Gelman Sciences, Inc. d/b/a
Pall Life Sciences
642 South Wagner Road
Ann Arbor, MI 48103
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CASE NARRATIVE

Monthly Data Pall Life Sciences
Project: 1,4-Dioxane Remediation
Date: October 2017

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 instrumentation. 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.

A drinking water sample: 697 S. Wagner Road was sent to Ann Arbor Technical Services (ATS) for analysis and was analyzed in the PLS Laboratory. Both data points have been reported. In addition many other samples were sent to ATS for analysis due to a pump failure on the Mass Spectrometer and an autosampler failure. Those samples are indicated in the Sample Analysis Report both under the comment section and by the qualifier O. All Analysis Reports from ATS are contained in this reporting.

The quarterly barium sample was sent to ATS for analysis. An Outfall composite sample was analyzed by EPA 200.7 for total Barium by ATS. The result was 230ppb with a reporting limit of 1ppb.

All other samples were analyzed by Pall Corporation'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 at PLS 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, with the exception of the PLS 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 then preserved in the laboratory with ethylene di-amine and refrigerated.

The barium sample was taken as a composite sample preserved with nitric acid and refrigerated before and after being sent to ATS for analysis.

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.

PLS 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.

PLS 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 PLS 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 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 28 days.
O:	Samples analyzed in outside laboratory.
S:	Samples split with DEQ.

Bromate Qualifier Codes:

Qualifier Code	*Description*
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
O:	Samples analyzed in outside laboratory.

Analyst: *Susan E.O. Peters* Susan E.O. Peters Date: 11-8-17

Report Checked by: *Laurel Beyer* Laurel Beyer Date: 11/8/17

PALL Life Sciences
642 South Wagner Road
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Sample Analysis Report

October, 2017

Analyst Initials: SEOP
Date: 11-8-17

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
Residential Wells								
D0								
4601 Park 4 inch-10-13-17-16:53-1	2	1.0					ATS	O
4601 Park 6 inch-10-13-17-18:21-1	2	1.0					ATS	O
5005 Jackson Rd-10-23-17-15:17-1	18	1.0					ATS	O
Not Determined								
697 South Wagner Rd-10-02-17-14:15-1	nd	1.0						
697 South Wagner Rd-10-02-17-14:15-	nd	1.0					ATS Drinking Water Sample	O, H
Miscellaneous Wells								
Bethlehem Cemetery-10-03-17-15:02-1	nd	1.0						
Extraction Wells								
C3								
DOLPH-10-02-17-08:30-1	90	1.0						
TW-1-10-16-17-11:40-1	88	5.0					ATS	O, D
TW-10-10-11-17-13:55-1	340	20.0					ATS	O, D
TW-14-10-11-17-14:06-1	27	2.0					ATS	O, D
TW-20-10-02-17-08:18-1	870	10.0						D
TW-3-10-16-17-11:45-1	1	1.0					ATS	O
D2								

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
LB-4-10-02-17-09:34-1	460	10.0						D
TW-21-10-02-17-09:45-1	190	5.0						D
TW-9-10-18-17-16:03-1	790	50.0					ATS	O, D
E								
TW-12-10-16-17-11:55-1	24	2.0					ATS	O, D
TW-17-10-11-17-14:01-1	500	50.0					ATS	O, D
TW-18-10-02-17-08:12-1	260	10.0						D
TW-19-10-02-17-10:42-1	710	10.0						D
TW-23-10-02-17-10:40-1	460	10.0						D
SW								
TW-22-10-02-17-08:37-1	440	10.0						D
TW-8-10-02-17-08:35-1	710	10.0						D
Monitoring Wells								
C3								
MW-20-10-05-17-11:45-1	nd	1.0						
MW-22-10-05-17-11:06-1	390	20.0					ATS	O, D
MW-2d-10-04-17-11:40-1	41	1.0						
MW-39s-10-23-17-16:55-1	2	1.0					ATS	O
D0								
A2 Cleaning Supply-10-03-17-14:03-1	84	1.0						
MW-136i-10-24-17-10:52-1	nd	1.0					ATS	O
MW-136s-10-24-17-12:14-1	nd	1.0					ATS	O
MW-137s-10-25-17-15:29-1	nd	1.0					ATS	O
MW-138i-10-25-17-12:44-1	8	1.0					ATS	O
MW-138s-10-25-17-11:29-1	nd	1.0					ATS	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-139i-10-24-17-17:40-1	nd	1.0					ATS	O
MW-139s-10-25-17-17:00-1	nd	1.0					ATS	O
MW-140s-10-24-17-15:02-1	nd	1.0					ATS	O
MW-141s-10-13-17-15:03-1	3	1.0					ATS	O
MW-41d-10-10-17-13:35-1	28	2.0					ATS	O, D, H
MW-41s-10-10-17-14:45-1	18	1.0					ATS	O, H
MW-53d-10-03-17-12:18-1	nd	1.0						
MW-53i-10-03-17-13:20-1	43	1.0						
MW-53s-10-03-17-11:06-1	nd	1.0						
MW-61d-10-23-17-10:52-1	7	1.0					ATS	O
MW-61s-10-23-17-12:09-1	12	1.0					ATS	O
MW-93-10-16-17-14:04-1	7	1.0					ATS	O
D2								
HZ-S-10-16-17-14:15-1	1200	100.0					ATS	O, D
MW-113-10-26-17-16:11-1	69	1.0						
MW-117-10-05-17-19:03-1	nd	1.0						
MW-118-10-26-17-14:40-1	43	1.0						
MW-120s-10-06-17-12:30-1	nd	1.0					ATS	O
MW-121s-10-05-17-17:30-1	nd	1.0					ATS	O
MW-123s-10-06-17-14:15-1	nd	1.0					ATS	O
MW-124s-10-09-17-15:29-1	nd	1.0					ATS	O
MW-126s-10-12-17-17:28-1	nd	1.0					ATS	O
MW-129i-10-06-17-10:38-1	nd	1.0					ATS	O
MW-129s-10-06-17-09:20-1	nd	1.0					ATS	O
MW-130i-10-09-17-11:58-1	4	1.0					ATS	O
MW-130s-10-09-17-10:37-1	nd	1.0					ATS	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-131s-10-12-17-14:07-1	nd	1.0					ATS	O
MW-133i-10-10-17-18:09-1	2	1.0					ATS	O
MW-133s-10-10-17-16:50-1	2	1.0					ATS	O
MW-134i-10-12-17-11:16-1	11	1.0					ATS	O
MW-134s-10-12-17-12:33-1	12	1.0					ATS	O
MW-39d-10-23-17-18:10-1	37	5.0					ATS	O, D
MW-54d-10-26-17-11:34-1	18	1.0						
MW-54s-10-26-17-10:16-1	nd	1.0						
MW-92-10-10-17-11:56-1	40	2.0					ATS	O, D, H
MW-KD-1d-10-31-17-15:45-1	200	10.0						D
MW-KD-1s-10-31-17-14:30-1	78	1.0						
E								
MW-101-10-27-17-11:50-1	120	1.0						
MW-103s-10-05-17-09:30-1	75	10.0					ATS	O, D
MW-104-10-26-17-13:05-1	12	1.0						
MW-106s-10-31-17-10:37-1	200	10.0						D
MW-110-10-27-17-09:07-1	78	1.0						
MW-112d-10-18-17-11:59-1	1	1.0					ATS	O
MW-112i-10-03-17-17:40-1	9.4	1.0						
MW-112s-10-03-17-16:20-1	nd	1.0						
MW-115-10-30-17-09:53-1	430	10.0						D
MW-116-10-30-17-11:15-1	410	10.0						D
MW-119-10-27-17-10:16-1	86	1.0						
MW-120d-10-17-17-15:30-1	nd	1.0					ATS	O
MW-121d-10-05-17-16:09-1	1.9	1.0						
MW-124d-10-09-17-16:47-1	nd	1.0					ATS	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-126d-10-13-17-10:05-1	nd	1.0					ATS	O
MW-130d-10-30-17-12:12-1	nd	1.0						
MW-131d-10-12-17-15:10-1	nd	1.0					ATS	O
MW-133d-10-12-17-08:45-1	4	1.0					ATS	O
MW-134d-10-12-17-10:00-1	6	1.0					ATS	O
MW-135-10-09-17-13:38-1	nd	1.0					ATS	O
MW-136d-10-24-17-09:36-1	nd	1.0					ATS	O
MW-137d-10-25-17-14:16-1	nd	1.0					ATS	O
MW-138d-10-25-17-10:15-1	nd	1.0					ATS	O
MW-139d-10-24-17-16:29-1	1	1.0					ATS	O
MW-140d-10-24-17-13:46-1	nd	1.0					ATS	O
MW-141d-10-23-17-13:17-1	4	1.0					ATS	O
MW-30d-10-31-17-12:03-1	200	10.0						D
MW-65i-10-30-17-15:15-1	2.1	1.0						
MW-65s-10-30-17-16:37-1	11	1.0						
MW-76i-10-05-17-11:02-1	120	10.0					ATS	O, D
MW-76s-10-05-17-12:24-1	370	20.0					ATS	O, D
MW-79d-10-27-17-13:24-1	nd	1.0						
MW-79s-10-27-17-14:44-1	460	10.0						D
MW-81-10-27-17-16:12-1	230	5.0						D
MW-83s-10-30-17-12:48-1	350	10.0						D
MW-84s-10-05-17-13:57-1	100	20.0					ATS	O, D
MW-90-10-10-17-10:27-1	43	2.0					ATS	O, D, H
MW-91-10-27-17-17:41-1	200	5.0						D
MW-95-10-10-17-13:37-1	35	2.0					ATS	O, D, H
MW-96-10-31-17-09:15-1	120	1.0						
MW-98d-10-09-17-18:46-1	15	1.0					ATS	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)
Marshy								
NMW-1s-10-17-17-11:42-1	2700	100.0					ATS	O, D
NMW-2s-10-17-17-11:53-1	2600	100.0					ATS	O, D
SH								
MW-25s-10-04-17-13:28-1	220	20.0					ATS	O, D, H
MW-2s-10-04-17-11:18-1	2.6	1.0						
MW-5d-10-05-17-13:25-1	19000	1000					ATS	O,D
SW								
MW-48-10-05-17-10:36-1	38	1.0						
MW-57-10-05-17-10:00-1	2.6	1.0						
Surface Water								
Not Applicable								
HC/HR-10-02-17-08:31-1			nd	2.0				
HC/HR-10-03-17-09:27-1			nd	2.0				
HC/HR-10-04-17-08:37-1			nd	2.0				
HC/HR-10-05-17-08:23-1			nd	2.0				
HC/HR-10-06-17-08:44-1			nd	2.0				
HC/HR-10-10-17-08:23-1			nd	2.0				
HC/HR-10-11-17-08:14-1			nd	2.0				
HC/HR-10-12-17-08:50-1			nd	2.0				
HC/HR-10-13-17-08:49-1			nd	2.0				
HC/HR-10-16-17-08:49-1			nd	2.0				
HC/HR-10-17-17-08:34-1			nd	2.0				
HC/HR-10-18-17-08:50-1			nd	2.0				
HC/HR-10-19-17-08:30-1			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-10-20-17-10:00-1			nd	2.0				
HC/HR-10-23-17-08:15-1			nd	2.0				
HC/HR-10-24-17-08:17-1			nd	2.0				
HC/HR-10-25-17-08:15-1			nd	2.0				
HC/HR-10-26-17-09:00-1			nd	2.0				
HC/HR-10-27-17-08:50-1			nd	2.0				
HC/HR-10-30-17-09:00-1			nd	2.0				
HC/HR-10-31-17-09:33-1			nd	2.0				
Treatment System								
OUTFALL-10-01-17-1	6.1	1.0						
OUTFALL-10-01-17-2			8.4	5.0				
OUTFALL-10-02-17-2			6.9	5.0				
OUTFALL-10-02-17-1	6.3	1.0						
OUTFALL-10-03-17-2			7.1	5.0				
OUTFALL-10-03-17-1	6.2	1.0						
OUTFALL-10-04-17-1	6.5	1.0						
OUTFALL-10-04-17-2			6.8	5.0				
OUTFALL-10-05-17-1	6.4	1.0						
OUTFALL-10-05-17-2			8.2	5.0				
OUTFALL-10-08-17-1	6.6	1.0						
OUTFALL-10-08-17-2			7.5	5.0				
OUTFALL-10-09-17-1	8	1.0					ATS	O
OUTFALL-10-09-17-2			7.7	5.0				
OUTFALL-10-10-17-1	7.0	1.0						
OUTFALL-10-10-17-2			7.0	5.0				
OUTFALL-10-11-17-1	6.9	1.0						

