REPUBLIC SERVICES

Sustainability in Action

1923 Frederick Street, Detroit, MI 48211
P 313.347.1300 F 313.923.0217

VIA EMAIL

February 29, 2024

Ms. Elizabeth Browne, Division Director
Materials Management Division
Michigan Environment, Great Lakes, and Energy
525 W. Allegan
Lansing, MI 48909-7741

SUBJECT: EQ Detroit, Inc. (DBA US Ecology – Detroit South); January 2024 Environmental Monitoring Report; MID 980 991 566

Dear Ms. Browne:

Attached please find the wastewater effluent monitoring results for EQ Detroit, Inc. (dba US Ecology – Detroit South, "the facility") for January 2024. Additionally, two 24-hour notification and a corresponding 30-day response was submitted to the Great Lakes Water Authority (GLWA) regarding pH exceedances which occurred in January 2024. These notifications have been included with this report.

Should you have any questions regarding this report, please contact Tabetha Peebles at 313-347-1328.

Sincerely,

John C. Barta
General Manager

Enclosures

Cc: Tianna Kilgore, EGLE (via email)
Rosam George, GLWA (via email)

Summary of Analytical Results

(excluding continuous pH monitoring results)

US Ecology Detroit South January 2024 Report

Parameter	Minimum Sampling Frequency	Daily Maximum mg/L	Monthly Average mg/L	Site Grab SG010424 01/04/24 mg/L	Site Comp SC010424 01/04/24 mg/L	Site Grab SG010924 01/09/24 mg/L	Site Comp SC010924 01/09/24 mg/L	Site Grab SG011024 01/10/24 mg/L	Site Comp SC011024 01/10/24 mg/L	Site Grab SG011124 01/11/24 mg/L	Site Comp SC011124 01/11/24 mg/L
Total Antimony	1/wk	0.249	0.206		<0.10		<0.10		<0.10		<0.10
Total Arsenic	1/wk	0.162	0.104		<0.10		<0.10		<0.10		<0.10
Total Cadmium	1/wk	0.474	0.0962		<0.05		<0.05		<0.05		<0.05
Total Chromium	1/wk	0.947	0.487		<0.10		<0.10		<0.10		<0.10
Total Cobalt	1/wk	0.192	0.124		<0.10		<0.10		<0.10		<0.10
Total Copper	1/wk	0.405	0.301		<0.10		<0.10		<0.10		<0.10
Total Lead	1/wk	0.222	0.172		<0.10		<0.10		<0.10		<0.10
Total Mercury	1/wk	0.00234	0.000739		<0.0002		<0.0002		<0.0002		<0.0002
Total Nickel	1/wk	3.95	1.45		<0.10		<0.10		<0.10		<0.10
Total Silver	1/wk	0.12	0.0351		<0.03		<0.03		<0.03		<0.03
Total Tin	1/wk	0.409	0.12		<0.10		<0.10		<0.10		<0.10
Total Titanium	1/wk	0.0947	0.0618		<0.05		<0.05		<0.05		<0.05
Total Vanadium	1/wk	0.218	0.0662		<0.05		<0.05		<0.05		<0.05
Total Zinc	1/wk	2.87	0.641		<0.10		<0.10		<0.10		<0.10
Bis(2-ethylhexyl)phthalate	1/wk	0.267	0.158		<0.010		<0.010		0.025		<0.010
Carbazole	1/wk	0.392	0.233		<0.010		<0.010		0.012		<0.010
o-Cresol	1/wk	1.92	0.561		<0.010		<0.010		<0.010		<0.010
p-Cresol	1/wk	0.698	0.205		<0.010		<0.010		<0.010		<0.010
n-Decane	1/wk	5.79	3.31		<0.010		<0.010		<0.010		<0.010
Fluoranthene	1/wk	0.787	0.393		<0.010		<0.010		<0.010		<0.010
n-Octadecane	1/wk	1.22	0.925		<0.010		<0.010		<0.010		<0.010
2,4,6-Trichlorophenol	1/wk	0.155	0.106		<0.010		<0.010		<0.010		<0.010
Acidity/Alkalinity (pH)	1/wk	5-11.5	---	7.3		9.4		8.7		7.4	
Perfluorooctanesulfonic acid (µg/L)	2/mo	0.06 µg/L	---					<0.06			
Cyanide (Amenable) (CNA)	2/mo	1.5	---			<1.0					
Fats, Oil and Grease	2/mo	1500	---			<100					
Total Suspended Solids	2/mo	10000	---				<100				
BOD	2/mo	10000	---				<60				
Phosphorus	2/mo	150	---				11.9				
Total PCB	1/6 mos	Non-detect	---								
PCB- Arochlor 1016	1/6 mos	Non-detect	---								
PCB- Arochlor 1221	1/6 mos	Non-detect	---								
PCB- Arochlor 1232	1/6 mos	Non-detect	---								
PCB- Arochlor 1242	1/6 mos	Non-detect	---								
PCB- Arochlor 1248	1/6 mos	Non-detect	---								
PCB- Arochlor 1254	1/6 mos	Non-detect	---								
PCB- Arochlor 1260	1/6 mos	Non-detect	---								
2-Chlorophenol	1/6 mos	8.0	---								
4-Chlorophenol	1/6 mos	8.0	---								
4-Chloro-3-Methyl Phenol	1/6 mos	3.0	---								
2,4-Dichlorophenol	1/6 mos	6.0	---								
2,4-Dinitrophenol	1/6 mos	30.0	---								
Phenol	1/6 mos	86	---								

US Ecology Detroit South January 2024 Report

Parameter	Minimum Sampling Frequency	Daily Maximum mg/L	Monthly Average mg/L	Site Grab SG011724 01/17/24 mg/L	Site Comp SC011724 01/17/24 mg/L	Site Comp SC011824 01/18/24 mg/L	Site Grab SG012224 01/22/24 mg/L	Site Grab SG012324 01/23/24 mg/L	Site Comp SC012324 01/23/24 mg/L	Site Grab SG012424 01/24/24 mg/L	Site Comp SC012424 01/24/24 mg/L
Total Antimony	1/wk	0.249	0.206		<0.10	<0.10			<0.10		<0.10
Total Arsenic	1/wk	0.162	0.104		<0.10	<0.10			<0.10		<0.10
Total Cadmium	1/wk	0.474	0.0962		<0.05	<0.05			<0.05		<0.05
Total Chromium	1/wk	0.947	0.487		<0.10	<0.10			<0.10		<0.10
Total Cobalt	1/wk	0.192	0.124		<0.10	<0.10			<0.10		<0.10
Total Copper	1/wk	0.405	0.301		<0.10	<0.10			<0.10		<0.10
Total Lead	1/wk	0.222	0.172		<0.10	<0.10			<0.10		<0.10
Total Mercury	1/wk	0.00234	0.000739		<0.0002	<0.0002			<0.0002		<0.0002
Total Nickel	1/wk	3.95	1.45		<0.10	<0.10			<0.10		<0.10
Total Silver	1/wk	0.12	0.0351		<0.03	<0.03			0.052		<0.03
Total Tin	1/wk	0.409	0.12		<0.10	<0.10			<0.10		<0.10
Total Titanium	1/wk	0.0947	0.0618		<0.05	<0.05			<0.05		<0.05
Total Vanadium	1/wk	0.218	0.0662		<0.05	<0.05			<0.05		<0.05
Total Zinc	1/wk	2.87	0.641		<0.10	<0.10			<0.10		<0.10
Bis(2-ethylhexyl)phthalate	1/wk	0.267	0.158		<0.010	<0.010			<0.010		<0.010
Carbazole	1/wk	0.392	0.233		<0.010	<0.010			<0.010		<0.010
o-Cresol	1/wk	1.92	0.561		<0.010	<0.010			<0.010		<0.010
p-Cresol	1/wk	0.698	0.205		<0.010	<0.010			<0.010		<0.010
n-Decane	1/wk	5.79	3.31		<0.010	<0.010			<0.010		<0.010
Fluoranthene	1/wk	0.787	0.393		<0.010	<0.010			<0.010		<0.010
n-Octadecane	1/wk	1.22	0.925		<0.010	<0.010			<0.010		<0.010
2,4,6-Trichlorophenol	1/wk	0.155	0.106		<0.010	<0.010			<0.010		<0.010
Acidity/Alkalinity (pH)	1/wk	5-11.5	---	8.1			7.4	9.0		7.4	
Perfluorooctanesulfonic acid (µg/L)	2/mo	0.06 µg/L	---				<0.06				
Cyanide (Amenable) (CNA)	2/mo	1.5	---	<1.0							
Fats, Oil and Grease	2/mo	1500	---	<100							
Total Suspended Solids	2/mo	10000	---		<100						
BOD	2/mo	10000	---		<60						
Phosphorus	2/mo	150	---		<5.0						
Total PCB	1/6 mos	Non-detect	---								
PCB- Arochlor 1016	1/6 mos	Non-detect	---								
PCB- Arochlor 1221	1/6 mos	Non-detect	---								
PCB- Arochlor 1232	1/6 mos	Non-detect	---								
PCB- Arochlor 1242	1/6 mos	Non-detect	---								
PCB- Arochlor 1248	1/6 mos	Non-detect	---								
PCB- Arochlor 1254	1/6 mos	Non-detect	---								
PCB- Arochlor 1260	1/6 mos	Non-detect	---								
2-Chlorophenol	1/6 mos	8.0	---								
4-Chlorophenol	1/6 mos	8.0	---								
4-Chloro-3-Methyl Phenol	1/6 mos	3.0	---								
2,4-Dichlorophenol	1/6 mos	6.0	---								
2,4-Dinitrophenol	1/6 mos	30.0	---								
Phenol	1/6 mos	86	---								

US Ecology Detroit South January 2024 Report

Parameter	Minimum Sampling Frequency	Daily Maximum mg/L	Monthly Average mg/L	Site Grab SG012524 01/25/24 mg/L	Site Comp SC012524 01/25/24 mg/L	Site Grab SG013024 01/30/24 mg/L	Site Comp SC013024 01/30/24 mg/L	Site Grab SG013124 01/31/24 mg/L	Site Comp SC013124 01/31/24 mg/L	**Average mg/L**
Total Antimony	1/wk	0.249	0.206		<0.10		<0.10		<0.10	<0.10
Total Arsenic	1/wk	0.162	0.104		<0.10		<0.10		<0.10	<0.10
Total Cadmium	1/wk	0.474	0.0962		<0.05		<0.05		<0.05	<0.05
Total Chromium	1/wk	0.947	0.487		<0.10		<0.10		<0.10	<0.10
Total Cobalt	1/wk	0.192	0.124		<0.10		<0.10		<0.10	<0.10
Total Copper	1/wk	0.405	0.301		<0.10		<0.10		<0.10	<0.10
Total Lead	1/wk	0.222	0.172		<0.10		<0.10		<0.10	<0.10
Total Mercury	1/wk	0.00234	0.000739		<0.0002		<0.0002		<0.0002	<0.0002
Total Nickel	1/wk	3.95	1.45		<0.10		<0.10		<0.10	<0.10
Total Silver	1/wk	0.12	0.0351		<0.03		<0.03		<0.03	<0.03
Total Tin	1/wk	0.409	0.12		<0.10		<0.10		<0.10	<0.10
Total Titanium	1/wk	0.0947	0.0618		<0.05		<0.05		<0.05	<0.05
Total Vanadium	1/wk	0.218	0.0662		<0.05		<0.05		<0.05	<0.05
Total Zinc	1/wk	2.87	0.641		<0.10		<0.10		<0.10	<0.10
Bis(2-ethylhexyl)phthalate	1/wk	0.267	0.158		<0.010		<0.010		0.011	<0.010
Carbazole	1/wk	0.392	0.233		<0.010		<0.010		<0.010	<0.010
o-Cresol	1/wk	1.92	0.561		<0.010		<0.010		<0.010	<0.010
p-Cresol	1/wk	0.698	0.205		<0.010		<0.010		<0.010	<0.010
n-Decane	1/wk	5.79	3.31		<0.010		<0.010		<0.010	<0.010
Fluoranthene	1/wk	0.787	0.393		<0.010		<0.010		<0.010	<0.010
n-Octadecane	1/wk	1.22	0.925		<0.010		<0.010		<0.010	<0.010
2,4,6-Trichlorophenol	1/wk	0.155	0.106		<0.010		<0.010		<0.010	<0.010
Acidity/Alkalinity (pH)	1/wk	5-11.5	---	7.6		8.0		7.9		
Perfluorooctanesulfonic acid (µg/L)	2/mo	0.06 µg/L	---							
Cyanide (Amenable) (CNA)	2/mo	1.5	---							
Fats, Oil and Grease	2/mo	1500	---							
Total Suspended Solids	2/mo	10000	---							
BOD	2/mo	10000	---							
Phosphorus	2/mo	150	---							
Total PCB	1/6 mos	Non-detect	---							
PCB- Arochlor 1016	1/6 mos	Non-detect	---							
PCB- Arochlor 1221	1/6 mos	Non-detect	---							
PCB- Arochlor 1232	1/6 mos	Non-detect	---							
PCB- Arochlor 1242	1/6 mos	Non-detect	---							
PCB- Arochlor 1248	1/6 mos	Non-detect	---							
PCB- Arochlor 1254	1/6 mos	Non-detect	---							
PCB- Arochlor 1260	1/6 mos	Non-detect	---							
2-Chlorophenol	1/6 mos	8.0	---							
4-Chlorophenol	1/6 mos	8.0	---							
4-Chloro-3-Methyl Phenol	1/6 mos	3.0	---							
2,4-Dichlorophenol	1/6 mos	6.0	---							
2,4-Dinitrophenol	1/6 mos	30.0	---							
Phenol	1/6 mos	86	---							

Operating Days / Flow Volume

Monthly Operating Days / Total Discharge Volume
EQ Detroit, Inc. (dba US Ecology - Detroit South)

January 2024	Operating days	Discharge per Day (gal)
1	NDO	0
2		210,500
3		101,600
4	G/C	69,200
5		88,700
6	NDO	0
7	NDO	0
8		221,200
9	G/C	105,500
10	G/C	99,200
11	G/C	98,300
12		230,000
13	NDO	0
14	NDO	0
15		62,900
16		80,100
17	G/C	76,500
18	C	73,100
19		154,700
20	NDO	0
21	NDO	0
22	G	75,300
23	G/C	81,800
24	G/C	88,500
25	G/C	101,700
26		146,000
27	NDO	0
28	NDO	0
29		102,700
30	G/C	98,700
31	G/C	109,100

ND = Non-Discharge Day
NDO = Non-Discharge Day, Non-Operating Day
C = Composite Sample
G = Grab sample

Analytical Results

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SG010424
Start Sampling Date:	01/04/24
End Sampling Date:	01/04/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/04/24					
Collection Time	11:05 AM					
Acidity/Alkalinity (pH)	7.3	1.0	5-11.5	S.U.	MSP	01/04/24
Temperature	15			Deg C		
Analysis Time	11:11 AM					

Validated By:

Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual.
This report may only be reproduced in its entirety.

