordance with US EPA 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.

- Anomalies Noted:
- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the running of a mid-level initial calibration verification (CV) standard at a frequency of every 24 hours (1,4-Dioxane). All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Instrument blanks were analyzed at a frequency of every 24 hours (1,4-Dioxane). All blanks met the acceptance criteria with the following exceptions:

- None

G001-002.20/CN_1028201.doc



Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters	ATS Project: Pall Corporation	#G001-002
Pall Corporation	Report Date: 11/3/20	
642 South Wagner Road	ATS SRF: 1028201	
Ann Arbor, MI 48103		

Sample Identification: 697 S. Wagner

Sample Date: 10/28/20
Sample Time: 2:12 PM
Sampled By: Client
Laboratory Receipt Date: 10/28/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.051	11/2/20	14:28	SLS

QA/QC Batch Summary

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 and Matrix Spikes

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

- None

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

Laboratory Sample ID	Analytical method	Constituent	Percent Recovery	Acceptance Limits
697 South Wagner Road Matrix Spike	USEPA 1624	1,4-Dioxane	130.2	80-120%

Matrix Duplicates

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

- None

Sample Dilutions

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

- None

/November 3, 2020

Mark T. DeLong (Quality Assurance Coordinator)

/November 3, 2020

Philip B. Simon (Laboratory Director)

G001-002.20/CN_1028201.doc



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

**Quality Assurance / Quality Control
Data Summary**

QC Batch Number: OCORG1102201
 Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
 Report Date: 11/3/20

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 697 S Wagner Road 10/26/20 Matrix Sp3a	0.013 mg/L	0.011 mg/L	0.012 mg/L	11.7

SPIKES and/or QC CHECK SAMPLES

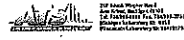
Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002 Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	88.8
697 S Wagner Road 10/26/20 Matrix Sp3a	<0.001 mg/L	0.010 mg/L	0.009 mg/L	130.2*
697 S Wagner Road 10/26/20 Matrix Sp3a Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	115.8

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 - 118%)
 Matrix Sp3a Recovery (80 - 120%)
 Relative Range
 Replicates (<20%)



CHAIN OF CUSTODY RECEIPT

Page 1

Pal/Gelman PO4504293916
 Please send daily data to Kelly Patterson and final report to Sue Peters.

Rey Woods
 Bromates: EDA, 1,4-dioxane-neo- 1/3 15C

DATE	TIME	BY	REMARKS	INITIALS	RECEIVED	DATE	TIME	BY	REMARKS	INITIALS
11/3/20	14:30	HW	HW	HW						
11/3/20	14:30	HW	HW	HW						