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-10-11-17-2			7.0	5.0				
OUTFALL-10-12-17-1	6	1.0					ATS	O
OUTFALL-10-12-17-2			5.8	5.0				
OUTFALL-10-15-17-1	7	1.0					ATS	O
OUTFALL-10-15-17-2			7.4	5.0				
OUTFALL-10-16-17-1	7	1.0					ATS	O
OUTFALL-10-16-17-2			7.6	5.0				
OUTFALL-10-17-17-1	8	1.0					ATS	O
OUTFALL-10-17-17-3			6.0	5.0				
OUTFALL-10-18-17-1	8	1.0					ATS	O
OUTFALL-10-18-17-2			6.9	5.0				
OUTFALL-10-19-17-1	8	1.0					ATS	O
OUTFALL-10-19-17-2			6.4	5.0				
OUTFALL-10-22-17-1	6	1.0					ATS	O
OUTFALL-10-22-17-2			6.3	5.0				
OUTFALL-10-23-17-1	6	1.0					ATS	O
OUTFALL-10-23-17-3			5.5	5.0				
OUTFALL-10-24-17-1	7	1.0					ATS	O
OUTFALL-10-24-17-2			nd	5.0				
OUTFALL-10-25-17-1	8.0	1.0						
OUTFALL-10-25-17-2			7.0	5.0				
OUTFALL-10-26-17-1	9.5	1.0						
OUTFALL-10-26-17-2			6.9	5.0				
OUTFALL-10-29-17-1	5.9	1.0						
OUTFALL-10-29-17-2			7.2	5.0				
OUTFALL-10-30-17-1	5.8	1.0						
OUTFALL-10-30-17-2			6.8	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-10-31-17-1	6.6	1.0						
OUTFALL-10-31-17-2			6.4	5.0				
Red Pond-10-02-17-08:10-1	380	10.0						D
Red Pond-10-10-17-10:20-1	500	40.0					ATS	O, D
Red Pond-10-16-17-06:00-1	500	20.0					ATS	O, D
Red Pond-10-23-17-06:55-1	420	20.0					ATS	O, D
Red Pond-10-25-17-07:00-1	540	20.0					ATS	O, D
Red Pond-10-26-17-07:30-1	650	20.0					ATS	O, D
Red Pond-10-27-17-08:16-1	510	10.0						D
Red Pond-10-30-17-06:30-1	350	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 14 day hold time, but within 28 days used by ATS for same method with EPA approval.
O: Samples analyzed in outside laboratory (ATS).

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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): SRF_1016171

Project Description: This data report contains the results of 22 water samples, received by ATS on 10/16/17, to be analyzed for 1,4-Dioxane or Barium.