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SC010424
Start Sampling Date:	01/03/24
End Sampling Date:	01/04/24
Sample Type:	Site Composite
Report Date:	02/13/24

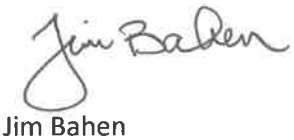
Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	Less Than	0.010	0.267	mg/L	KMO	02/07/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/07/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/07/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/07/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/07/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/07/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/07/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/07/24

Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	01/16/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	01/11/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	01/11/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	01/11/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	01/11/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	01/11/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	01/11/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	01/11/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	01/11/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	01/11/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	01/11/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	01/11/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	01/16/24

Validated By:



Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual. This report may only be reproduced in its entirety.

24-Jan-2024

Jim Bahen
US Ecology
1923 Frederick Street
Detroit, MI 48211

Re: **GLWA Hg Confirmation 01-17-24** Work Order: **24011180**

Dear Jim,

ALS Environmental received 3 samples on 17-Jan-2024 10:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 10.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Chelsey Cook

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Work Order: 24011180

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24011180-01	SC010924	Wastewater		1/9/2024 09:30	1/17/2024 22:00	☐
24011180-02	SC010424	Wastewater		1/4/2024 10:00	1/17/2024 22:00	☐
24011180-03	SC011124	Wastewater		1/11/2024 09:30	1/17/2024 22:00	☐

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
WorkOrder: 24011180

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

ALS Group, USA

Date: 24-Jan-24

Client:	US Ecology
Project:	GLWA Hg Confirmation 01-17-24
Work Order:	24011180

Case Narrative

Samples for the above noted Work Order were received on 01/17/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:

Batch 233677, Method E245.1, Sample SC010924 (24011180-01A): Diluted due to sample matrix, filtered after digestion.

Batch 233677, Method E245.1, Sample 24011180-03AMS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Hg.

Batch 233677, Method E245.1, Sample 24011180-03AMSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for the following analyte(s): Hg.

No other deviations or anomalies were noted.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Sample ID: SC010924
Collection Date: 1/9/2024 09:30 AM

Work Order: 24011180
Lab ID: 24011180-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**E245.1**		Prep: E245.1 1/18/24 13:50	Analyst: **KRA**
Mercury	ND		0.0020	mg/L	1	1/18/2024 02:16 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Sample ID: SC010424
Collection Date: 1/4/2024 10:00 AM

Work Order: 24011180
Lab ID: 24011180-02
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**E245.1**		Prep: E245.1 1/18/24 13:50	Analyst: **KRA**
Mercury	ND		0.00020	mg/L	1	1/18/2024 02:18 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Sample ID: SC011124
Collection Date: 1/11/2024 09:30 AM

Work Order: 24011180
Lab ID: 24011180-03
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**E245.1**		Prep: E245.1 1/18/24 13:50	Analyst: **KRA**
Mercury	ND		0.00020	mg/L	1	1/18/2024 02:21 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Client: US Ecology
Work Order: 24011180
Project: GLWA Hg Confirmation 01-17-24

Date: 24-Jan-24

QC BATCH REPORT

Batch ID: **233677** Instrument ID **HG5** Method: **E245.1**

MBLK	Sample ID: MBLK-233677-233677					Units: mg/L			Analysis Date: 1/18/2024 01:56 PM
Client ID:	Run ID: HG5_240118B			SeqNo: 10411122		Prep Date: 1/18/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS	Sample ID: LCS-233677-233677					Units: mg/L			Analysis Date: 1/18/2024 01:58 PM
Client ID:	Run ID: HG5_240118B			SeqNo: 10411123		Prep Date: 1/18/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00219	0.00020	0.002	0	110	85-115	0			

MS	Sample ID: 24011180-03AMS					Units: mg/L			Analysis Date: 1/18/2024 02:22 PM
Client ID: SC011124	Run ID: HG5_240118B			SeqNo: 10411131		Prep Date: 1/18/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000459	0.00020	0.002	0.000024	21.8	80-120	0			S

MSD	Sample ID: 24011180-03AMSD					Units: mg/L			Analysis Date: 1/18/2024 02:30 PM
Client ID: SC011124	Run ID: HG5_240118B			SeqNo: 10411135		Prep Date: 1/18/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0004335	0.00020	0.002	0.000024	20.5	80-120	0.000459	5.71	20	S

DUP	Sample ID: 24011178-03ADUP					Units: mg/L			Analysis Date: 1/18/2024 04:19 PM
Client ID:	Run ID: HG5_240118B			SeqNo: 10411196		Prep Date: 1/18/2024		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0489	0.0020	0	0	0	0-0	0.04905	0.306	20	

The following samples were analyzed in this batch: 24011180-01A 24011180-02A 24011180-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

24011180

USECOLOGY - DETROIT, US Ecology
Project: GLWA Hg Confirmation 01-17-24

Chain of Custody Form

Page 1 of 1

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	P121-3004442	Project Name	GLWA Hg Confirmation 01-17-24	A	WP Total Hg (RL 0.2 µg/L or lower)
Quote #		Project Number		B	
Company Name	US Ecology	Bill To Company	US Ecology, Inc.	C	
Send Report To	Jim Bahen	Invoice Attn.	Tyler Coombs	D	
Address	1923 Frederick St	Address	17440 College Parkway	E	
			STE 300	F	
City/State/Zip	Detroit/Mi/48211	City/State/Zip	Livonia/MI/48152	G	
Phone	734-344-8000	Phone		H	
Fax		Fax	Accounts.Payable@Usecology.com	I	
e-Mail Address	Jbahen@RepublicServices.com, Jdanko@RepublicServices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SC010924	01/09/24	9:30	WW	2	1	X										
2	SC010424	01/04/24	10:00	WW	2	1	X										
3	SC011124	01/11/24	9:30	WW	2	1	X										
4																	
5																	
6																	
7																	
8																	
9																	

Sampler(s): Please Print & Sign
Jim Bahen

Shipment Method:

Turnaround Time: (Business Days)
☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☑ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
	01/17/24	11:22am		01/17/24	1122	Rec'd 1/17/24 2200
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:	Cooler Temp °C / pH Verified
	1/17/24	506	QS	1/17/24	506	DF2 3.6c pH36
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			
DFS	1/18/24	0900				

QC Package: (Check Box Below)
☐ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ Other: _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035A

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **USECOLOGY - DETROIT**
Date/Time Received: **17-Jan-24 22:00**
Work Order: **24011180**
Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 18-Jan-24 (Date)
Reviewed by: Chelsey Cook (eSignature) 18-Jan-24 (Date)

Matrices: Wastewater
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.6/3.6 c	DF2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/18/2024 9:11:13 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: pH check <2.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

US ecology

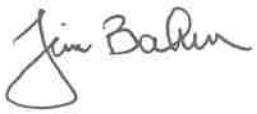
US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SG010924
Start Sampling Date:	01/09/24
End Sampling Date:	01/09/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/09/24					
Collection Time	9:30 AM					
Acidity/Alkalinity (pH)	9.4	1.0	5-11.5	S.U.	JCB	01/09/24
Temperature	15			Deg C		
Analysis Time	9:38 AM					

Validated By:



Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual.
This report may only be reproduced in its entirety.

22-Jan-2024

Jim Bahen
US Ecology
1923 Frederick Street
Detroit, MI 48211

Re: **South 2 per Month 01.09.24**

Work Order: **24010629**

Dear Jim,

ALS Environmental received 2 samples on 09-Jan-2024 10:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Chelsey Cook

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

ALS Group, USA

Date: 22-Jan-24

Client: US Ecology
Project: South 2 per Month 01.09.24
Work Order: **24010629**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24010629-01	SG010924	Wastewater		1/9/2024 09:30	1/9/2024 22:00	☐
24010629-02	SC010924	Wastewater		1/9/2024 09:30	1/9/2024 22:00	☐

ALS Group, USA

Date: 22-Jan-24

Client: US Ecology
Project: South 2 per Month 01.09.24
WorkOrder: 24010629

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

ALS Group, USA

Date: 22-Jan-24

Client:	US Ecology
Project:	South 2 per Month 01.09.24
Work Order:	24010629

Case Narrative

Samples for the above noted Work Order were received on 01/09/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:

Batch 233291, Method A5210B-16, Sample SC010924 (24010629-02A): Matrix interference; sample reran on 1/15/2024 and had similar result. Original results from 1/10/2024 run is reported because there is no hold flags.

Batch 233291, Method A5210B-16, Sample SC010924 (24010629-02A): The sample dilutions set up for BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. The result should be considered estimated. BOD.

Batch 233291, Method A5210B-16, Sample SC010924 (24010629-02A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. BOD.

Batch 233524, Method A4500-CN E-16, Sample 24010629-01A MS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: CN.

Batch 233524, Method A4500-CN E-16, Sample 24010629-01A MSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for the following analyte(s): CN.

No other deviations or anomalies were noted.

ALS Group, USA

Date: *22-Jan-2024*

Client: US Ecology
Project: South 2 per Month 01.09.24
Sample ID: SG010924
Collection Date: 1/9/2024 09:30 AM

Work Order: 24010629
Lab ID: 24010629-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, AMENABLE			**A4500-CN G-16**		Prep: SW9012B 1/16/24 11:52	Analyst: **JMT**
Cyanide, Amenable	ND		0.0050	mg/L	1	1/16/2024 12:32 PM
OIL AND GREASE			**E1664A**		Prep: E1664A 1/15/24 09:15	Analyst: **HBR**
Oil and Grease	ND		5.2	mg/L	1	1/15/2024 10:00 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *22-Jan-2024*

Client: US Ecology
Project: South 2 per Month 01.09.24
Sample ID: SC010924
Collection Date: 1/9/2024 09:30 AM

Work Order: 24010629
Lab ID: 24010629-02
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BIOCHEMICAL OXYGEN DEMAND			**A5210B-16**		Prep: A5210B 1/10/24 13:40	Analyst: **KF**
Biochemical Oxygen Demand	*<24.00*		3.0	mg/L	1	1/15/2024 10:54 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 22-Jan-24

Client: US Ecology
Work Order: 24010629
Project: South 2 per Month 01.09.24

QC BATCH REPORT

Batch ID: **233291** Instrument ID **LDO** Method: **A5210B-16**

MBLK Sample ID: **MBLK-233291-233291** Units: **mg/L** Analysis Date: **1/15/2024 10:54 AM**
Client ID: Run ID: **LDO_240115A** SeqNo: **10399894** Prep Date: **1/10/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	3.0								

LCS Sample ID: **LCS-233291-233291** Units: **mg/L** Analysis Date: **1/15/2024 10:54 AM**
Client ID: Run ID: **LDO_240115A** SeqNo: **10399892** Prep Date: **1/10/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	184.9	3.0	198	0	93.4	85-115	0			

DUP Sample ID: **24010047-10A DUP** Units: **mg/L** Analysis Date: **1/15/2024 10:54 AM**
Client ID: Run ID: **LDO_240115A** SeqNo: **10399870** Prep Date: **1/10/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	4.089	3.0	0	0	0	0-0	4.434	8.1	20	

DUP Sample ID: **24010647-03A DUP** Units: **mg/L** Analysis Date: **1/15/2024 10:54 AM**
Client ID: Run ID: **LDO_240115A** SeqNo: **10399882** Prep Date: **1/10/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	22.3	3.0	0	0	0	0-0	23.53	5.37	20	

The following samples were analyzed in this batch: 24010629-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24010629
Project: South 2 per Month 01.09.24

QC BATCH REPORT

Batch ID: **233474** Instrument ID **O&G** Method: **E1664A**

MBLK Sample ID: **MBLK-233474-233474** Units: **mg/L** Analysis Date: **1/15/2024 10:00 AM**
Client ID: Run ID: **O&G_240115A** SeqNo: **10401137** Prep Date: **1/15/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	1.2								

LCS Sample ID: **LCS-233474-233474** Units: **mg/L** Analysis Date: **1/15/2024 10:00 AM**
Client ID: Run ID: **O&G_240115A** SeqNo: **10401136** Prep Date: **1/15/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	33.3	1.2	40	0	83.2	78-114	0			

MS Sample ID: **24010643-01A MS** Units: **mg/L** Analysis Date: **1/15/2024 10:00 AM**
Client ID: Run ID: **O&G_240115A** SeqNo: **10401128** Prep Date: **1/15/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	34.33	1.4	44.44	0.2222	76.7	78-114	0			S

DUP Sample ID: **24010643-03A DUP** Units: **mg/L** Analysis Date: **1/15/2024 10:00 AM**
Client ID: Run ID: **O&G_240115A** SeqNo: **10401130** Prep Date: **1/15/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	1.4	0	0	0	0-0	0.5556	0	18	

The following samples were analyzed in this batch: 24010629-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24010629
Project: South 2 per Month 01.09.24

QC BATCH REPORT

Batch ID: **233524** Instrument ID **LACHAT2** Method: **A4500-CN G-16**

MBLK Sample ID: **MBLK-233524-233524** Units: **mg/L** Analysis Date: **1/16/2024 12:23 PM**
Client ID: Run ID: **LACHAT2_240116A** SeqNo: **10403338** Prep Date: **1/16/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Amenable	ND	0.0050								