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.): 32

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

Additional Message: Email Copy: Ms. Laurel Beyer (Laurel_Beyer@Pall.com)

Date: 10/24/17 **Signed:**

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

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LABORATORY OPERATIONS
SAMPLE DELIVERY GROUP (SDG) CASE NARRATIVE

ATS Project Number: G001-002
ATS SRF's: 1016171

SDG Summary

This case narrative applies to the following 22 samples that were received by Ann Arbor Technical Services, Inc. (ATS) on 10/16/17, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Laboratory Sample ID	Analysis	Matrix
Received 10/16/17			
Outfall 001 10/6/17	Same	Barium	Treated water
MW-25s 10/4/17	Same	1,4-Dioxane	Groundwater
MW-22 10/5/17	Same	1,4-Dioxane	Groundwater
MW-5d 10/5/17	Same	1,4-Dioxane	Groundwater
MW-103s 10/5/17	Same	1,4-Dioxane	Groundwater
MW-76i 10/5/17	Same	1,4-Dioxane	Groundwater
MW-76s 10/5/17	Same	1,4-Dioxane	Groundwater
MW-84s 10/5/17	Same	1,4-Dioxane	Groundwater
MW-121s 10/5/17	Same	1,4-Dioxane	Groundwater
MW-129s 10/6/17	Same	1,4-Dioxane	Groundwater
MW-129i 10/6/17	Same	1,4-Dioxane	Groundwater
MW-120s 10/6/17	Same	1,4-Dioxane	Groundwater
MW-123s 10/6/17	Same	1,4-Dioxane	Groundwater
Red Pond 10/10/17	Same	1,4-Dioxane	Groundwater
Outfall 001 10/9/17	Same	1,4-Dioxane	Treated water
697 S. Wagner Road 10/2/17	Same	1,4-Dioxane	Drinking Water
MW-130s 10/9/17	Same	1,4-Dioxane	Groundwater
MW-130i 10/9/17	Same	1,4-Dioxane	Groundwater
MW-135 10/9/17	Same	1,4-Dioxane	Groundwater
MW-124s 10/9/17	Same	1,4-Dioxane	Groundwater
MW-124d 10/9/17	Same	1,4-Dioxane	Groundwater
MW-98d 10/9/17	Same	1,4-Dioxane	Groundwater

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

Matrix Specific QC

Client Sample Identification	Laboratory Sample ID	Analysis	Matrix
Outfall 001 10/6/17 Matrix Spike	Same	Barium	Treated Water
Outfall 001 10/6/17 Matrix Spike Duplicate	Same	Barium	Treated Water
697 S Wagner Road Matrix Spike	Same	1,4-Dioxane	Drinking Water
697 S Wagner Road Matrix Spike Duplicate	Same	1,4-Dioxane	Drinking Water
Outfall 001 10/9/17 Matrix Spike	Same	1,4-Dioxane	Treated Water
Outfall 001 10/9/17 Matrix Spike Duplicate	Same	1,4-Dioxane	Treated Water

Upon receipt, samples were scheduled for the following analyses:

- 1,4-Dioxane by EPA method 1624 (select samples)
- Barium by EPA method 200.7 (select samples)

Sample Receipt and Chain of Custody Records

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies 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 procedure (SOP) 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 in accordance with 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.

Metals Analysis: Samples were analyzed in accordance with USEPA method 200.7 (Determination of Metals and Trace Elements in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry). An initial calibration with at least five levels was used to quantitate individual metals. 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 12 hours (GC/MS) or every ten samples (ICP/AES). All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Instrument blanks were analyzed at a frequency of every 12 hours (GC/MS) or every ten samples (ICP/AES). 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 *(Applicable to all analyses)*

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	Constituent	Percent Recovery	Acceptance Limits
697 S. Wagner Road Matrix Spike	1,4-Dioxane	121.0	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:

- MW-25s
- MW-103s
- MW-84s
- MW-22
- MW-76i
- Red Pond
- MW-5d
- MW-76s

Mark T. DeLong / October 24, 2017

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / October 24, 2017

Philip B. Simon (Laboratory Director)

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-25s

Sample Date:	10/4/17
Sample Time:	1:28 PM
Sampled By:	Client
Laboratory Receipt Date:	10/16/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.22	0.02	10/19/17	22:19	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

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: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-22

Sample Date:	10/5/17
Sample Time:	10:36 AM
Sampled By:	Client
Laboratory Receipt Date:	10/16/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.39	0.02	10/19/17	2:42	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-5d

Sample Date:	10/5/17
Sample Time:	1:25 PM
Sampled By:	Client
Laboratory Receipt Date:	10/16/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	19	1	10/19/17	3:24	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-103s

Sample Date: 10/5/17
Sample Time: 9:30 AM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.075	0.01	10/19/17	4:06	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-76i

Sample Date: 10/5/17
Sample Time: 11:02 AM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.12	0.01	10/19/17	4:48	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-76s

Sample Date: 10/5/17
Sample Time: 12:24 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.37	0.02	10/19/17	5:30	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-84s

Sample Date: 10/5/17
Sample Time: 1:57 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.10	0.02	10/19/17	20:56	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-121s

Sample Date: 10/5/17
Sample Time: 5:30 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/18/17	19:42	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-129s

Sample Date: 10/6/17
Sample Time: 9:20 AM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/18/17	20:24	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-129i

Sample Date: 10/6/17
Sample Time: 10:38 AM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/18/17	21:06	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-120s

Sample Date: 10/6/17
Sample Time: 12:30 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/18/17	21:48	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-123s

Sample Date: 10/6/17
Sample Time: 2:15 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/18/17	22:30	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: Red Pond

Sample Date: 10/10/17
Sample Time: 10:20 AM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.50	0.04	10/19/17	6:12	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: Outfall 001

Sample Date: 10/9/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Treated 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	10/19/17	14:49	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
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: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: 697 S. Wagner Road

Sample Date: 10/2/17
Sample Time: 2:15 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Drinking Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/18/17	16:38	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-130s

Sample Date: 10/9/17
Sample Time: 10:37 AM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/18/17	23:12	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-130i

Sample Date: 10/9/17
Sample Time: 11:58 AM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

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	10/19/17	20:14	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-135

Sample Date: 10/9/17
Sample Time: 1:38 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/18/17	23:54	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-124s

Sample Date: 10/9/17
Sample Time: 3:29 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/19/17	18:49	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-124d

Sample Date: 10/9/17
Sample Time: 4:47 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/19/17	19:31	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17
ATS SRF: 1016171

Sample Identification: MW-98d

Sample Date: 10/9/17
Sample Time: 6:46 PM
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.015	0.001	10/19/17	21:37	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

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: 10/24/17
ATS SRF: 1016171

Sample Identification: Outfall 001

Sample Date: 10/6/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/16/17
Sample Matrix: Treated Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Metals Analysis							
Total Barium	EPA 200.7	mg/L	0.23	0.001	10/17/17	17:35	SLS

Comments
All methods reference USEPA methods unless otherwise noted.

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: QCORG1018171-G
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 10/24/17

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 10/2/17 Matrix Spike	0.012 mg/L	0.009 mg/L	0.011 mg/L	25.1

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank 10/18/17	<0.001 mg/L	0.010 mg/L	0.011 mg/L	112.8
697 S. Wagner Road 10/2/17 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.012 mg/L	121.0*
697 S. Wagner Road 10/2/17 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.009 mg/L	94.0

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank 10/18/17	<0.001 mg/L	Acceptable

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

Control Limits:
Recoveries
- Laboratory Fortified Blank (85 - 115 %)
- Matrix Spike <5ppb (70 - 130 %)
- Matrix Spike >5ppb (80 - 120 %)

Relative Range
- Replicates <2ppb (<50%)
- Replicates >2 ppb (<30%)

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: QCORG1019171-G
ATS Project: Pall Corporation #G001-002
Parameter: 1,4-Dioxane (EPA 1624)
Report Date: 10/24/17

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Outfall 001 10/9/17 Matrix Spike	0.019 mg/L	0.018 mg/L	0.019 mg/L	5.2

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank 10/19/17	<0.001 mg/L	0.010 mg/L	0.010 mg/L	101.5
Outfall 001 10/9/17 Matrix Spike	0.008 mg/L	0.010 mg/L	0.019 mg/L	112.6
Outfall 001 10/9/17 Matrix Spike Duplicate	0.008 mg/L	0.010 mg/L	0.018 mg/L	102.8

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank 10/19/17	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Fortified Blank (85 - 115 %)
- Matrix Spike <5ppb (70 - 130 %)
- Matrix Spike >5ppb (80 - 120 %)

Relative Range
- Replicates <2ppb (<50%)
- Replicates >2 ppb (<30%)

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Wisconsin Laboratory ID: 998321720

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCINORG1017171-G
ATS Project: Pall Corporation #G001-002
Parameter: Barium (EPA 200.7)
Report Date: 10/24/17

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Outfall 001 10/6/17 Matrix Spike	2.2 mg/L	2.3 mg/L	2.2 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 10/17/17	<0.001 mg/L	0.16 mg/L	0.17 mg/L	105.3
Outfall 001 10/6/17 Matrix Spike	0.23 mg/L	2.0 mg/L	2.2 mg/L	100.1
Outfall 001 10/6/17 Matrix Spike Duplicate	0.23 mg/L	2.0 mg/L	2.3 mg/L	101.3

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank 10/17/17	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Fortified Blank (85 - 115 %)
- Matrix Spike (75 - 125 %)

Relative Range
- Replicates (<20%)

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CHAIN OF CUSTODY RECORD

Pall Corp. Samples

Susan E.O. Peters

Barium, with nitric acid; 1,4-d with HCl except Outfall Sample

	DATE	TIME	Comp	Grab	SAMPLE IDENTIFICATION	No. of Containers	1,4-dioxane	Barium, total	
1	10/04/2017	13:28		X	MW-25s	1	X		GW, nd/ppb
2	10/05/2017	10:36		X	MW-22	1	X		GW, 300
3	10/05/2017	13:25		X	MW-5d	1	X		GW, 10 000
4	10/05/2017	09:30		X	MW-103s	1	X		GW, 70
5	10/05/2017	11:02		X	MW-76i	1	X		GW, 120
6	10/05/2017	12:24		X	MW-76s	1	X		GW, 330
7	10/05/2017	13:57		X	MW-84s	1	X		GW, 700
8	10/05/2017	17:30		X	MW-121s	1	X		GW, nd
9	10/06/2017	09:20		X	MW-129s	1	X		GW, nd
10	10/06/2017	10:38		X	MW-129i	1	X		GW, nd
11	10/06/2017	12:30		X	MW-120s	1	X		GW,nd
12	10/06/2017	14:15		X	MW-123s	1	X		GW, nd
13	10/10/2017	10:20		X	Red Pond	1	X		GW, 400
14	10/06/2017		X		Outfall 001	1		X	Treated Water
15	10/06/2017		X		Outfall 001	2	X		Treated, 6
16	10/02/2017	14:15		X	697 S. Wagner Road	2	X		DW, nd
17	10/09/2017	10:37		X	MW-130s	1	X		GW, nd
18	10/09/2017	11:58		X	MW-130i	1	X		GW, 3-5
19	10/09/2017	13:38		X	MW-135	1	X		GW, nd
20	10/09/2017	15:29		X	MW-124s	1	X		GW, nd

CHAIN OF CUSTODY RECORD

Pall Corp. Samples

Sue_Peters@pall.com

Barium, with nitric acid; 1,4-dioxane with HCl except Outfall Sample

	DATE	TIME	Comp	Grab	SAMPLE IDENTIFICATION	No. of Containers	1,4-dioxane	Barium, total	
1	10/06/2017	16:47		X	MW-124d	1	X		GW,nd
2	10/06/2017	18:46		X	MW-56d	1	X		GW, 16
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

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Wisconsin Laboratory ID: 998321720

Data Transmittal Cover Page

Project Name: Pall Corporation
ATS Project Number: G001-002
ATS Report Number(s): SRF_1023171

Project Description: This data report contains the results of 40 water samples, received by ATS on 10/23/17, 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.): 49

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

Additional Message: Email Copy: Ms. Laurel Beyer (Laurel_Beyer@Pall.com)

Date: 10/31/17 **Signed:**

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

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LABORATORY OPERATIONS
SAMPLE DELIVERY GROUP (SDG) CASE NARRATIVE

ATS Project Number: G001-002
ATS SRF's: 1023171

SDG Summary

This case narrative applies to the following 40 samples that were received by Ann Arbor Technical Services, Inc. (ATS) on 10/23/17, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Laboratory Sample ID	Analysis	Matrix
Received 10/23/17			
Outfall 001 10/9/17	Same	1,4-Dioxane	Treated water
MW-130s 10/9/17	Same	1,4-Dioxane	Groundwater
MW-130i 10/9/17	Same	1,4-Dioxane	Groundwater
MW-135 10/9/17	Same	1,4-Dioxane	Groundwater
MW-124s 10/9/17	Same	1,4-Dioxane	Groundwater
MW-124d 10/9/17	Same	1,4-Dioxane	Groundwater
MW-98d 10/9/17	Same	1,4-Dioxane	Groundwater
MW-90 10/10/17	Same	1,4-Dioxane	Groundwater
MW-92 10/10/17	Same	1,4-Dioxane	Groundwater
MW-95 10/10/17	Same	1,4-Dioxane	Groundwater
MW-41d 10/10/17	Same	1,4-Dioxane	Groundwater
MW-41s 10/10/17	Same	1,4-Dioxane	Groundwater
MW-133s 10/10/17	Same	1,4-Dioxane	Groundwater
MW-133i 10/10/17	Same	1,4-Dioxane	Groundwater
TW-10 10/11/17	Same	1,4-Dioxane	Groundwater
TW-14 10/11/17	Same	1,4-Dioxane	Groundwater
TW-17 10/11/17	Same	1,4-Dioxane	Groundwater
MW-133d 10/12/17	Same	1,4-Dioxane	Groundwater
MW-134d 10/12/17	Same	1,4-Dioxane	Groundwater
MW-134I 10/12/17	Same	1,4-Dioxane	Groundwater
MW-134s 10/12/17	Same	1,4-Dioxane	Groundwater
MW-131s 10/12/17	Same	1,4-Dioxane	Groundwater
MW-131d 10/12/17	Same	1,4-Dioxane	Groundwater
MW-126s 10/12/17	Same	1,4-Dioxane	Groundwater
Outfall 001 10/12/17	Same	1,4-Dioxane	Treated water
MW-141s 10/13/17	Same	1,4-Dioxane	Groundwater

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	MW-126d 10/13/17	Same	1,4-Dioxane	Groundwater
	4601 Park 4 Inch 10/13/17	Same	1,4-Dioxane	na
	4601 Park 6 Inch 10/13/17	Same	1,4-Dioxane	na
	Red Pond 10/16/17	Same	1,4-Dioxane	Groundwater
	Outfall 001 10/15/17	Same	1,4-Dioxane	Treated water
	TW-1 10/16/17	Same	1,4-Dioxane	Groundwater
	TW-3 10/16/17	Same	1,4-Dioxane	Groundwater
	TW-12 10/16/17	Same	1,4-Dioxane	Groundwater
	HZ-S 10/16/17	Same	1,4-Dioxane	na
	MW-93 10/16/17	Same	1,4-Dioxane	Groundwater
	Outfall 001 10/16/17	Same	1,4-Dioxane	Treated water
	NMW-1s 10/17/17	Same	1,4-Dioxane	na
	NMW-2s 10/17/17	Same	1,4-Dioxane	na
	Outfall 001 10/17/17	Same	1,4-Dioxane	Treated water