LCS Sample ID: **LCS-233524-233524** Units: **mg/L** Analysis Date: **1/16/2024 12:24 PM**
Client ID: Run ID: **LACHAT2_240116A** SeqNo: **10403339** Prep Date: **1/16/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Amenable	0.2618	0.0050	0.25	0	105	86-116	0			

The following samples were analyzed in this batch: 24010629-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

24010629
USECOLOGY - DETROIT US Ecology
Project: South 2 per Month 01 09 24

Chain of Custody Form

Page 1 of 1

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	P121-3003667	Project Name	South 2 per Month 01-09-24	A	Amenable Cyanide SM 4500 CN G
Quote #		Project Number		B	FOG / EPA 1664
Company Name	US Ecology	Bill To Company	US Ecology, Inc.	C	BOD 5210B
Send Report To	Jim Bahen	Invoice Attn.	Tyler Coombs	D	
Address	1923 Frederick St	Address	17440 College Parkway	E	
			STE 300	F	
City/State/Zip	Detroit/Mi/48211	City/State/Zip	Livonia/MI/48152	G	
Phone	734-344-8000	Phone		H	
Fax		Fax	Accounts.Payable@Usecology.com	I	
e-Mail Address	JBahen@republicservices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SG010924	01/09/24	9:30	WW	4	1	X										
2				WW	3	2		X									
3	SC010924	01/09/24	9:30	WW	8	1			X								
4																	
5																	
6																	
7																	
8																	
9																	

Sampler(s): Please Print & Sign
Jim Bahen

Shipment Method:

Turnaround Time: (Business Days)
☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☑ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
J Bahen	01/09/24	1325		01/09/24	13:25
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:
	1/9/24	509		1/9/24	500
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		
DES	1/10/24	1015			

Notes: Pos Sulfide Screen
Rec'd 1/9/24 2200

Cooler Temp °C	pH Verified
DFZ	
2.8-C	
pH 12	

QC Package: (Check Box Below)
☑ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ Other:

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4°C 9-5035A

Note: Any changes must be made in writing one

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **USECOLOGY - DETROIT** Date/Time Received: **09-Jan-24 22:00**

Work Order: **24010629** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 10-Jan-24 (Date) Reviewed by: Chelsey Cook (eSignature) 12-Jan-24 (Date)

Matrices: Wastewater
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.8/2.8 c	DF2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/10/2024 10:24:17 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes: pH check >12.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SC010924
Start Sampling Date:	01/08/24
End Sampling Date:	01/09/24
Sample Type:	Site Composite
Report Date:	02/13/24

Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	Less Than	0.010	0.267	mg/L	KMO	02/08/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/08/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/08/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/08/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/08/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/08/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/08/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/08/24

Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	01/11/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	01/11/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	01/11/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	01/11/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	01/11/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	01/11/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	01/11/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	01/11/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	01/11/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	01/11/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	01/11/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	01/11/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	01/11/24

Two per Month Discharge Total Suspended Solid (Standard Methods 2540-D)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Total Suspended Solids (TSS)	Less Than	100	10000	mg/L	REW	01/16/24

Two per Month Discharge Total Phosphorus (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Phosphorous (P)	11.9	5.0	150	mg/L	MSP	01/11/24

Validated By:

Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual. This report may only be reproduced in its entirety.

24-Jan-2024

Jim Bahen
US Ecology
1923 Frederick Street
Detroit, MI 48211

Re: **GLWA Hg Confirmation 01-17-24** Work Order: **24011180**

Dear Jim,

ALS Environmental received 3 samples on 17-Jan-2024 10:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 10.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Chelsey Cook

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Work Order: **24011180**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24011180-01	SC010924	Wastewater		1/9/2024 09:30	1/17/2024 22:00	☐
24011180-02	SC010424	Wastewater		1/4/2024 10:00	1/17/2024 22:00	☐
24011180-03	SC011124	Wastewater		1/11/2024 09:30	1/17/2024 22:00	☐

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
WorkOrder: 24011180

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Work Order: 24011180

Case Narrative

Samples for the above noted Work Order were received on 01/17/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:

Batch 233677, Method E245.1, Sample SC010924 (24011180-01A): Diluted due to sample matrix, filtered after digestion.

Batch 233677, Method E245.1, Sample 24011180-03AMS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Hg.

Batch 233677, Method E245.1, Sample 24011180-03AMSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for the following analyte(s): Hg.

No other deviations or anomalies were noted.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Sample ID: SC010924
Collection Date: 1/9/2024 09:30 AM

Work Order: 24011180
Lab ID: 24011180-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**E245.1**		Prep: E245.1 1/18/24 13:50	Analyst: **KRA**
Mercury	ND		0.0020	mg/L	1	1/18/2024 02:16 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Sample ID: SC010424
Collection Date: 1/4/2024 10:00 AM

Work Order: 24011180
Lab ID: 24011180-02
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**E245.1**		Prep: E245.1 1/18/24 13:50	Analyst: **KRA**
Mercury	ND		0.00020	mg/L	1	1/18/2024 02:18 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Sample ID: SC011124
Collection Date: 1/11/2024 09:30 AM

Work Order: 24011180
Lab ID: 24011180-03
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**E245.1**		Prep: E245.1 1/18/24 13:50	Analyst: **KRA**
Mercury	ND		0.00020	mg/L	1	1/18/2024 02:21 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Work Order: 24011180
Project: GLWA Hg Confirmation 01-17-24

QC BATCH REPORT

Batch ID: **233677** Instrument ID **HG5** Method: **E245.1**

MBLK Sample ID: **MBLK-233677-233677** Units: **mg/L** Analysis Date: **1/18/2024 01:56 PM**
Client ID: Run ID: **HG5_240118B** SeqNo: **10411122** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-233677-233677** Units: **mg/L** Analysis Date: **1/18/2024 01:58 PM**
Client ID: Run ID: **HG5_240118B** SeqNo: **10411123** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00219	0.00020	0.002	0	110	85-115	0			

MS Sample ID: **24011180-03AMS** Units: **mg/L** Analysis Date: **1/18/2024 02:22 PM**
Client ID: **SC011124** Run ID: **HG5_240118B** SeqNo: **10411131** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000459	0.00020	0.002	0.000024	21.8	80-120	0			S

MSD Sample ID: **24011180-03AMSD** Units: **mg/L** Analysis Date: **1/18/2024 02:30 PM**
Client ID: **SC011124** Run ID: **HG5_240118B** SeqNo: **10411135** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0004335	0.00020	0.002	0.000024	20.5	80-120	0.000459	5.71	20	S

DUP Sample ID: **24011178-03ADUP** Units: **mg/L** Analysis Date: **1/18/2024 04:19 PM**
Client ID: Run ID: **HG5_240118B** SeqNo: **10411196** Prep Date: **1/18/2024** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0489	0.0020	0	0	0	0-0	0.04905	0.306	20	

The following samples were analyzed in this batch: 24011180-01A 24011180-02A 24011180-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

24011180

USECOLOGY - DETROIT, US Ecology
Project: GLWA Hg Confirmation 01-17-24

Chain of Custody Form

Page 1 of 1

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	P121-3004442	Project Name	GLWA Hg Confirmation 01-17-24	A	WP Total Hg (RL 0.2 µg/L or lower)
Quote #		Project Number		B	
Company Name	US Ecology	Bill To Company	US Ecology, Inc.	C	
Send Report To	Jim Bahen	Invoice Attn.	Tyler Coombs	D	
Address	1923 Frederick St	Address	17440 College Parkway	E	
			STE 300	F	
City/State/Zip	Detroit/Mi/48211	City/State/Zip	Livonia/MI/48152	G	
Phone	734-344-8000	Phone		H	
Fax		Fax	Accounts.Payable@Usecology.com	I	
e-Mail Address	Jbahen@RepublicServices.com, Jdanko@RepublicServices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SC010924	01/09/24	9:30	WW	2	1	X										
2	SC010424	01/04/24	10:00	WW	2	1	X										
3	SC011124	01/11/24	9:30	WW	2	1	X										
4																	
5																	
6																	
7																	
8																	
9																	

Sampler(s): Please Print & Sign
Jim Bahen

Shipment Method:

Turnaround Time: (Business Days) ☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☑ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
	01/17/24	11:22am		01/17/24	1122	Rec'd 1/17/24 2200
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:	
	1/17/24	506	QS	1/17/24	506	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			
DFS	1/18/24	0900				

Cooler Temp °C	pH Verified	QC Package: (Check Box Below)	
DF2		☐ Level II: Standard QC	☐ Level III: Raw Data
3.6°C		☐ TRRP LRC	☐ TRRP Level IV
pH 6		☐ Level IV: SW846 Methods/CLP like	
		☐ Other:	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035A

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **USECOLOGY - DETROIT**
Date/Time Received: **17-Jan-24 22:00**
Work Order: **24011180**
Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 18-Jan-24 (Date)
Reviewed by: Chelsey Cook (eSignature) 18-Jan-24 (Date)

Matrices: Wastewater
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.6/3.6 c	DF2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/18/2024 9:11:13 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: pH check <2.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

22-Jan-2024

Jim Bahen
US Ecology
1923 Frederick Street
Detroit, MI 48211

Re: **South 2 per Month 01.09.24** Work Order: **24010629**

Dear Jim,

ALS Environmental received 2 samples on 09-Jan-2024 10:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Chelsey Cook

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

Report of Laboratory Analysis

Certificate No: FL E871106

ALS Group, USA

Date: 22-Jan-24

Client: US Ecology
Project: South 2 per Month 01.09.24
Work Order: **24010629**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24010629-01	SG010924	Wastewater		1/9/2024 09:30	1/9/2024 22:00	☐
24010629-02	SC010924	Wastewater		1/9/2024 09:30	1/9/2024 22:00	☐

ALS Group, USA

Date: 22-Jan-24

Client: US Ecology
Project: South 2 per Month 01.09.24
WorkOrder: 24010629

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

ALS Group, USA

Date: 22-Jan-24

Client:	US Ecology
Project:	South 2 per Month 01.09.24
Work Order:	24010629

Case Narrative

Samples for the above noted Work Order were received on 01/09/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:

Batch 233291, Method A5210B-16, Sample SC010924 (24010629-02A): Matrix interference; sample reran on 1/15/2024 and had similar result. Original results from 1/10/2024 run is reported because there is no hold flags.

Batch 233291, Method A5210B-16, Sample SC010924 (24010629-02A): The sample dilutions set up for BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. The result should be considered estimated. BOD.

Batch 233291, Method A5210B-16, Sample SC010924 (24010629-02A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. BOD.

Batch 233524, Method A4500-CN E-16, Sample 24010629-01A MS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: CN.

Batch 233524, Method A4500-CN E-16, Sample 24010629-01A MSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for the following analyte(s): CN.

No other deviations or anomalies were noted.

ALS Group, USA

Date: *22-Jan-2024*

Client: US Ecology
Project: South 2 per Month 01.09.24
Sample ID: SG010924
Collection Date: 1/9/2024 09:30 AM

Work Order: 24010629
Lab ID: 24010629-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, AMENABLE			**A4500-CN G-16**		Prep: SW9012B 1/16/24 11:52	Analyst: **JMT**
Cyanide, Amenable	ND		0.0050	mg/L	1	1/16/2024 12:32 PM
OIL AND GREASE			**E1664A**		Prep: E1664A 1/15/24 09:15	Analyst: **HBR**
Oil and Grease	ND		5.2	mg/L	1	1/15/2024 10:00 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *22-Jan-2024*

Client: US Ecology
Project: South 2 per Month 01.09.24
Sample ID: SC010924
Collection Date: 1/9/2024 09:30 AM

Work Order: 24010629
Lab ID: 24010629-02
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BIOCHEMICAL OXYGEN DEMAND			**A5210B-16**		Prep: A5210B 1/10/24 13:40	Analyst: **KF**
Biochemical Oxygen Demand	*<24.00*		3.0	mg/L	1	1/15/2024 10:54 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Client: US Ecology
Work Order: 24010629
Project: South 2 per Month 01.09.24

Date: 22-Jan-24

QC BATCH REPORT

Batch ID: **233291** Instrument ID **LDO** Method: **A5210B-16**

MBLK Sample ID: **MBLK-233291-233291** Units: **mg/L** Analysis Date: **1/15/2024 10:54 AM**
Client ID: Run ID: **LDO_240115A** SeqNo: **10399894** Prep Date: **1/10/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	3.0								

LCS Sample ID: **LCS-233291-233291** Units: **mg/L** Analysis Date: **1/15/2024 10:54 AM**
Client ID: Run ID: **LDO_240115A** SeqNo: **10399892** Prep Date: **1/10/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	184.9	3.0	198	0	93.4	85-115	0			

DUP Sample ID: **24010047-10A DUP** Units: **mg/L** Analysis Date: **1/15/2024 10:54 AM**
Client ID: Run ID: **LDO_240115A** SeqNo: **10399870** Prep Date: **1/10/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	4.089	3.0	0	0	0	0-0	4.434	8.1	20	

DUP Sample ID: **24010647-03A DUP** Units: **mg/L** Analysis Date: **1/15/2024 10:54 AM**
Client ID: Run ID: **LDO_240115A** SeqNo: **10399882** Prep Date: **1/10/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	22.3	3.0	0	0	0	0-0	23.53	5.37	20	

The following samples were analyzed in this batch: 24010629-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24010629
Project: South 2 per Month 01.09.24

QC BATCH REPORT

Batch ID: **233474** Instrument ID **O&G** Method: **E1664A**

MBLK	Sample ID: **MBLK-233474-233474**				Units: **mg/L**			Analysis Date: **1/15/2024 10:00 AM**			
Client ID:	Run ID: **O&G_240115A**				SeqNo: **10401137**			Prep Date: **1/15/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	1.2								

LCS	Sample ID: **LCS-233474-233474**				Units: **mg/L**			Analysis Date: **1/15/2024 10:00 AM**			
Client ID:	Run ID: **O&G_240115A**				SeqNo: **10401136**			Prep Date: **1/15/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	33.3	1.2	40	0	83.2	78-114	0			

MS	Sample ID: **24010643-01A MS**				Units: **mg/L**			Analysis Date: **1/15/2024 10:00 AM**			
Client ID:	Run ID: **O&G_240115A**				SeqNo: **10401128**			Prep Date: **1/15/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	34.33	1.4	44.44	0.2222	76.7	78-114	0			S

DUP	Sample ID: **24010643-03A DUP**				Units: **mg/L**			Analysis Date: **1/15/2024 10:00 AM**			
Client ID:	Run ID: **O&G_240115A**				SeqNo: **10401130**			Prep Date: **1/15/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	1.4	0	0	0	0-0	0.5556	0	18	

The following samples were analyzed in this batch: 24010629-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24010629
Project: South 2 per Month 01.09.24

QC BATCH REPORT

Batch ID: **233524** Instrument ID **LACHAT2** Method: **A4500-CN G-16**

MBLK Sample ID: **MBLK-233524-233524** Units: **mg/L** Analysis Date: **1/16/2024 12:23 PM**
Client ID: Run ID: **LACHAT2_240116A** SeqNo: **10403338** Prep Date: **1/16/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Amenable	ND	0.0050								

LCS Sample ID: **LCS-233524-233524** Units: **mg/L** Analysis Date: **1/16/2024 12:24 PM**
Client ID: Run ID: **LACHAT2_240116A** SeqNo: **10403339** Prep Date: **1/16/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Amenable	0.2618	0.0050	0.25	0	105	86-116	0			

The following samples were analyzed in this batch: 24010629-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

24010629

USECOLOGY - DETROIT, US Ecology
Project: South 2 per Month 01-09-24

Chain of Custody Form

Page 1 of 1

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager: | **ALS Work Order #:**

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	P121-3003667	Project Name	South 2 per Month 01-09-24	A	Amenable Cyanide SM 4500 CN G
Quote #		Project Number		B	FOG / EPA 1664
Company Name	US Ecology	Bill To Company	US Ecology, Inc.	C	BOD 5210B
Send Report To	Jim Bahen	Invoice Attn.	Tyler Coombs	D	
Address	1923 Frederick St	Address	17440 College Parkway	E	
			STE 300	F	
City/State/Zip	Detroit/Mi/48211	City/State/Zip	Livonia/MI/48152	G	
Phone	734-344-8000	Phone		H	
Fax		Fax	Accounts.Payable@Usecology.com	I	
e-Mail Address	JBahen@republicservices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SG010924	01/09/24	9:30	WW	4	1	X										
2				WW	3	2		X									
3	SC010924	01/09/24	9:30	WW	8	1			X								
4																	
5																	
6																	
7																	
8																	
9																	

Sampler(s): Please Print & Sign
Jim Bahen

Shipment Method:

Turnaround Time: (Business Days)
☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☑ Other

Results Due Date:

	Date:	Time:		Date:	Time:	Notes: Pos Sulfide Screen
Relinquished by: J Bahen	01/09/24	1325	Received by:	01/09/24	13:25	Rec'd 1/9/24 2200
Relinquished by:	1/9/24	509	Received by (Laboratory):	1/9/24	500	
Logged by (Laboratory): DES	1/10/24	1015	Checked by (Laboratory):			

Cooler Temp °C	pH Verified
DFZ	
2.8°C	
pH 1&6	

QC Package: (Check Box Below)
☑ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ Other:

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4°C 9-5035A Note: Any changes must be made in writing one

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **USECOLOGY - DETROIT**
Date/Time Received: **09-Jan-24 22:00**
Work Order: **24010629**
Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 10-Jan-24 (Date)
Reviewed by: Chelsey Cook (eSignature) 12-Jan-24 (Date)

Matrices: Wastewater
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.8/2.8 c	DF2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/10/2024 10:24:17 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: pH check >12.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SG011024
Start Sampling Date:	01/10/24
End Sampling Date:	01/10/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/10/24					
Collection Time	9:30 AM					
Acidity/Alkalinity (pH)	8.7	1.0	5-11.5	S.U.	JCB	01/10/24
Temperature	14			Deg C		
Analysis Time	9:40 AM					

Validated By:

Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual.
This report may only be reproduced in its entirety.

18-Jan-2024

Jim Bahen
US Ecology
1923 Frederick Street
Detroit, MI 48211

Re: **PFAS 01-11-24**

Work Order: **24010872**

Dear Jim,

ALS Environmental received 1 sample on 11-Jan-2024 10:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

ALS Group, USA

Date: 18-Jan-24

Client: US Ecology
Project: PFAS 01-11-24
Work Order: **24010872**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24010872-01	SG011024	Wastewater		1/10/2024 09:30	1/11/2024 22:00	☐

Client: US Ecology
Project: PFAS 01-11-24
WorkOrder: 24010872

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

Client: US Ecology
Project: PFAS 01-11-24
Work Order: 24010872

Case Narrative

Samples for the above noted Work Order were received on 01/11/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Extractable Organics:

Batch 233427, Method E537 Mod, Sample LCS-233427: EIS01: The EIS response was outside recovery criteria with low bias; sample results may exhibit bias.: d5-NEtFOSA_IS, d3-NMeFOSA_IS (within range in LCSD).

Batch 233427, Method E537 Mod, Sample LCS-233427: SUR02: SUR recoveries were below the lower control limits. The sample results may be biased low.: d5-NEtFOSA (within range in MBLK and LCSD).

Batch 233427, Method E537 Mod, Sample MBLK-233427: EIS01: The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias.: d5-NEtFOSA_IS, d3-NMeFOSA_IS (within range in LCSD).

Batch 233427, Method E537 Mod, Sample SG011024 (24010872-01A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 10:2 FTS.

Batch 233427, Method E537 Mod, Sample SG011024 (24010872-01A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. 13C-PFPeA_IS, 13C_HFPO_DA_IS, 13C-PFHxA_IS, 13C-PFHpA_IS.

Batch 233427, Method E537 Mod, Sample SG011024 (24010872-01A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit

bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS, 13C-8_2-FTS_IS.

Batch 233427, Method E537 Mod, Sample SG011024 (24010872-01A): Surrogate high due to matrix interference. 13C2-FtS 6:2, 13C2-FtS 8:2.

Batch 233427, Method E537 Mod, Sample SG011024 (24010872-01A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. See attached QC report.

Batch 233427, Method E537 Mod, Sample SG011024 (24010872-01A): Additional acid required to reach pH of 3 due to sample matrix.

No other deviations or anomalies were noted.

ALS Group, USA

Date: *18-Jan-2024*

Client: US Ecology
Project: PFAS 01-11-24
Sample ID: SG011024
Collection Date: 1/10/2024 09:30 AM

Work Order: 24010872
Lab ID: 24010872-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 1/15/24 19:20	Analyst: **MNM**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	**310**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	**41**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	**15**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Perfluorobutanesulfonic Acid (PFBS)	**25**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Perfluorobutanoic Acid (PFBA)	**410**		**15**	**ng/L**	3	1/16/2024 01:27 PM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluorodecanoic Acid (PFDA)	**5.9**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Perfluorododecanesulfonic Acid (PFDoS)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluoroheptanoic Acid (PFHpA)	**100**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Perfluorohexadecanoic Acid (PFHxDA)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluorohexanesulfonic Acid (PFHxS)	**32**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Perfluorohexanoic Acid (PFHxA)	**210**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluorononanoic Acid (PFNA)	**14**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Perfluorooctadecanoic Acid (PFODA)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluorooctanesulfonic Acid (PFOS)	**22**		**1.9**	**ng/L**	1	1/16/2024 05:59 AM
Perfluorooctanoic Acid (PFOA)	**270**		**1.9**	**ng/L**	1	1/16/2024 05:59 AM
Perfluoropentanesulfonic Acid (PFPeS)	**8.6**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Perfluoropentanoic Acid (PFPeA)	**65**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
N-ethylperfluoro-1-octanesulfonamide	ND		4.8	ng/L	1	1/16/2024 05:59 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	**68**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
N-Ethylperfluorooctanesulfonamidoethanol	ND		4.8	ng/L	1	1/16/2024 05:59 AM
N-methylperfluoro-1-octanesulfonamide	ND		4.8	ng/L	1	1/16/2024 05:59 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	**23**		**4.8**	**ng/L**	1	1/16/2024 05:59 AM
N-Methylperfluorooctanesulfonamidoethanol	ND		4.8	ng/L	1	1/16/2024 05:59 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *18-Jan-2024*

Client: US Ecology
Project: PFAS 01-11-24
Sample ID: SG011024
Collection Date: 1/10/2024 09:30 AM

Work Order: 24010872
Lab ID: 24010872-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.8	ng/L	1	1/16/2024 05:59 AM
11Cl-Pf3OUdS	ND		4.8	ng/L	1	1/16/2024 05:59 AM
9Cl-PF3ONS	ND		4.8	ng/L	1	1/16/2024 05:59 AM
Surr: 13C2-FtS 4:2	*228*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C2-FtS 6:2	*323*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C2-FtS 8:2	*248*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C2-PFDA	*58.6*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C2-PFDoA	*69.2*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C2-PFHxA	*30.8*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C2-PFHxDA	*53.9*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C2-PFTeA	*51.8*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C2-PFUnA	*74.3*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C3-HFPO-DA	*31.7*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C3-PFBS	*81.6*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C4-PFBA	*9.85*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C4-PFHpA	*33.7*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C4-PFOA	*36.2*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C4-PFOS	*57.7*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C5-PFNA	*51.0*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C5-PFPeA	*23.2*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 13C8-FOSA	*51.3*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: 18O2-PFHxS	*54.3*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: d5-N-EtFOSA	*38.0*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: d5-N-EtFOSAA	*85.5*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: d9-N-EtFOSE	*48.8*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: d3-N-MeFOSA	*42.1*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: d3-N-MeFOSAA	*58.3*		*50-150*	*%REC*	1	1/16/2024 05:59 AM
Surr: d7-N-MeFOSE	*46.7*	S	*50-150*	*%REC*	1	1/16/2024 05:59 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 18-Jan-24

Client: US Ecology
Work Order: 24010872
Project: PFAS 01-11-24

QC BATCH REPORT

Batch ID: **233427** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-233427-233427** Units: **ng/L** Analysis Date: **1/16/2024 01:37 AM**
Client ID: Run ID: **LCMS1_240115C** SeqNo: **10403359** Prep Date: **1/15/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 10:2 (Ft	ND	5.0								
Perfluorobutanesulfonic Acid (PFBS)	ND	5.0								
Perfluorobutanoic Acid (PFBA)	ND	5.0								
Perfluorodecanesulfonic Acid (PFDS)	ND	5.0								
Perfluorodecanoic Acid (PFDA)	ND	5.0								
Perfluorododecanesulfonic Acid (PFDc	ND	5.0								
Perfluorododecanoic Acid (PFDoA)	ND	5.0								
Perfluoroheptanesulfonic Acid (PFHpS	ND	5.0								
Perfluoroheptanoic Acid (PFHpA)	ND	5.0								
Perfluorohexadecanoic Acid (PFHxDA	ND	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	ND	5.0								
Perfluorohexanoic Acid (PFHxA)	ND	5.0								
Perfluorononanesulfonic Acid (PFNS)	ND	5.0								
Perfluorononanoic Acid (PFNA)	ND	5.0								
Perfluorooctadecanoic Acid (PFODA)	ND	5.0								
Perfluorooctanesulfonamide (PFOSA)	ND	5.0								
Perfluorooctanesulfonic Acid (PFOS)	ND	2.0								
Perfluorooctanoic Acid (PFOA)	ND	2.0								
Perfluoropentanesulfonic Acid (PFPeS	ND	5.0								
Perfluoropentanoic Acid (PFPeA)	ND	5.0								
Perfluorotetradecanoic Acid (PFTeA)	ND	5.0								
Perfluorotridecanoic Acid (PFTriA)	ND	5.0								
Perfluoroundecanoic Acid (PFUnA)	ND	5.0								
N-Ethylperfluorooctanesulfonamidoace	ND	5.0								
N-Ethylperfluorooctanesulfonamidoeth	ND	5.0								
N-Methylperfluorooctanesulfonamidoa	ND	5.0								
N-Methylperfluorooctanesulfonamidoe	ND	5.0								
Hexafluoropropylene oxide dimer acid	ND	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.0								
11Cl-Pf3OUdS	ND	5.0								
9Cl-PF3ONS	ND	5.0								
Surr: 13C2-FtS 4:2	*135.1*	0	*149.4*	0	*90.4*	*50-150*	0			
Surr: 13C2-FtS 6:2	*147.5*	0	*152*	0	*97.1*	*50-150*	0			
Surr: 13C2-FtS 8:2	*135.5*	0	*153.3*	0	*88.4*	*50-150*	0			
Surr: 13C2-PFDA	*126.1*	0	*160*	0	*78.8*	*50-150*	0			
Surr: 13C2-PFDoA	*115.9*	0	*160*	0	*72.4*	*50-150*	0			
Surr: 13C2-PFHxA	*126.6*	0	*160*	0	*79.1*	*50-150*	0			
Surr: 13C2-PFHxDA	*142.9*	0	*160*	0	*89.3*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24010872
Project: PFAS 01-11-24

QC BATCH REPORT

Batch ID: **233427** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFTeA	*128.8*	0	*160*	0	*80.5*	*50-150*	0
Surr: 13C2-PFUnA	*118.9*	0	*160*	0	*74.3*	*50-150*	0
Surr: 13C3-HFPO-DA	*144.2*	0	*160*	0	*90.1*	*50-150*	0
Surr: 13C3-PFBS	*133.3*	0	*148.8*	0	*89.6*	*50-150*	0
Surr: 13C4-PFBA	*119.6*	0	*160*	0	*74.7*	*50-150*	0
Surr: 13C4-PFHpA	*141.8*	0	*160*	0	*88.6*	*50-150*	0
Surr: 13C4-PFOA	*137.8*	0	*160*	0	*86.1*	*50-150*	0
Surr: 13C4-PFOS	*118.8*	0	*152.8*	0	*77.8*	*50-150*	0
Surr: 13C5-PFNA	*133.4*	0	*160*	0	*83.4*	*50-150*	0
Surr: 13C5-PFPeA	*142.3*	0	*160*	0	*88.9*	*50-150*	0
Surr: 13C8-FOSA	*111.1*	0	*160*	0	*69.4*	*50-150*	0
Surr: 18O2-PFHxS	*120.4*	0	*151.2*	0	*79.6*	*50-150*	0
Surr: d5-N-EtFOSAA	*122*	0	*160*	0	*76.3*	*50-150*	0
Surr: d9-N-EtFOSE	*110.6*	0	*160*	0	*69.1*	*50-150*	0
Surr: d3-N-MeFOSAA	*122.5*	0	*160*	0	*76.6*	*50-150*	0
Surr: d7-N-MeFOSE	*108.1*	0	*160*	0	*67.5*	*50-150*	0