Matrix Specific QC

Client Sample Identification	Laboratory Sample ID	Analysis	Matrix
MW-130s 10/9/17 Matrix Spike	Same	1,4-Dioxane	Groundwater
MW-130s 10/9/17 Matrix Spike Duplicate	Same	1,4-Dioxane	Groundwater
Outfall 001 10/9/17 Matrix Spike	Same	1,4-Dioxane	Treated Water
Outfall 001 10/9/17 Matrix Spike Duplicate	Same	1,4-Dioxane	Treated Water

Upon receipt, samples were scheduled for the following analyses:

- 1,4-Dioxane by EPA method 1624 (select samples)

Sample Receipt and Chain of Custody Records

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies 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 procedure (SOP) 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 in accordance with 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 12 hours. All verification standards met the acceptance criteria with the following exceptions:
- None

Instrument Blanks

Instrument blanks were analyzed at a frequency of every 12 hours. 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	Constituent	Percent Recovery	Acceptance Limits
MW-130S 10/9/17 Matrix Spike Duplicate	1,4-Dioxane	120.6	80-120%

SDG CASE NARRATIVE
Page 4 of 4

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:

- TW-10 10/11/17
- TW-17 10/11/17
- Red Pond 10/16/17
- HZ-S 10/16/17
- NMW-1s 10/17/17
- NMW-2s 10/17/17

Mark A DeLong

/ October 31, 2017

Mark T. DeLong (Quality Assurance Coordinator)

/ October 31, 2017

Philip B. Simon (Laboratory Director)

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Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: Outfall 001

Sample Date: 10/9/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Treated 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	10/25/17	13 15	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
Sample analyzed at native pH.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-130s

Sample Date: 10/9/17
Sample Time: 10:37 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0 001	0 001	10/24/17	14 22	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-130i

Sample Date: 10/9/17
Sample Time: 11:58 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

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	10/24/17	16 37	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-135

Sample Date: 10/9/17
Sample Time: 1:38 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/24/17	19:09	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-124s

Sample Date: 10/9/17
Sample Time: 3:29 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/24/17	19:51	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

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ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-124d

Sample Date: 10/9/17
Sample Time: 4:47 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/24/17	20:33	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-98d

Sample Date: 10/9/17
Sample Time: 6:46 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.018	0.001	10/25/17	2:08	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-90

Sample Date: 10/10/17
Sample Time: 10:27 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.043	0.002	10/25/17	2:50	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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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: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-92

Sample Date: 10/10/17
Sample Time: 11:56 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.040	0.002	10/25/17	3:31	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-95

Sample Date: 10/10/17
Sample Time: 1:37 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.035	0.002	10/25/17	4:13	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-41d

Sample Date: 10/10/17
Sample Time: 1:35 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.028	0.002	10/25/17	4:55	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-41s

Sample Date: 10/10/17
Sample Time: 2:45 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.018	0.001	10/25/17	5:37	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
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Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-133s

Sample Date: 10/10/17
Sample Time: 4:50 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.002	0.001	10/24/17	17:32	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-133i

Sample Date: 10/10/17
Sample Time: 6:09 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.002	0.001	10/24/17	18:27	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: TW-10

Sample Date: 10/11/17
Sample Time: 1:55 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.34	0.02	10/25/17	6:19	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: TW-14

Sample Date: 10/11/17
Sample Time: 2:06 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.027	0.002	10/25/17	7:01	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: TW-17

Sample Date: 10/11/17
Sample Time: 2:01 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.50	0.05	10/25/17	7:43	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-133d

Sample Date: 10/12/17
Sample Time: 10:12 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

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	10/24/17	23:20	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-134d

Sample Date: 10/12/17
Sample Time: 10:00 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.006	0.001	10/25/17	20:02	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998521720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-134i

Sample Date: 10/12/17
Sample Time: 11:16 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.011	0.001	10/25/17	15:32	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998521720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-134s

Sample Date: 10/12/17
Sample Time: 12:33 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.012	0.001	10/25/17	19:20	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998521720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-131s

Sample Date: 10/12/17
Sample Time: 2:07 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/24/17	21:15	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998521720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-131d

Sample Date: 10/12/17
Sample Time: 3:10 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/24/17	21:57	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-126s

Sample Date:	10/12/17
Sample Time:	5:28 PM
Sampled By:	Client
Laboratory Receipt Date:	10/23/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/24/17	22:39	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: Outfall 001

Sample Date:	10/12/17
Sample Time:	na
Sampled By:	Client
Laboratory Receipt Date:	10/23/17
Sample Matrix:	Treated Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.006	0.001	10/25/17	16:16	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
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: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-141s

Sample Date:	10/13/17
Sample Time:	3:03 PM
Sampled By:	Client
Laboratory Receipt Date:	10/23/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.003	0.001	10/25/17	20:44	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-126d

Sample Date:	10/13/17
Sample Time:	10:05 AM
Sampled By:	Client
Laboratory Receipt Date:	10/23/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/26/17	0:55	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: 4601 Park 4 inch

Sample Date: 10/13/17
Sample Time: 4:53 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: na

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.002	0.001	10/25/17	17:26	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: 4601 Park 6 inch

Sample Date: 10/13/17
Sample Time: 6:21 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: na

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.002	0.001	10/25/17	22:08	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: Red Pond

Sample Date: 10/16/17
Sample Time: 6:00 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.50	0.02	10/26/17	2:19	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: Outfall 001

Sample Date: 10/15/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Treated Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.007	0.001	10/25/17	17:51	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
Sample analyzed at native pH.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: TW-1

Sample Date: 10/16/17
Sample Time: 8:49 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.088	0.005	10/26/17	3:01	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: TW-3

Sample Date: 10/16/17
Sample Time: 11:45 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.001	0.001	10/26/17	1:37	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: TW-12

Sample Date: 10/16/17
Sample Time: 11:55 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.024	0.002	10/26/17	3:42	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: HZ-S

Sample Date: 10/16/17
Sample Time: 2:15 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: na

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	1.2	0.1	10/26/17	4:24	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: MW-93

Sample Date: 10/16/17
Sample Time: 2:04 PM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.007	0.001	10/26/17	5:06	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: Outfall 001

Sample Date: 10/16/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Treated Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.007	0.001	10/25/17	17:06	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
Sample analyzed at native pH.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: NMW-1s

Sample Date: 10/17/17
Sample Time: 11:42 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: na

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	2.7	0.1	10/26/17	5:48	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1023171

Sample Identification: NMW-2s

Sample Date: 10/17/17
Sample Time: 11:53 AM
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: na

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	2.6	0.1	10/26/17	6:29	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1023171

Sample Identification: Outfall 001

Sample Date: 10/17/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/23/17
Sample Matrix: Treated 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	10/25/17	18:38	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
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

Quality Assurance / Quality Control Data Summary

QC Batch Number: QCORG1024171-G
Parameter: 1,4-Dioxane (EPA 1624)
ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
MW-130s 10/9/17 Matrix Spike	0.009 mg/L	0.012 mg/L	0.011 mg/L	25.0

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank 10/24/17	<0.001 mg/L	0.010 mg/L	0.011 mg/L	109.6
MW-130s 10/9/17 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.009 mg/L	93.8
MW-130s 10/9/17 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.012 mg/L	120.6*

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank 10/24/17	<0.001 mg/L	Acceptable

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

Control Limits:
Recoveries
Laboratory Fortified Blank (85 - 115 %)
Matrix Spike <5ppb (70 - 130 %)
Matrix Spike >5ppb (80 - 120 %)
Relative Range
Replicates <2ppb (<50%)
Replicates >2 ppb (<30%)

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: QCORG1025171-G
Parameter: 1,4-Dioxane (EPA 1624)
ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Outfall 001 10/9/17 Matrix Spike	0.017 mg/L	0.019 mg/L	0.018 mg/L	10.6

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank 10/25/17	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100.3
Outfall 001 10/9/17 Matrix Spike	0.008 mg/L	0.010 mg/L	0.017 mg/L	92.7
Outfall 001 10/9/17 Matrix Spike Duplicate	0.008 mg/L	0.010 mg/L	0.019 mg/L	111.8