MBLK Sample ID: **MBLK-233427-233427** Units: **ng/L** Analysis Date: **1/16/2024 09:29 AM**
Client ID: Run ID: **LCMS1_240115C** SeqNo: **10403393** Prep Date: **1/15/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
N-ethylperfluoro-1-octanesulfonamide	ND	5.0								
N-methylperfluoro-1-octanesulfonamid	ND	5.0								
Surr: d5-N-EtFOSA	*89.11*	0	*160*	0	*55.7*	*50-150*	0			
Surr: d3-N-MeFOSA	*92.58*	0	*160*	0	*57.9*	*50-150*	0			

LCS Sample ID: **LCS-233427-233427** Units: **ng/L** Analysis Date: **1/16/2024 01:51 AM**
Client ID: Run ID: **LCMS1_240115C** SeqNo: **10403360** Prep Date: **1/15/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 8:2 (FtS	36.96	4.7	28.93	0	128	71-148	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	39.98	4.7	29.02	0	138	54-178	0			
Surr: 13C2-FtS 8:2	*118.3*	0	*144.4*	0	*81.9*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24010872
Project: PFAS 01-11-24

QC BATCH REPORT

Batch ID: **233427** Instrument ID **LCMS1** Method: **E537 Mod**

LCS	Sample ID: **LCS-233427-233427**				Units: **ng/L**			Analysis Date: **1/16/2024 09:16 AM**			
Client ID:	Run ID: **LCMS1_240115C**				SeqNo: **10403392**		Prep Date: **1/15/2024**		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	33.17	4.7	28.17	0	118	67-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	35.93	4.7	28.55	0	126	66-151	0			
Perfluorobutanesulfonic Acid (PFBS)	29.39	4.7	26.66	0	110	69-131	0			
Perfluorobutanoic Acid (PFBA)	32.8	4.7	30.15	0	109	73-139	0			
Perfluorodecanesulfonic Acid (PFDS)	29.15	4.7	29.02	0	100	64-128	0			
Perfluorodecanoic Acid (PFDA)	28.57	4.7	30.15	0	94.7	77-135	0			
Perfluorododecanesulfonic Acid (PFDc	29.94	4.7	29.21	0	103	59-122	0			
Perfluorododecanoic Acid (PFDoA)	30.88	4.7	30.15	0	102	77-137	0			
Perfluoroheptanesulfonic Acid (PFHpS	30.78	4.7	28.74	0	107	70-137	0			
Perfluoroheptanoic Acid (PFHpA)	34.49	4.7	30.15	0	114	72-130	0			
Perfluorohexadecanoic Acid (PFHxDA	33.32	4.7	30.15	0	111	64-142	0			
Perfluorohexanesulfonic Acid (PFHxS)	28.14	4.7	27.42	0	103	68-131	0			
Perfluorohexanoic Acid (PFHxA)	31.57	4.7	30.15	0	105	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	29.52	4.7	28.93	0	102	70-132	0			
Perfluorononanoic Acid (PFNA)	31.05	4.7	30.15	0	103	79-131	0			
Perfluorooctadecanoic Acid (PFODA)	38.37	4.7	30.15	0	127	71-144	0			
Perfluorooctanesulfonamide (PFOSA)	38.32	4.7	30.15	0	127	66-140	0			
Perfluorooctanesulfonic Acid (PFOS)	29.11	1.9	27.98	0	104	72-133	0			
Perfluorooctanoic Acid (PFOA)	31.42	1.9	30.15	0	104	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	27.99	4.7	28.27	0	99	73-137	0			
Perfluoropentanoic Acid (PFPeA)	32.62	4.7	30.15	0	108	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	34.31	4.7	30.15	0	114	62-139	0			
Perfluorotridecanoic Acid (PFTriA)	29.92	4.7	30.15	0	99.3	63-147	0			
Perfluoroundecanoic Acid (PFUnA)	33.7	4.7	30.15	0	112	80-135	0			
N-ethylperfluoro-1-octanesulfonamide	30.74	4.7	30.15	0	102	61-131	0			
N-Ethylperfluorooctanesulfonamidoace	35.82	4.7	30.15	0	119	67-140	0			
N-Ethylperfluorooctanesulfonamidoeth	29.87	4.7	30.15	0	99.1	69-135	0			
N-methylperfluoro-1-octanesulfonamid	29.18	4.7	30.15	0	96.8	55-133	0			
N-Methylperfluorooctanesulfonamidoa	33.84	4.7	30.15	0	112	75-133	0			
N-Methylperfluorooctanesulfonamidoe	31.89	4.7	30.15	0	106	71-135	0			
Hexafluoropropylene oxide dimer acid	31.41	4.7	30.15	0	104	70-139	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	28.9	4.7	28.36	0	102	74-135	0			
11Cl-Pf3OUdS	26.7	4.7	28.36	0	94.2	61-128	0			
9Cl-PF3ONS	27.28	4.7	28.08	0	97.1	69-133	0			
Surr: 13C2-FtS 4:2	*147.6*	0	*140.8*	0	*105*	*50-150*	0			
Surr: 13C2-FtS 6:2	*147.2*	0	*143.2*	0	*103*	*50-150*	0			
Surr: 13C2-PFDA	*142.7*	0	*150.8*	0	*94.7*	*50-150*	0			
Surr: 13C2-PFDoA	*145.2*	0	*150.8*	0	*96.3*	*50-150*	0			
Surr: 13C2-PFHxA	*148.4*	0	*150.8*	0	*98.4*	*50-150*	0			
Surr: 13C2-PFHxDA	*125.6*	0	*150.8*	0	*83.3*	*50-150*	0			
Surr: 13C2-PFTeA	*159.4*	0	*150.8*	0	*106*	*50-150*	0			
Surr: 13C2-PFUnA	*136*	0	*150.8*	0	*90.2*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24010872
Project: PFAS 01-11-24

QC BATCH REPORT

Batch ID: **233427** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C3-HFPO-DA	*141.4*	0	*150.8*	0	*93.8*	*50-150*	0	
Surr: 13C3-PFBS	*132.6*	0	*140.2*	0	*94.6*	*50-150*	0	
Surr: 13C4-PFBA	*133.1*	0	*150.8*	0	*88.3*	*50-150*	0	
Surr: 13C4-PFHpA	*139.2*	0	*150.8*	0	*92.3*	*50-150*	0	
Surr: 13C4-PFOA	*147.2*	0	*150.8*	0	*97.6*	*50-150*	0	
Surr: 13C4-PFOS	*145.2*	0	*144*	0	*101*	*50-150*	0	
Surr: 13C5-PFNA	*151*	0	*150.8*	0	*100*	*50-150*	0	
Surr: 13C5-PFPeA	*138.3*	0	*150.8*	0	*91.7*	*50-150*	0	
Surr: 13C8-FOSA	*104*	0	*150.8*	0	*69*	*50-150*	0	
Surr: 18O2-PFHxS	*139.2*	0	*142.5*	0	*97.7*	*50-150*	0	
Surr: d5-N-EtFOSA	*74.98*	0	*150.8*	0	*49.7*	*50-150*	0	*S*
Surr: d5-N-EtFOSAA	*131.6*	0	*150.8*	0	*87.3*	*50-150*	0	
Surr: d9-N-EtFOSE	*119.8*	0	*150.8*	0	*79.5*	*50-150*	0	
Surr: d3-N-MeFOSA	*80.69*	0	*150.8*	0	*53.5*	*50-150*	0	
Surr: d3-N-MeFOSAA	*130.6*	0	*150.8*	0	*86.6*	*50-150*	0	
Surr: d7-N-MeFOSE	*114.9*	0	*150.8*	0	*76.2*	*50-150*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24010872
Project: PFAS 01-11-24

QC BATCH REPORT

Batch ID: **233427** Instrument ID **LCMS1** Method: **E537 Mod**

LCSD Sample ID: **LCSD-233427-233427** Units: **ng/L** Analysis Date: **1/16/2024 02:05 AM**
Client ID: Run ID: **LCMS1_240115C** SeqNo: **10403361** Prep Date: **1/15/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	29.03	5.0	29.9	0	97.1	67-143	33.17	13.3	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS	32.34	5.0	30.3	0	107	66-151	35.93	10.5	30	
Fluorotelomer Sulphonic Acid 8:2 (FtS	36.89	5.0	30.7	0	120	71-148	32.54	12.5	30	
Fluorotelomer Sulphonic Acid 10:2 (Ft	36.45	5.0	30.8	0	118	54-178	41.51	13	30	
Perfluorobutanesulfonic Acid (PFBS)	27.5	5.0	28.3	0	97.2	69-131	29.39	6.64	30	
Perfluorobutanoic Acid (PFBA)	32.08	5.0	32	0	100	73-139	32.8	2.22	30	
Perfluorodecanesulfonic Acid (PFDS)	29.66	5.0	30.8	0	96.3	64-128	29.15	1.73	30	
Perfluorodecanoic Acid (PFDA)	30.46	5.0	32	0	95.2	77-135	28.57	6.41	30	
Perfluorododecanesulfonic Acid (PFDc	31.14	5.0	31	0	100	59-122	29.94	3.9	30	
Perfluorododecanoic Acid (PFDoA)	29.72	5.0	32	0	92.9	77-137	30.88	3.82	30	
Perfluoroheptanesulfonic Acid (PFHpS	30.68	5.0	30.5	0	101	70-137	30.78	0.331	30	
Perfluoroheptanoic Acid (PFHpA)	31.65	5.0	32	0	98.9	72-130	34.49	8.6	30	
Perfluorohexadecanoic Acid (PFHxDA	31.32	5.0	32	0	97.9	64-142	33.32	6.19	30	
Perfluorohexanesulfonic Acid (PFHxS)	28.78	5.0	29.1	0	98.9	68-131	28.14	2.22	30	
Perfluorohexanoic Acid (PFHxA)	31.68	5.0	32	0	99	72-129	31.57	0.347	30	
Perfluorononanesulfonic Acid (PFNS)	30.64	5.0	30.7	0	99.8	70-132	29.52	3.72	30	
Perfluorononanoic Acid (PFNA)	32.54	5.0	32	0	102	79-131	31.05	4.68	30	
Perfluorooctadecanoic Acid (PFODA)	31.95	5.0	32	0	99.8	71-144	38.37	18.3	30	
Perfluorooctanesulfonamide (PFOSA)	33.33	5.0	32	0	104	66-140	38.32	13.9	30	
Perfluorooctanesulfonic Acid (PFOS)	28.87	2.0	29.7	0	97.2	72-133	29.11	0.826	30	
Perfluorooctanoic Acid (PFOA)	33.99	2.0	32	0	106	71-133	31.42	7.87	30	
Perfluoropentanesulfonic Acid (PFPeS	31.28	5.0	30	0	104	73-137	27.99	11.1	30	
Perfluoropentanoic Acid (PFPeA)	30.56	5.0	32	0	95.5	72-129	32.62	6.5	30	
Perfluorotetradecanoic Acid (PFTeA)	30.2	5.0	32	0	94.4	62-139	34.31	12.8	30	
Perfluorotridecanoic Acid (PFTriA)	28.28	5.0	32	0	88.4	63-147	29.92	5.65	30	
Perfluoroundecanoic Acid (PFUnA)	31.55	5.0	32	0	98.6	80-135	33.7	6.59	30	
N-ethylperfluoro-1-octanesulfonamide	28.98	5.0	32	0	90.6	61-131	30.74	5.89	30	
N-Ethylperfluorooctanesulfonamidoace	30.09	5.0	32	0	94	67-140	35.82	17.4	30	
N-Ethylperfluorooctanesulfonamidoeth	26.42	5.0	32	0	82.6	69-135	29.87	12.3	30	
N-methylperfluoro-1-octanesulfonamid	27.7	5.0	32	0	86.6	55-133	29.18	5.23	30	
N-Methylperfluorooctanesulfonamidoa	29.88	5.0	32	0	93.4	75-133	33.84	12.4	30	
N-Methylperfluorooctanesulfonamidoe	29.4	5.0	32	0	91.9	71-135	31.89	8.13	30	
Hexafluoropropylene oxide dimer acid	28.79	5.0	32	0	90	70-139	31.41	8.72	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	31.46	5.0	30.1	0	105	74-135	28.9	8.46	30	
11Cl-Pf3OUdS	27.72	5.0	30.1	0	92.1	61-128	26.7	3.75	30	
9Cl-PF3ONS	28.67	5.0	29.8	0	96.2	69-133	27.28	4.97	30	
Surr: 13C2-FtS 4:2	*140.6*	0	*149.4*	0	*94.1*	*50-150*	147.6	*4.85*	*30*	
Surr: 13C2-FtS 6:2	*134.5*	0	*152*	0	*88.5*	*50-150*	147.2	*8.98*	*30*	
Surr: 13C2-FtS 8:2	*133.7*	0	*153.3*	0	*87.2*	*50-150*	151.5	*12.5*	*30*	
Surr: 13C2-PFDA	*145.2*	0	*160*	0	*90.8*	*50-150*	142.7	*1.75*	*30*	
Surr: 13C2-PFDoA	*133.9*	0	*160*	0	*83.7*	*50-150*	145.2	*8.12*	*30*	
Surr: 13C2-PFHxA	*137.3*	0	*160*	0	*85.8*	*50-150*	148.4	*7.76*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24010872
Project: PFAS 01-11-24

QC BATCH REPORT

Batch ID: **233427** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*157.4*	0	*160*	0	*98.4*	*50-150*	125.6	*22.5*	*30*
Surr: 13C2-PFTeA	*152.9*	0	*160*	0	*95.6*	*50-150*	159.4	*4.15*	*30*
Surr: 13C2-PFUnA	*136.7*	0	*160*	0	*85.4*	*50-150*	136	*0.501*	*30*
Surr: 13C3-HFPO-DA	*154.3*	0	*160*	0	*96.4*	*50-150*	141.4	*8.75*	*30*
Surr: 13C3-PFBS	*133.7*	0	*148.8*	0	*89.9*	*50-150*	132.6	*0.81*	*30*
Surr: 13C4-PFBA	*137*	0	*160*	0	*85.6*	*50-150*	133.1	*2.89*	*30*
Surr: 13C4-PFHpA	*137.5*	0	*160*	0	*85.9*	*50-150*	139.2	*1.22*	*30*
Surr: 13C4-PFOA	*139.5*	0	*160*	0	*87.2*	*50-150*	147.2	*5.33*	*30*
Surr: 13C4-PFOS	*133.2*	0	*152.8*	0	*87.2*	*50-150*	145.2	*8.62*	*30*
Surr: 13C5-PFNA	*134.1*	0	*160*	0	*83.8*	*50-150*	151	*11.9*	*30*
Surr: 13C5-PFPeA	*142.9*	0	*160*	0	*89.3*	*50-150*	138.3	*3.24*	*30*
Surr: 13C8-FOSA	*120.8*	0	*160*	0	*75.5*	*50-150*	104	*14.9*	*30*
Surr: 18O2-PFHxS	*130.8*	0	*151.2*	0	*86.5*	*50-150*	139.2	*6.27*	*30*
Surr: d5-N-EtFOSA	*98*	0	*160*	0	*61.3*	*50-150*	74.98	*26.6*	*30*
Surr: d5-N-EtFOSAA	*135.1*	0	*160*	0	*84.4*	*50-150*	131.6	*2.65*	*30*
Surr: d9-N-EtFOSE	*130*	0	*160*	0	*81.3*	*50-150*	119.8	*8.2*	*30*
Surr: d3-N-MeFOSA	*99.22*	0	*160*	0	*62*	*50-150*	80.69	*20.6*	*30*
Surr: d3-N-MeFOSAA	*130.5*	0	*160*	0	*81.6*	*50-150*	130.6	*0.0314*	*30*
Surr: d7-N-MeFOSE	*124.2*	0	*160*	0	*77.6*	*50-150*	114.9	*7.79*	*30*

The following samples were analyzed in this batch: 24010872-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

24010872
USECOLOGY - DETROIT, US Ecology
Project: PFAS 01-11-24

Chain of Custody Form

Page 1 of 1

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Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	P121-3002592	Project Name	PFAS 01-11-24	A	PFAS MI 28 compound / 537 M
Work Order		Project Number		B	
Company Name	US Ecology Detroit South	Bill To Company	US Ecology, Inc.	C	
Send Report To	Jim Bahen	Invoice Attn.	Tyler Coombs	D	
Address	1923 Frederick St	Address	17440 College Parkway	E	
			STE 300	F	
City/State/Zip	Detroit / MI / 48211	City/State/Zip	Livonia / MI / 48152	G	
Phone	313-347-1362	Phone		H	
Fax		Fax	accounts.payable@usecology.com	I	
e-Mail Address	jbahen@republicservices.com,jdanko@republicservices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SG011024	01/10/24	9:30	WW	8	3	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
Jim Bahen

Shipment Method:
Pick-up

Turnaround Time: (Business Days)
☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
	01/11/24	11:08AM		01/11/24	11:08AM	Rec'd 1/11/24 2200
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:	
	1/11/24	500		1/11/24	500	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			
	1/12/24	1030				

ALS Cooler ID	Cooler Temp	QC Package: (Check Box Below)	
		☑ Level II: Standard QC	☐ Level III: Raw Data
IR3	2.4°C	☐ TRRP LRC	☐ TRRP Level IV
		☐ Level IV: SW846 Methods/CLP like	
		☐ Other:	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **USECOLOGY - DETROIT** Date/Time Received: **11-Jan-24 22:00**

Work Order: **24010872** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 12-Jan-24 (Date) Reviewed by: Chelsey Cook (eSignature) 15-Jan-24 (Date)

Matrices: Wastewater
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.4/3.4 c	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/12/2024 10:31:47 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SC011024
Start Sampling Date:	01/09/24
End Sampling Date:	01/10/24
Sample Type:	Site Composite
Report Date:	02/13/24

Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	0.025	0.010	0.267	mg/L	KMO	02/08/24
Carbazole	0.012	0.010	0.392	mg/L	KMO	02/08/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/08/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/08/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/08/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/08/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/08/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/08/24

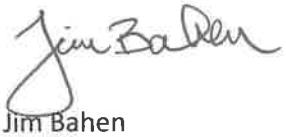
Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	01/11/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	01/11/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	01/11/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	01/11/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	01/11/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	01/11/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	01/11/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	01/11/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	01/11/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	01/11/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	01/11/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	01/11/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	01/11/24

Weekly Discharge Total Mercury (EPA 245.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Mercury (Hg)	Less Than	0.0002	0.00234	mg/L	MSP	01/11/24

Validated By:



Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual. This report may only be reproduced in its entirety.

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SG011124
Start Sampling Date:	01/11/24
End Sampling Date:	01/11/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/11/24					
Collection Time	9:45 AM					
Acidity/Alkalinity (pH)	7.4	1.0	5-11.5	S.U.	JCB	01/11/24
Temperature	14			Deg C		
Analysis Time	9:51 AM					

Validated By:

Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual.
This report may only be reproduced in its entirety.

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SC011124
Start Sampling Date:	01/10/24
End Sampling Date:	01/11/24
Sample Type:	Site Composite
Report Date:	02/13/24

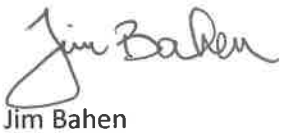
Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	Less Than	0.010	0.267	mg/L	KMO	02/08/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/08/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/08/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/08/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/08/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/08/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/08/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/08/24

Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	01/16/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	01/16/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	01/16/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	01/16/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	01/16/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	01/16/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	01/16/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	01/16/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	01/16/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	01/16/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	01/16/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	01/16/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	01/16/24

Validated By:



Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual. This report may only be reproduced in its entirety.

24-Jan-2024

Jim Bahen
US Ecology
1923 Frederick Street
Detroit, MI 48211

Re: **GLWA Hg Confirmation 01-17-24** Work Order: **24011180**

Dear Jim,

ALS Environmental received 3 samples on 17-Jan-2024 10:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 10.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Chelsey Cook

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Work Order: **24011180**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24011180-01	SC010924	Wastewater		1/9/2024 09:30	1/17/2024 22:00	☐
24011180-02	SC010424	Wastewater		1/4/2024 10:00	1/17/2024 22:00	☐
24011180-03	SC011124	Wastewater		1/11/2024 09:30	1/17/2024 22:00	☐

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
WorkOrder: 24011180

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

ALS Group, USA

Date: 24-Jan-24

Client:	US Ecology
Project:	GLWA Hg Confirmation 01-17-24
Work Order:	24011180

Case Narrative

Samples for the above noted Work Order were received on 01/17/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:

Batch 233677, Method E245.1, Sample SC010924 (24011180-01A): Diluted due to sample matrix, filtered after digestion.

Batch 233677, Method E245.1, Sample 24011180-03AMS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Hg.

Batch 233677, Method E245.1, Sample 24011180-03AMSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for the following analyte(s): Hg.

No other deviations or anomalies were noted.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Sample ID: SC010924
Collection Date: 1/9/2024 09:30 AM

Work Order: 24011180
Lab ID: 24011180-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**E245.1**		Prep: E245.1 1/18/24 13:50	Analyst: **KRA**
Mercury	ND		0.0020	mg/L	1	1/18/2024 02:16 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Sample ID: SC010424
Collection Date: 1/4/2024 10:00 AM

Work Order: 24011180
Lab ID: 24011180-02
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**E245.1**		Prep: E245.1 1/18/24 13:50	Analyst: **KRA**
Mercury	ND		0.00020	mg/L	1	1/18/2024 02:18 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: GLWA Hg Confirmation 01-17-24
Sample ID: SC011124
Collection Date: 1/11/2024 09:30 AM

Work Order: 24011180
Lab ID: 24011180-03
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**E245.1**		Prep: E245.1 1/18/24 13:50	Analyst: **KRA**
Mercury	ND		0.00020	mg/L	1	1/18/2024 02:21 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology

Work Order: 24011180

Project: GLWA Hg Confirmation 01-17-24

QC BATCH REPORT

Batch ID: **233677** Instrument ID **HG5** Method: **E245.1**

MBLK	Sample ID: MBLK-233677-233677				Units: mg/L			Analysis Date: 1/18/2024 01:56 PM			
Client ID:	Run ID: HG5_240118B				SeqNo: 10411122			Prep Date: 1/18/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS	Sample ID: LCS-233677-233677				Units: mg/L			Analysis Date: 1/18/2024 01:58 PM			
Client ID:	Run ID: HG5_240118B				SeqNo: 10411123			Prep Date: 1/18/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00219	0.00020	0.002	0	110	85-115	0			

MS	Sample ID: 24011180-03AMS				Units: mg/L			Analysis Date: 1/18/2024 02:22 PM			
Client ID: SC011124	Run ID: HG5_240118B				SeqNo: 10411131			Prep Date: 1/18/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000459	0.00020	0.002	0.000024	21.8	80-120	0			S

MSD	Sample ID: 24011180-03AMSD				Units: mg/L			Analysis Date: 1/18/2024 02:30 PM			
Client ID: SC011124	Run ID: HG5_240118B				SeqNo: 10411135			Prep Date: 1/18/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0004335	0.00020	0.002	0.000024	20.5	80-120	0.000459	5.71	20	S

DUP	Sample ID: 24011178-03ADUP				Units: mg/L			Analysis Date: 1/18/2024 04:19 PM			
Client ID:	Run ID: HG5_240118B				SeqNo: 10411196			Prep Date: 1/18/2024		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0489	0.0020	0	0	0	0-0	0.04905	0.306	20	

The following samples were analyzed in this batch: 24011180-01A 24011180-02A 24011180-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

24011180

USECOLOGY - DETROIT: US Ecology
Project: GLWA Hg Confirmation 01-17-24

Chain of Custody Form

Page 1 of 1

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	P121-3004442	Project Name	GLWA Hg Confirmation 01-17-24	A	WP Total Hg (RL 0.2 µg/L or lower)
Quote #		Project Number		B	
Company Name	US Ecology	Bill To Company	US Ecology, Inc.	C	
Send Report To	Jim Bahen	Invoice Attn.	Tyler Coombs	D	
Address	1923 Frederick St	Address	17440 College Parkway	E	
			STE 300	F	
City/State/Zip	Detroit/Mi/48211	City/State/Zip	Livonia/MI/48152	G	
Phone	734-344-8000	Phone		H	
Fax		Fax	Accounts.Payable@Usecology.com	I	
e-Mail Address	Jbahen@RepublicServices.com, Jdanko@RepublicServices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SC010924	01/09/24	9:30	WW	2	1	X										
2	SC010424	01/04/24	10:00	WW	2	1	X										
3	SC011124	01/11/24	9:30	WW	2	1	X										
4																	
5																	
6																	
7																	
8																	
9																	

Sampler(s): Please Print & Sign
Jim Bahen

Shipment Method:

Turnaround Time: (Business Days)
☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
	01/17/24	11:22am		01/17/24	1122	Rec'd 1/17/24 2200
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:	
	1/17/24	506	QS	1/17/24	530	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			
DFS	1/18/24	0900				

Cooler Temp °C	pH Verified	QC Package: (Check Box Below)	
DF2		☐ Level II: Standard QC	☐ Level III: Raw Data
3.6c		☐ TRRP LRC	☐ TRRP Level IV
pH36		☐ Level IV: SW846 Methods/CLP like	
		☐ Other:	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035A

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **USECOLOGY - DETROIT** Date/Time Received: **17-Jan-24 22:00**

Work Order: **24011180** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 18-Jan-24 (Date) Reviewed by: Chelsey Cook (eSignature) 18-Jan-24 (Date)

Matrices: Wastewater
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.6/3.6 c	DF2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/18/2024 9:11:13 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: pH check <2.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SG011724
Start Sampling Date:	01/17/24
End Sampling Date:	01/17/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/17/24					
Collection Time	9:00 AM					
Acidity/Alkalinity (pH)	8.1	1.0	5-11.5	S.U.	JCB	01/17/24
Temperature	11			Deg C		
Analysis Time	9:13 AM					

Validated By:

Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual.