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank 10/25/17	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Fortified Blank (85 - 115 %)
Matrix Spike <5ppb (70 - 130 %)
Matrix Spike >5ppb (80 - 120 %)
Relative Range
Replicates <2ppb (<50%)
Replicates >2 ppb (<30%)

CHAIN OF CUSTODY RECORD

Project: Monthly Samples
Laboratory Information: Pall Corporation
Sampler: Susan E.O. Peters Susan E.O. Peters
Relinquished by: Susan E.O. Peters Susan E.O. Peters
Date/Time: 10/23/17 14:[illegible]

Comments: all samples preserved with HCl except Outfall 001 samples

No.	Date	Time	Comp	Grab	Sample Identification	No. of Containers	1,4-dioxane	
1	10/09/2017		X		Outfall 001	2	X	<7ppb
2	10/09/2017	10:37		X	MW-130s	2	X	nd
3	10/09/2017	11:58		X	MW-130i	2	X	4ppb
4	10/09/2017	13:38		X	MW-135	2	X	nd
5	10/09/2017	15:29		X	MW-124s	2	X	nd
6	10/09/2017	16:47		X	MW-124d	2	X	nd
7	10/09/2017	18:46		X	MW-98d	1	X	20ppb
8	10/10/2017	10:27		X	MW-90	1	X	40ppb
9	10/10/2017	11:56		X	MW-92	1	X	30ppb
10	10/10/2017	13:37		X	MW-95	1	X	40ppb
11	10/10/2017	13:35		X	MW-41d	1	X	30ppb
12	10/10/2017	14:45		X	MW-41s	1	X	20ppb
13	10/10/2017	16:50		X	MW-133s	2	X	2ppb
14	10/10/2017	18:09		X	MW-133i	2	X	2ppb
15	10/11/2017	13:55		X	TW-10	1	X	300ppb
16	10/11/2017	14:06		X	TW-14	1	X	30ppb
17	10/11/2017	14:01		X	TW-17	1	X	600ppb
18	10/12/2017	10:12		X	MW-133d	2	X	5ppb
19	10/12/2017	10:00		X	MW-134d	2	X	<10ppb
20	10/12/2017	11:16		X	MW-134i	2	X	10ppb

CHAIN OF CUSTODY RECORD

Monthly Samples	Pall Corporation
Samplers: Suzanne Peters Susan Peters	
Relinquished by: Suzanne Peters Susan Peters	10-23-17 1410

all preserved with HCl except Outfall 001 Samples

Item	Lab ID	Date	Time	Comp	Grab	Sample Identification	No. of Containers		1,4-dioxane	Expected Range
1		[illegible]	12:33		X	MW-134s	2		X	10ppb
2		[illegible]	14:07		X	MW-131s	2		X	nd
3		[illegible]	15:10		X	MW-131d	2		X	nd
4		[illegible]	17:28		X	MW-126s	2		X	nd
5		[illegible]		X		Outfall 001	2		X	<7ppb
6		[illegible]	15:03		X	MW-141s	2		X	<4ppb
7		[illegible]	10:05		X	MW-126~~s~~ d	2		X	nd
8		[illegible]	16:53		X	4601 Park 4 inch	2		X	<5ppb
9		[illegible]	18:21		X	4601 Park 6 inch	2		X	<5ppb
10		[illegible]	06:00		X	Red Pond	1		X	400ppb
11		[illegible]		X		Outfall 001	2		X	<7ppb
12		[illegible]	08:49		X	TW-1	1		X	<100ppb
13		[illegible]	11:45		X	TW-3	2		X	nd
14		[illegible]	11:55		X	TW-12	1		X	<50ppb
15		[illegible]	14:15		X	HZ-S	1		X	[illegible]
16		[illegible]	14:04		X	MW-93	1		X	<20ppb
17		[illegible]		X		Outfall 001	2		X	<7ppb
18		[illegible]	11:42		X	NMW-1s	1		X	2500ppb
19		[illegible]	11:53			NMW-2s	1		X	2500ppb
20		[illegible]		X		Outfall 001	2		X	<7ppb

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Wisconsin Laboratory ID: 998321720

Data Transmittal Cover Page

Project Name: Pall Corporation
ATS Project Number: G001-002
ATS Report Number(s): SRF_1026171_Urgent

Project Description: This data report contains the results of six water samples, received by ATS on 10/26/17, 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.): 13

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

Additional Message: Email Copy: Ms. Laurel Beyer (Laurel_Beyer@Pall.com)

Date: 10/27/17 **Signed:**

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

X:\G001-002 17\Data_Transmittal_Cover_Page SLS

LABORATORY OPERATIONS
SAMPLE DELIVERY GROUP (SDG) CASE NARRATIVE

ATS Project Number: G001-002
ATS SRF's: 1026171

SDG Summary

This case narrative applies to the following 6 of 31 samples that were received by Ann Arbor Technical Services, Inc. (ATS) on 10/26/17, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Laboratory Sample ID	Analysis	Matrix
Received 10/26/17			
Outfall 001 10/23/17	Same	1,4-Dioxane	Treated water
Outfall 001 10/24/17	Same	1,4-Dioxane	Treated water
Outfall 001 10/25/17	Same	1,4-Dioxane	Treated water
Red Pond 10/23/17	Same	1,4-Dioxane	Groundwater
Red Pond 10/25/17	Same	1,4-Dioxane	Groundwater
Red Pond 10/26/17	Same	1,4-Dioxane	Groundwater

Matrix Specific QC

Client Sample Identification	Laboratory Sample ID	Analysis	Matrix
Outfall 001 10/23/17 Matrix Spike	Same	1,4-Dioxane	Treated Water
Outfall 001 10/23/17 Matrix Spike Duplicate	Same	1,4-Dioxane	Treated Water

Upon receipt, samples were scheduled for the following analyses:

- 1,4-Dioxane by EPA method 1624 (select samples)

Sample Receipt and Chain of Custody Records

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies 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 procedure (SOP) 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 in accordance with 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 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Instrument blanks were analyzed at a frequency of every 12 hours. 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:

- None

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:

- Red Pond 10/23/17
- Red Pond 10/25/17
- Red Pond 10/26/17

Mark T. DeLong / October 27, 2017
Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / October 27, 2017
Philip B. Simon (Laboratory Director)

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/27/17
ATS SRF: 1026171 (Rush)

Sample Identification: Red Pond

Sample Date: 10/23/17
Sample Time: 6:55 AM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.42	0.02	10/26/17	20:28	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/27/17
ATS SRF: 1026171 (Rush)

Sample Identification: Red Pond

Sample Date: 10/25/17
Sample Time: 7:00 AM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.54	0.02	10/26/17	21:10	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/27/17
ATS SRF: 1026171 (Rush)

Sample Identification: Red Pond

Sample Date: 10/26/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.65	0.02	10/26/17	21:52	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/27/17
ATS SRF: 1026171 (Rush)

Sample Identification: Outfall 001

Sample Date: 10/23/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Treated Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.006	0.001	10/26/17	14:58	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
Sample analyzed at native pH.

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Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/27/17
ATS SRF: 1026171 (Rush)

Sample Identification: Outfall 001

Sample Date: 10/24/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Treated Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.007	0.001	10/26/17	19:04	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
Sample analyzed at native pH.