24-Jan-2024

Jim Bahen
US Ecology
1923 Frederick Street
Detroit, MI 48211

Re: **South 2 per Month 01.17.24** Work Order: **24011170**

Dear Jim,

ALS Environmental received 2 samples on 17-Jan-2024 10:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: South 2 per Month 01.17.24
Work Order: **24011170**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24011170-01	SG011724	Wastewater		1/17/2024 09:00	1/17/2024 22:00	☐
24011170-02	SC011724	Wastewater		1/17/2024 09:00	1/17/2024 22:00	☐

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: South 2 per Month 01.17.24
WorkOrder: 24011170

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

Client:	US Ecology
Project:	South 2 per Month 01.17.24
Work Order:	24011170

Case Narrative

Samples for the above noted Work Order were received on 01/17/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:
No deviations or anomalies were noted.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: South 2 per Month 01.17.24
Sample ID: SG011724
Collection Date: 1/17/2024 09:00 AM

Work Order: 24011170
Lab ID: 24011170-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, AMENABLE			**A4500-CN G-16**		Prep: SW9012B 1/22/24 12:36	Analyst: **JMT**
Cyanide, Amenable	ND		0.0050	mg/L	1	1/22/2024 02:04 PM
OIL AND GREASE			**E1664A**		Prep: E1664A 1/22/24 09:15	Analyst: **SMH**
Oil and Grease	ND		6.2	mg/L	1	1/22/2024 09:30 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: South 2 per Month 01.17.24
Sample ID: SC011724
Collection Date: 1/17/2024 09:00 AM

Work Order: 24011170
Lab ID: 24011170-02
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BIOCHEMICAL OXYGEN DEMAND			**A5210B-16**		Prep: A5210B 1/18/24 13:44	Analyst: **KF**
Biochemical Oxygen Demand	**18.7**		**3.0**	**mg/L**	1	1/23/2024 09:40 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Work Order: 24011170
Project: South 2 per Month 01.17.24

QC BATCH REPORT

Batch ID: **233708** Instrument ID **LDO** Method: **A5210B-16**

MBLK Sample ID: **MBLK-233708-233708** Units: **mg/L** Analysis Date: **1/23/2024 09:40 AM**
Client ID: Run ID: **LDO_240123A** SeqNo: **10418970** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	3.0								

LCS Sample ID: **LCS-233708-233708** Units: **mg/L** Analysis Date: **1/23/2024 09:40 AM**
Client ID: Run ID: **LDO_240123A** SeqNo: **10418969** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	168.5	3.0	198	0	85.1	85-115	0			

DUP Sample ID: **24010047-22A DUP** Units: **mg/L** Analysis Date: **1/23/2024 09:40 AM**
Client ID: Run ID: **LDO_240123A** SeqNo: **10418960** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	6.712	3.0	0	0	0	0-0	7.397	9.71	20	

The following samples were analyzed in this batch: 24011170-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24011170
Project: South 2 per Month 01.17.24

QC BATCH REPORT

Batch ID: **233832** Instrument ID **LACHAT2** Method: **A4500-CN G-16**

MBLK	Sample ID: **MBLK-233832-233832**			Units: **mg/L**			Analysis Date: **1/22/2024 02:00 PM**			
Client ID:	Run ID: **LACHAT2_240122A**			SeqNo: **10417182**			Prep Date: **1/22/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Amenable	ND	0.0050								

LCS	Sample ID: **LCS-233832-233832**			Units: **mg/L**			Analysis Date: **1/22/2024 02:01 PM**			
Client ID:	Run ID: **LACHAT2_240122A**			SeqNo: **10417183**			Prep Date: **1/22/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Amenable	0.2662	0.0050	0.25	0	106	86-116	0			

The following samples were analyzed in this batch: 24011170-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24011170
Project: South 2 per Month 01.17.24

QC BATCH REPORT

Batch ID: **233853** Instrument ID **O&G** Method: **E1664A**

MBLK Sample ID: **MBLK-233853-233853** Units: **mg/L** Analysis Date: **1/22/2024 09:30 AM**
Client ID: Run ID: **O&G_240122A** SeqNo: **10418624** Prep Date: **1/22/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	1.2								

LCS Sample ID: **LCS-233853-233853** Units: **mg/L** Analysis Date: **1/22/2024 09:30 AM**
Client ID: Run ID: **O&G_240122A** SeqNo: **10418623** Prep Date: **1/22/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	35.2	1.2	40	0	88	78-114	0			

MS Sample ID: **24011215-05A MS** Units: **mg/L** Analysis Date: **1/22/2024 09:30 AM**
Client ID: Run ID: **O&G_240122A** SeqNo: **10418618** Prep Date: **1/22/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	39.12	1.4	43.96	0.4324	88	78-114	0			

DUP Sample ID: **24011215-07A DUP** Units: **mg/L** Analysis Date: **1/22/2024 09:30 AM**
Client ID: Run ID: **O&G_240122A** SeqNo: **10418620** Prep Date: **1/22/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	1.4	0	0	0	0-0	0.2186	0	18	

The following samples were analyzed in this batch: 24011170-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

24011170

USECOLOGY - DETROIT, US Ecology
Project: South 2 per Month 01-17-24

Chain of Custody Form

Page 1 of 1

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	P121-3004442	Project Name	South 2 per Month 01-17-24	A	Amenable Cyanide SM 4500 CN G
Quote #		Project Number		B	FOG / EPA 1664
Company Name	US Ecology	Bill To Company	US Ecology, Inc.	C	BOD 5210B
Send Report To	Jim Bahen	Invoice Attn.	Tyler Coombs	D	
Address	1923 Frederick St	Address	17440 College Parkway	E	
			STE 300	F	
City/State/Zip	Detroit/Mi/48211	City/State/Zip	Livonia/MI/48152	G	
Phone	734-344-8000	Phone		H	
Fax		Fax	Accounts.Payable@Usecology.com	I	
e-Mail Address	JBahen@republicservices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SG011724	01/17/24	9:00	WW	4	1	X										
2				WW	3	2		X									
3	SC011724	01/17/24	9:00	WW	8	1			X								
4																	
5																	
6																	
7																	
8																	
9																	

Sampler(s): Please Print & Sign
Jim Bahen

Shipment Method:

Turnaround Time: (Business Days)
☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☑ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes: Pos Sulfide Screen
	01/17/24	11:22 am		01/17/24	11:22	Rec'd 1/17/24 2200
Relinquished by	Date: 1/17/24	Time: 500	Received by (Laboratory): QS	Date: 1/17/24	Time: 500	Cooler Temp °C: DF2, 3.6°C, pH 3|6
Logged by (Laboratory): DFS	Date: 1/18/24	Time: 0830	Checked by (Laboratory):			pH Verified

QC Package: (Check Box Below)
☑ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ Other: _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035A

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **USECOLOGY - DETROIT** Date/Time Received: **17-Jan-24 22:00**

Work Order: **24011170** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 18-Jan-24 (Date) Reviewed by: Chelsey Cook (eSignature) 18-Jan-24 (Date)

Matrices: Wastewater
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.6/3.6 c	DF2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/18/2024 8:39:53 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: pH check >12.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SC011724
Start Sampling Date:	01/16/24
End Sampling Date:	01/17/24
Sample Type:	Site Composite
Report Date:	02/13/24

Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	Less Than	0.010	0.267	mg/L	KMO	02/08/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/08/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/08/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/08/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/08/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/08/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/08/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/08/24

Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	01/19/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	01/19/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	01/19/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	01/19/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	01/19/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	01/19/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	01/19/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	01/19/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	01/19/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	01/19/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	01/19/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	01/19/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	01/19/24

Weekly Discharge Total Mercury (EPA 245.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Mercury (Hg)	Less Than	0.0002	0.00234	mg/L	MSP	01/19/24

Two per Month Discharge Total Suspended Solid (Standard Methods 2540-D)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Total Suspended Solids (TSS)	Less Than	100	10000	mg/L	REW	01/22/24

Two per Month Discharge Total Phosphorus (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Phosphorous (P)	Less Than	5.0	150	mg/L	MSP	01/19/24

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Validated By:

Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual. This report may only be reproduced in its entirety.

24-Jan-2024

Jim Bahen
US Ecology
1923 Frederick Street
Detroit, MI 48211

Re: **South 2 per Month 01.17.24** Work Order: **24011170**

Dear Jim,

ALS Environmental received 2 samples on 17-Jan-2024 10:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

Report of Laboratory Analysis

Certificate No: FL E871106

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: South 2 per Month 01.17.24
Work Order: **24011170**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24011170-01	SG011724	Wastewater		1/17/2024 09:00	1/17/2024 22:00	☐
24011170-02	SC011724	Wastewater		1/17/2024 09:00	1/17/2024 22:00	☐

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Project: South 2 per Month 01.17.24
WorkOrder: 24011170

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
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**	Estimated Value
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B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

ALS Group, USA

Date: 24-Jan-24

Client:	US Ecology
Project:	South 2 per Month 01.17.24
Work Order:	24011170

Case Narrative

Samples for the above noted Work Order were received on 01/17/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:
No deviations or anomalies were noted.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: South 2 per Month 01.17.24
Sample ID: SG011724
Collection Date: 1/17/2024 09:00 AM

Work Order: 24011170
Lab ID: 24011170-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, AMENABLE			**A4500-CN G-16**		Prep: SW9012B 1/22/24 12:36	Analyst: **JMT**
Cyanide, Amenable	ND		0.0050	mg/L	1	1/22/2024 02:04 PM
OIL AND GREASE			**E1664A**		Prep: E1664A 1/22/24 09:15	Analyst: **SMH**
Oil and Grease	ND		6.2	mg/L	1	1/22/2024 09:30 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-Jan-2024*

Client: US Ecology
Project: South 2 per Month 01.17.24
Sample ID: SC011724
Collection Date: 1/17/2024 09:00 AM

Work Order: 24011170
Lab ID: 24011170-02
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BIOCHEMICAL OXYGEN DEMAND			**A5210B-16**		Prep: A5210B 1/18/24 13:44	Analyst: **KF**
Biochemical Oxygen Demand	**18.7**		**3.0**	**mg/L**	1	1/23/2024 09:40 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 24-Jan-24

Client: US Ecology
Work Order: 24011170
Project: South 2 per Month 01.17.24

QC BATCH REPORT

Batch ID: **233708** Instrument ID **LDO** Method: **A5210B-16**

MBLK Sample ID: **MBLK-233708-233708** Units: **mg/L** Analysis Date: **1/23/2024 09:40 AM**
Client ID: Run ID: **LDO_240123A** SeqNo: **10418970** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	3.0								

LCS Sample ID: **LCS-233708-233708** Units: **mg/L** Analysis Date: **1/23/2024 09:40 AM**
Client ID: Run ID: **LDO_240123A** SeqNo: **10418969** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	168.5	3.0	198	0	85.1	85-115	0			

DUP Sample ID: **24010047-22A DUP** Units: **mg/L** Analysis Date: **1/23/2024 09:40 AM**
Client ID: Run ID: **LDO_240123A** SeqNo: **10418960** Prep Date: **1/18/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	6.712	3.0	0	0	0	0-0	7.397	9.71	20	

The following samples were analyzed in this batch: 24011170-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24011170
Project: South 2 per Month 01.17.24

QC BATCH REPORT

Batch ID: **233832** Instrument ID **LACHAT2** Method: **A4500-CN G-16**

MBLK	Sample ID: MBLK-233832-233832				Units: mg/L			Analysis Date: 1/22/2024 02:00 PM			
Client ID:	Run ID: LACHAT2_240122A				SeqNo: 10417182			Prep Date: 1/22/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Amenable	ND	0.0050								

LCS	Sample ID: LCS-233832-233832				Units: mg/L			Analysis Date: 1/22/2024 02:01 PM			
Client ID:	Run ID: LACHAT2_240122A				SeqNo: 10417183			Prep Date: 1/22/2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Amenable	0.2662	0.0050	0.25	0	106	86-116	0			

The following samples were analyzed in this batch: 24011170-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24011170
Project: South 2 per Month 01.17.24

QC BATCH REPORT

Batch ID: **233853** Instrument ID **O&G** Method: **E1664A**

MBLK	Sample ID: **MBLK-233853-233853**				Units: **mg/L**			Analysis Date: **1/22/2024 09:30 AM**			
Client ID:	Run ID: **O&G_240122A**				SeqNo: **10418624**			Prep Date: **1/22/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	1.2								

LCS	Sample ID: **LCS-233853-233853**				Units: **mg/L**			Analysis Date: **1/22/2024 09:30 AM**			
Client ID:	Run ID: **O&G_240122A**				SeqNo: **10418623**			Prep Date: **1/22/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	35.2	1.2	40	0	88	78-114	0			

MS	Sample ID: **24011215-05A MS**				Units: **mg/L**			Analysis Date: **1/22/2024 09:30 AM**			
Client ID:	Run ID: **O&G_240122A**				SeqNo: **10418618**			Prep Date: **1/22/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	39.12	1.4	43.96	0.4324	88	78-114	0			

DUP	Sample ID: **24011215-07A DUP**				Units: **mg/L**			Analysis Date: **1/22/2024 09:30 AM**			
Client ID:	Run ID: **O&G_240122A**				SeqNo: **10418620**			Prep Date: **1/22/2024**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	1.4	0	0	0	0-0	0.2186	0	18	

The following samples were analyzed in this batch: 24011170-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

24011170

USECOLOGY - DETROIT US Ecology
Project: South 2 per Month 01-17-24

Chain of Custody Form

Page 1 of 1

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	P121-3004442	Project Name	South 2 per Month 01-17-24	A	Amenable Cyanide SM 4500 CN G
Quote #		Project Number		B	FOG / EPA 1664
Company Name	US Ecology	Bill To Company	US Ecology, Inc.	C	BOD 5210B
Send Report To	Jim Bahen	Invoice Attn.	Tyler Coombs	D	
Address	1923 Frederick St	Address	17440 College Parkway	E	
			STE 300	F	
City/State/Zip	Detroit/Mi/48211	City/State/Zip	Livonia/MI/48152	G	
Phone	734-344-8000	Phone		H	
Fax		Fax	Accounts.Payable@Usecology.com	I	
e-Mail Address	JBahen@republicservices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SG011724	01/17/24	9:00	WW	4	1	X										
2				WW	3	2		X									
3	SC011724	01/17/24	9:00	WW	8	1			X								
4																	
5																	
6																	
7																	
8																	
9																	

Sampler(s): Please Print & Sign
Jim Bahen

Shipment Method:

Turnaround Time: (Business Days)
☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☑ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes: Pos Sulfide Screen
	01/17/24	11:22 AM		01/17/24	11:22	Rec'd 1/17/24 2200
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:	Cooler Temp °C / pH Verified
	1/17/24	500	QS	1/17/24	500	DFZ 3.6°C pH 3.6
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			
DFS	1/18/24	0830				

QC Package: (Check Box Below)
☑ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ Other:

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035A

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **USECOLOGY - DETROIT**
Date/Time Received: **17-Jan-24 22:00**
Work Order: **24011170**
Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 18-Jan-24 (Date)
Reviewed by: Chelsey Cook (eSignature) 18-Jan-24 (Date)

Matrices: Wastewater
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.6/3.6 c	DF2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/18/2024 8:39:53 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes: pH check >12.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SC011824
Start Sampling Date:	01/17/24
End Sampling Date:	01/18/24
Sample Type:	Site Composite
Report Date:	02/13/24

Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	Less Than	0.010	0.267	mg/L	KMO	02/09/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/09/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/09/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/09/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/09/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/09/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/09/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/09/24

Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	01/19/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	01/19/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	01/19/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	01/19/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	01/19/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	01/19/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	01/19/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	01/19/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	01/19/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	01/19/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	01/19/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	01/19/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	01/30/24

Weekly Discharge Total Mercury (EPA 245.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Mercury (Hg)	Less Than	0.0002	0.00234	mg/L	MSP	01/30/24

Validated By:

Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual. This report may only be reproduced in its entirety.