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Wisconsin Laboratory ID: 998321720

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: 10/27/17
ATS SRF: 1026171 (Rush)

Sample Identification: Outfall 001

Sample Date: 10/25/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Treated Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.010	0.001	10/26/17	19:46	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
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: QCORG1026171-G
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 10/27/17

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Outfall 001 10/23/17 Matrix Spike	0.015 mg/L	0.017 mg/L	0.016 mg/L	10.8

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank 10/26/17	<0.001 mg/L	0.010 mg/L	0.009 mg/L	93.6
Outfall 001 10/23/17 Matrix Spike	0.006 mg/L	0.010 mg/L	0.015 mg/L	93.5
Outfall 001 10/23/17 Matrix Spike Duplicate	0.006 mg/L	0.010 mg/L	0.017 mg/L	110.8

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank 10/26/17	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
- Laboratory Fortified Blank (85 - 115 %)
- Matrix Spike <5ppb (70 - 130 %)
- Matrix Spike >5ppb (80 - 120 %)

Relative Range
- Replicates <2ppb (<50%)
- Replicates >2 ppb (<30%)

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CHAIN OF CUSTODY RECORD

Page 1 of 2

October 2017 Samples

Pall Corporation, 642 S Wagner Road, Ann Arbor Michigan, Susan E.O. Peters

	SAMPLE CODE	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	COLOR CODING	PRIORITY NUMBER	1,4-dioxane	MATRIX
1.		10/11/2017	15:30	X		MW-120d	2		X	n.d.
2.		10/18/2017	11:59	X		MW-112d	2		X	n.d.
3.		10/18/2017	16:03	X		TW-9	1		X	700ppb
4.		10/18/2017			X	Outfall 001	2		X	<7ppb
5.		10/19/2017			X	Outfall 001	2		X	<7ppb
6.		10/20/2017			X	Outfall 001	2		X	<7ppb
7.		10/23/2017	06:55	X		Red Pond	1	Rush	X	400-500ppb
8.		10/23/2017	10:52	X		MW-61d	2		X	<5ppb
9.		10/23/2017	12:09	X		MW-61s	2		X	<5ppb
10.		10/23/2017	12:09	X		MW-141d	2		X	<5ppb
11.		10/23/2017	15:17	X		5005 Jackson Rd.	1		X	<20ppb
12.		10/23/2017	16:55	X		MW-39s	2		X	<5ppb
13.		10/23/2017	18:10	X		MW-39d	1		X	50ppb
14.		10/24/2017	09:36	X		MW-136d	2		X	n.d.
15.		10/24/2017	10:52	X		MW-136I	2		X	n.d.
16.		10/24/2017	12:14	X		MW-136s	2		X	n.d.
17.		10/24/2017	13:46	X		MW-140d	2		X	n.d.
18.		10/24/2017	15:02	X		MW-140s	2		X	n.d.
19.		10/24/2017	16:29	X		MW-139d	2		X	n.d.
20.		10/24/2017	17:40	X		MW-139I	2		X	n.d.

CHAIN OF CUSTODY RECORD

Page 1 of 2

Project ID / Number: October Samples

Pall Corporation, 642 S. Wagner Rd., Ann Arbor, MI Susan E.O. Perlers [signature]

Relinquished by: [signature] 10-26-17 1412 Received by: [signature]

No.		Date	Time	Comp	Grab	Sample Identification	No. of Containers	Priority	1,4-dioxane											
1		[illegible]	07:00		X	Red Pond	1	Nek	X											400-500ppb
2		[illegible]		X		Outfall 001	2	Rush	X											<7ppb
3		[illegible]	10:15		X	MW-136d	2		X											nd
4		[illegible]	11:29		X	MW-136s	2		X											nd
5		[illegible]	12:44		X	MW-136i	2		X											<10
6		[illegible]	14:16		X	MW-137d	2		X											nd
7		[illegible]	15:29		X	MW-137s	2		X											nd
8		[illegible]	17:00		X	MW-139s	2		X											nd
9		[illegible]		X		Outfall 001	2	Rush	X											<7ppb
10		[illegible]	•		X	Red Pond	1	Rush	X											400-500ppb
11		[illegible]		X		Outfall 001	2	Rush	X											<7ppb
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				

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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): SRF_1026171

Project Description: This data report contains the results of remaining 25 water samples, received by ATS on 10/26/17, 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.): 33

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

Additional Message: Email Copy: Ms. Laurel Beyer (Laurel_Beyer@Pall.com)

Date: 10/31/17 **Signed:**

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

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LABORATORY OPERATIONS
SAMPLE DELIVERY GROUP (SDG) CASE NARRATIVE

ATS Project Number: G001-002
ATS SRF's: 1026171

SDG Summary

This case narrative applies to the following 25 of 31 samples that were received by Ann Arbor Technical Services, Inc. (ATS) on 10/26/17, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Laboratory Sample ID	Analysis	Matrix
Received 10/26/17			
MW-120d 10/17/17	Same	1,4-Dioxane	Groundwater
MW-112d 10/18/17	Same	1,4-Dioxane	Groundwater
TW-9 10/18/17	Same	1,4-Dioxane	Groundwater
Outfall 001 10/18/17	Same	1,4-Dioxane	Treated water
Outfall 001 10/19/17	Same	1,4-Dioxane	Treated water
Outfall 001 10/22/17	Same	1,4-Dioxane	Treated water
MW-61d 10/23/17	Same	1,4-Dioxane	Groundwater
MW-61s 10/23/17	Same	1,4-Dioxane	Groundwater
MW-141d 10/23/17	Same	1,4-Dioxane	Groundwater
5005 Jackson Road 10/23/17	Same	1,4-Dioxane	Drinking Water
MW-39s 10/23/17	Same	1,4-Dioxane	Groundwater
MW-39d 10/23/17	Same	1,4-Dioxane	Groundwater
MW-136d 10/24/17	Same	1,4-Dioxane	Groundwater
MW-136i 10/24/17	Same	1,4-Dioxane	Groundwater
MW-136s 10/24/17	Same	1,4-Dioxane	Groundwater
MW-140d 10/24/17	Same	1,4-Dioxane	Groundwater
MW-140s 10/24/17	Same	1,4-Dioxane	Groundwater
MW-139d 10/24/17	Same	1,4-Dioxane	Groundwater
MW-139i 10/24/17	Same	1,4-Dioxane	Groundwater
MW-138d 10/25/17	Same	1,4-Dioxane	Groundwater
MW-138s 10/25/17	Same	1,4-Dioxane	Groundwater
MW-138i 10/25/17	Same	1,4-Dioxane	Groundwater
MW-137d 10/25/17	Same	1,4-Dioxane	Groundwater
MW-137s 10/25/17	Same	1,4-Dioxane	Groundwater
MW-139s 10/25/17	Same	1,4-Dioxane	Groundwater

G001-002.17\SRF_1026171b.doc

Matrix Specific QC

Client Sample Identification	Laboratory Sample ID	Analysis	Matrix
MW-137d 10/25/17 Matrix Spike	Same	1,4-Dioxane	Groundwater
MW-137d 10/25/17 Matrix Spike	Same	1,4-Dioxane	Groundwater

Upon receipt, samples were scheduled for the following analyses:

- 1,4-Dioxane by EPA method 1624 (select samples)

Sample Receipt and Chain of Custody Records

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies 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 procedure (SOP) 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 in accordance with 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:

- Sample MW-139s had an internal standard recovery of 45%, below the minimum target recovery of 50%.

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 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Instrument blanks were analyzed at a frequency of every 12 hours. 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:

- None

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:

- TW-9 10/18/17

Mark T. DeLong / October 31, 2017
Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon / October 31, 2017
Philip B. Simon (Laboratory Director)

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-120d

Sample Date: 10/17/17
Sample Time: 3:30 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	2:45	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-112d

Sample Date: 10/18/17
Sample Time: 11:59 AM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.001	0.001	10/27/17	3:26	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: TW-9

Sample Date: 10/18/17
Sample Time: 4:03 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.79	0.05	10/26/17	22:33	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: Outfall 001

Sample Date: 10/18/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Treated 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	10/27/17	22:42	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
Sample analyzed at native pH.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1026171

Sample Identification: Outfall 001

Sample Date: 10/19/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Treated 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	10/27/17	23:23	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
Sample analyzed at native pH.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1026171

Sample Identification: Outfall 001

Sample Date: 10/22/17
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Treated Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.006	0.001	10/28/17	0:05	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
Sample analyzed at native pH.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-61d

Sample Date: 10/23/17
Sample Time: 10:52 AM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.007	0.001	10/27/17	19:54	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-61s

Sample Date: 10/23/17
Sample Time: 12:09 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.012	0.001	10/27/17	20:36	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-141d

Sample Date: 10/23/17
Sample Time: 12:09 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

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	10/27/17	21:18	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1026171

Sample Identification: 5005 Jackson Road

Sample Date: 10/23/17
Sample Time: 3:17 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Drinking Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.018	0.001	10/26/17	23:57	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-39s

Sample Date: 10/23/17
Sample Time: 4:55 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.002	0.001	10/27/17	22:00	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-39d

Sample Date: 10/23/17
Sample Time: 6:10 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.037	0.005	10/26/17	23:15	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9804
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-136d

Sample Date: 10/24/17
Sample Time: 9:36 AM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	4:08	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9804
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-136i

Sample Date: 10/24/17
Sample Time: 10:52 AM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	4:50	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9804
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-136s

Sample Date: 10/24/17
Sample Time: 12:14 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	5:32	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9804
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-140d

Sample Date: 10/24/17
Sample Time: 1:46 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	6:14	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-140s

Sample Date: 10/24/17
Sample Time: 3:02 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	6:55	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-139d

Sample Date: 10/24/17
Sample Time: 4:29 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.001	0.001	10/27/17	7:37	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-139i

Sample Date: 10/24/17
Sample Time: 5:40 PM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	8:19	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
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Tel. 734/995-0895 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-138d

Sample Date: 10/25/17
Sample Time: 10:15 AM
Sampled By: Client
Laboratory Receipt Date: 10/26/17
Sample Matrix: Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	18:30	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-138s

Sample Date:	10/25/17
Sample Time:	11:29 AM
Sampled By:	Client
Laboratory Receipt Date:	10/26/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	19:12	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-138i

Sample Date:	10/25/17
Sample Time:	12:44 PM
Sampled By:	Client
Laboratory Receipt Date:	10/26/17
Sample Matrix:	Groundwater

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	10/27/17	9:01	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-137d

Sample Date:	10/25/17
Sample Time:	2:16 PM
Sampled By:	Client
Laboratory Receipt Date:	10/26/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/27/17	15:28	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0865 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

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: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-137s

Sample Date:	10/25/17
Sample Time:	3:29 PM
Sampled By:	Client
Laboratory Receipt Date:	10/26/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/28/17	2:52	EBP

Comments
All methods reference USEPA methods unless otherwise noted.

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

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17
ATS SRF: 1026171

Sample Identification: MW-139s

Sample Date:	10/25/17
Sample Time:	5:00 PM
Sampled By:	Client
Laboratory Receipt Date:	10/26/17
Sample Matrix:	Groundwater

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	10/28/17	3:34	EBP

Comments
All methods reference USEPA methods unless otherwise noted.
Low internal standard recovery.

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: QCORG1026171-G
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Outfall 001 10/23/17 Matrix Spike	0.015 mg/L	0.017 mg/L	0.016 mg/L	10.8

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank 10/26/17	<0.001 mg/L	0.010 mg/L	0.009 mg/L	93.6
Outfall 001 10/23/17 Matrix Spike	0.006 mg/L	0.010 mg/L	0.015 mg/L	93.5
Outfall 001 10/23/17 Matrix Spike Duplicate	0.006 mg/L	0.010 mg/L	0.017 mg/L	110.8

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank 10/26/17	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Fortified Blank (85 - 115 %)
Matrix Spike <5ppb (70 - 130 %)
Matrix Spike >5ppb (80 - 120 %)
Relative Range
Replicates <2ppb (<50%)
Replicates >2 ppb (<30%)

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: QCORG1027171-G
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 10/31/17

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
MW-137d 10/25/17 Matrix Spike	0.011 mg/L	0.012 mg/L	0.012 mg/L	5.0

SPIKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortified Blank 10/27/17	<0.001 mg/L	0.010 mg/L	0.011 mg/L	114.9
MW-137d 10/25/17 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.011 mg/L	113.4
MW-137d 10/25/17 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.012 mg/L	119.2

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
#G001-002		
Laboratory Reagent Blank 10/27/17	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Fortified Blank (85 - 115 %)
Matrix Spike <5ppb (70 - 130 %)
Matrix Spike >5ppb (80 - 120 %)
Relative Range
Replicates <2ppb (<50%)
Replicates >2 ppb (<30%)

CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: October 2017 Samples
SAMPLE CUSTODIAN: Pall Corporation, 642 S Wagner Road, Ann Arbor Michigan; Susan E. O. Peters
RELINQUISHED BY: [signature] DATE/TIME: 10-26-17 1412 RECEIVED BY: [signature]

COMMENTS (Preservation, etc.)

ANALYSES: 1,4-dioxane

LINE NO.	BAR CODE	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	PRIORITY NUMBER	1,4-dioxane	MATRIX
1.		10/17/2017	15:30		X	MW-120d	2		X	n.d.
2.		10/18/2017	11:59		X	MW-112d	2		X	n.d.
3.		10/18/2017	16:03		X	TW-9	1		X	700ppb
4.		10/18/2017		X		Outfall 001	2		X	<7ppb
5.		10/19/2017		X		Outfall 001	2		X	<7ppb
6.		10/22/2017		X		Outfall 001	2		X	<7ppb
7.		10/23/2017	06:55		X	Red Pond ~	1	Rush	X	400-500ppb
8.		10/23/2017	10:52		X	MW-61d	2		X	<5ppb
9.		10/23/2017	12:09		X	MW-61s	2		X	<5ppb
10.		10/23/2017	12:09		X	MW-141d	2		X	<5ppb
11.		10/23/2017	15:17		X	5005 Jackson Rd.	1		X	<20ppb
12.		10/23/2017	16:55		X	MW-39s	2		X	<5ppb
13.		10/23/2017	18:10		X	MW-39d	1		X	50ppb
14.		10/24/2017	09:36		X	MW-136d	2		X	n.d.
15.		10/24/2017	10:52		X	MW-136i	2		X	n.d.
16.		10/24/2017	12:14		X	MW-136s	2		X	n.d.
17.		10/24/2017	13:46		X	MW-140d	2		X	n.d.
18.		10/24/2017	15:02		X	MW-140s	2		X	n.d.
19.		10/24/2017	16:29		X	MW-139d	2		X	n.d.
20.		10/24/2017	17:40		X	MW-139i	2		X	n.d.

CHAIN OF CUSTODY RECORD

October Samples

Pall Corporation, 642 S. Wagner Rd., Ann Arbor, MI Susan E.O. Peters [signature]

Relinquished by: [signature] 10-26-17 1412 Received by: [signature]

Line No.		Date	Time	Comp.	Grab	Sample Identification	No. of Containers	Priority	1,4-dioxane											Matrix / Remarks
1		[illegible]	07:00		X	Red Pond	1	Rush	X											400-500ppb
2		[illegible]		X		Outfall 001	2	Rush	X											<7ppb
3		[illegible]	10:15		X	MW-138d	2		X											nd
4		[illegible]	11:29		X	MW-138s	2		X											nd
5		[illegible]	12:44		X	MW-138i	2		X											<10
6		[illegible]	14:18		X	MW-137d	2		X											nd
7		[illegible]	15:29		X	MW-137s	2		X											nd
8		[illegible]	17:00		X	MW-139s	2		X											nd
9		[illegible]		X		Outfall 001	2	Rush	X											<7ppb
10		[illegible]	"		X	Red Pond	1	Rush	X											400-500ppb
11		10-23-?		X		Outfall 001	2	Rush	X											<7ppb
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				