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SG012224
Start Sampling Date:	01/22/24
End Sampling Date:	01/22/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/22/24					
Collection Time	9:45 AM					
Acidity/Alkalinity (pH)	7.4	1.0	5-11.5	S.U.	JCB	01/22/24
Temperature	13			Deg C		
Analysis Time	9:55 AM					

Validated By:

Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual.
This report may only be reproduced in its entirety.

30-Jan-2024

Jim Bahen
US Ecology
1923 Frederick Street
Detroit, MI 48211

Re: **PFAS 01-23-24**

Work Order: **24011462**

Dear Jim,

ALS Environmental received 1 sample on 23-Jan-2024 10:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 14.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

ALS Group, USA

Date: 30-Jan-24

Client: US Ecology
Project: PFAS 01-23-24
Work Order: **24011462**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24011462-01	SG012224	Wastewater		1/22/2024 09:45	1/23/2024 22:00	☐

ALS Group, USA

Date: 30-Jan-24

Client: US Ecology
Project: PFAS 01-23-24
WorkOrder: 24011462

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

ALS Group, USA

Date: 30-Jan-24

Client:	US Ecology
Project:	PFAS 01-23-24
Work Order:	24011462

Case Narrative

Samples for the above noted Work Order were received on 01/23/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Extractable Organics:

Batch 233931, Method E537 Mod, Sample SG012224 (24011462-01A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. 13C-PFBA_IS, 13C-PFPeA_IS, 13C_HFPO_DA_IS, 13C-PFHxA_IS, 13C-PFHpA_IS, 13C-PFOA_IS.

Batch 233931, Method E537 Mod, Sample SG012224 (24011462-01A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS, 13C-8_2-FTS_IS.

Batch 233931, Method E537 Mod, Sample SG012224 (24011462-01A): Surrogate high due to matrix interference. 13C2-FtS 6:2, 13C2-FtS 8:2.

Batch 233931, Method E537 Mod, Sample SG012224 (24011462-01A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. See attached QC report.

Batch 233931, Method E537 Mod, Sample SG012224 (24011462-01A): Additional acid needed to reach pH of 3.

No other deviations or anomalies were noted.

ALS Group, USA

Date: *30-Jan-2024*

Client: US Ecology
Project: PFAS 01-23-24
Sample ID: SG012224
Collection Date: 1/22/2024 09:45 AM

Work Order: 24011462
Lab ID: 24011462-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 1/24/24 14:42	Analyst: **MNM**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	**290**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	**61**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	**25**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorobutanesulfonic Acid (PFBS)	**34**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorobutanoic Acid (PFBA)	**440**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Perfluorodecanoic Acid (PFDA)	**11**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorododecanesulfonic Acid (PFDoS)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Perfluorododecanoic Acid (PFDoA)	**11**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Perfluoroheptanoic Acid (PFHpA)	**94**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorohexadecanoic Acid (PFHxDA)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Perfluorohexanesulfonic Acid (PFHxS)	**36**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorohexanoic Acid (PFHxA)	**230**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorononanesulfonic Acid (PFNS)	**7.1**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorononanoic Acid (PFNA)	**19**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorooctadecanoic Acid (PFODA)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Perfluorooctanesulfonamide (PFOSA)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Perfluorooctanesulfonic Acid (PFOS)	**28**		**2.1**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorooctanoic Acid (PFOA)	**290**		**2.1**	**ng/L**	1	1/24/2024 10:36 PM
Perfluoropentanesulfonic Acid (PFPeS)	**9.2**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluoropentanoic Acid (PFPeA)	**70**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Perfluorotridecanoic Acid (PFTriA)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Perfluoroundecanoic Acid (PFUnA)	**5.4**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
N-ethylperfluoro-1-octanesulfonamide	ND		5.2	ng/L	1	1/24/2024 10:36 PM
N-Ethylperfluorooctanesulfonamidoacetic Acid	**72**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
N-Ethylperfluorooctanesulfonamidoethanol	ND		5.2	ng/L	1	1/24/2024 10:36 PM
N-methylperfluoro-1-octanesulfonamide	ND		5.2	ng/L	1	1/24/2024 10:36 PM
N-Methylperfluorooctanesulfonamidoacetic Acid	**23**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
N-Methylperfluorooctanesulfonamidoethanol	ND		5.2	ng/L	1	1/24/2024 10:36 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *30-Jan-2024*

Client: US Ecology
Project: PFAS 01-23-24
Sample ID: SG012224
Collection Date: 1/22/2024 09:45 AM

Work Order: 24011462
Lab ID: 24011462-01
Matrix: WASTEWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dimer acid (HFPO-DA)	**8.0**		**5.2**	**ng/L**	1	1/24/2024 10:36 PM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.2	ng/L	1	1/24/2024 10:36 PM
11Cl-Pf3OUdS	ND		5.2	ng/L	1	1/24/2024 10:36 PM
9Cl-PF3ONS	ND		5.2	ng/L	1	1/24/2024 10:36 PM
Surr: 13C2-FtS 4:2	*290*	S	*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C2-FtS 6:2	*376*	S	*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C2-FtS 8:2	*332*	S	*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C2-PFDA	*83.4*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C2-PFDoA	*93.4*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C2-PFHxA	*38.9*	S	*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C2-PFHxDA	*85.5*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C2-PFTeA	*78.7*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C2-PFUnA	*95.8*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C3-HFPO-DA	*48.0*	S	*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C3-PFBS	*74.9*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C4-PFBA	*20.6*	S	*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C4-PFHpA	*46.9*	S	*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C4-PFOA	*48.1*	S	*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C4-PFOS	*63.3*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C5-PFNA	*59.9*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C5-PFPeA	*31.0*	S	*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 13C8-FOSA	*67.9*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: 18O2-PFHxS	*60.9*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: d5-N-EtFOSA	*61.0*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: d5-N-EtFOSAA	*131*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: d9-N-EtFOSE	*67.9*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: d3-N-MeFOSA	*63.1*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: d3-N-MeFOSAA	*86.5*		*50-150*	*%REC*	1	1/24/2024 10:36 PM
Surr: d7-N-MeFOSE	*58.2*		*50-150*	*%REC*	1	1/24/2024 10:36 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Client: US Ecology
Work Order: 24011462
Project: PFAS 01-23-24

Date: 30-Jan-24

QC BATCH REPORT

Batch ID: **233931** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-233931-233931** Units: **ng/L** Analysis Date: **1/24/2024 08:32 PM**
Client ID: Run ID: **LCMS1_240124B** SeqNo: **10425953** Prep Date: **1/24/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 10:2 (Ft	ND	5.0								
Perfluorobutanesulfonic Acid (PFBS)	ND	5.0								
Perfluorobutanoic Acid (PFBA)	ND	5.0								
Perfluorodecanesulfonic Acid (PFDS)	ND	5.0								
Perfluorodecanoic Acid (PFDA)	ND	5.0								
Perfluorododecanesulfonic Acid (PFDc	ND	5.0								
Perfluorododecanoic Acid (PFDoA)	ND	5.0								
Perfluoroheptanesulfonic Acid (PFHpS	ND	5.0								
Perfluoroheptanoic Acid (PFHpA)	ND	5.0								
Perfluorohexadecanoic Acid (PFHxDA	ND	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	ND	5.0								
Perfluorohexanoic Acid (PFHxA)	ND	5.0								
Perfluorononanesulfonic Acid (PFNS)	ND	5.0								
Perfluorononanoic Acid (PFNA)	ND	5.0								
Perfluorooctadecanoic Acid (PFODA)	ND	5.0								
Perfluorooctanesulfonamide (PFOSA)	ND	5.0								
Perfluorooctanesulfonic Acid (PFOS)	ND	2.0								
Perfluorooctanoic Acid (PFOA)	ND	2.0								
Perfluoropentanesulfonic Acid (PFPeS	ND	5.0								
Perfluoropentanoic Acid (PFPeA)	ND	5.0								
Perfluorotetradecanoic Acid (PFTeA)	ND	5.0								
Perfluorotridecanoic Acid (PFTriA)	ND	5.0								
Perfluoroundecanoic Acid (PFUnA)	ND	5.0								
N-ethylperfluoro-1-octanesulfonamide	ND	5.0								
N-Ethylperfluorooctanesulfonamidoace	ND	5.0								
N-Ethylperfluorooctanesulfonamidoeth	ND	5.0								
N-methylperfluoro-1-octanesulfonamid	ND	5.0								
N-Methylperfluorooctanesulfonamidoa	ND	5.0								
N-Methylperfluorooctanesulfonamidoet	ND	5.0								
Hexafluoropropylene oxide dimer acid	ND	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.0								
11Cl-Pf3OUdS	ND	5.0								
9Cl-PF3ONS	ND	5.0								
Surr: 13C2-FtS 4:2	*154.4*	0	*149.4*		0	*103*	*50-150*	0		
Surr: 13C2-FtS 6:2	*168.4*	0	*152*		0	*111*	*50-150*	0		
Surr: 13C2-FtS 8:2	*149.9*	0	*153.3*		0	*97.8*	*50-150*	0		
Surr: 13C2-PFDA	*163.3*	0	*160*		0	*102*	*50-150*	0		
Surr: 13C2-PFDoA	*153.6*	0	*160*		0	*96*	*50-150*	0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24011462
Project: PFAS 01-23-24

QC BATCH REPORT

Batch ID: **233931** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxA	*161.4*	0	*160*	0	*101*	*50-150*	0
Surr: 13C2-PFHxDA	*205.7*	0	*160*	0	*129*	*50-150*	0
Surr: 13C2-PFTeA	*146.2*	0	*160*	0	*91.3*	*50-150*	0
Surr: 13C2-PFUnA	*149*	0	*160*	0	*93.1*	*50-150*	0
Surr: 13C3-HFPO-DA	*179.2*	0	*160*	0	*112*	*50-150*	0
Surr: 13C3-PFBS	*139*	0	*148.8*	0	*93.4*	*50-150*	0
Surr: 13C4-PFBA	*162.4*	0	*160*	0	*102*	*50-150*	0
Surr: 13C4-PFHpA	*167.7*	0	*160*	0	*105*	*50-150*	0
Surr: 13C4-PFOA	*159.3*	0	*160*	0	*99.6*	*50-150*	0
Surr: 13C4-PFOS	*139.8*	0	*152.8*	0	*91.5*	*50-150*	0
Surr: 13C5-PFNA	*153.1*	0	*160*	0	*95.7*	*50-150*	0
Surr: 13C5-PFPeA	*165.1*	0	*160*	0	*103*	*50-150*	0
Surr: 13C8-FOSA	*133.9*	0	*160*	0	*83.7*	*50-150*	0
Surr: 18O2-PFHxS	*138.9*	0	*151.2*	0	*91.8*	*50-150*	0
Surr: d5-N-EtFOSA	*105*	0	*160*	0	*65.6*	*50-150*	0
Surr: d5-N-EtFOSAA	*151.8*	0	*160*	0	*94.9*	*50-150*	0
Surr: d9-N-EtFOSE	*134.1*	0	*160*	0	*83.8*	*50-150*	0
Surr: d3-N-MeFOSA	*110.2*	0	*160*	0	*68.9*	*50-150*	0
Surr: d3-N-MeFOSAA	*145.3*	0	*160*	0	*90.8*	*50-150*	0
Surr: d7-N-MeFOSE	*110.8*	0	*160*	0	*69.3*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24011462
Project: PFAS 01-23-24

QC BATCH REPORT

Batch ID: **233931** Instrument ID **LCMS1** Method: **E537 Mod**

LCS Sample ID: **LCS-233931-233931** Units: **ng/L** Analysis Date: **1/24/2024 08:59 PM**
Client ID: Run ID: **LCMS1_240124B** SeqNo: **10425955** Prep Date: **1/24/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	31.16	5.0	29.9	0	104	67-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	31.44	5.0	30.3	0	104	66-151	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	34.93	5.0	30.7	0	114	71-148	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	32.32	5.0	30.8	0	105	54-178	0			
Perfluorobutanesulfonic Acid (PFBS)	28.13	5.0	28.3	0	99.4	69-131	0			
Perfluorobutanoic Acid (PFBA)	33.34	5.0	32	0	104	73-139	0			
Perfluorodecanesulfonic Acid (PFDS)	28.98	5.0	30.8	0	94.1	64-128	0			
Perfluorodecanoic Acid (PFDA)	32.82	5.0	32	0	103	77-135	0			
Perfluorododecanesulfonic Acid (PFDc	31.64	5.0	31	0	102	59-122	0			
Perfluorododecanoic Acid (PFDoA)	38.63	5.0	32	0	121	77-137	0			
Perfluoroheptanesulfonic Acid (PFHpS	31.24	5.0	30.5	0	102	70-137	0			
Perfluoroheptanoic Acid (PFHpA)	29.36	5.0	32	0	91.8	72-130	0			
Perfluorohexadecanoic Acid (PFHxDA	26.17	5.0	32	0	81.8	64-142	0			
Perfluorohexanesulfonic Acid (PFHxS)	32.44	5.0	29.1	0	111	68-131	0			
Perfluorohexanoic Acid (PFHxA)	31.88	5.0	32	0	99.6	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	30.92	5.0	30.7	0	101	70-132	0			
Perfluorononanoic Acid (PFNA)	33.31	5.0	32	0	104	79-131	0			
Perfluorooctadecanoic Acid (PFODA)	25.19	5.0	32	0	78.7	71-144	0			
Perfluorooctanesulfonamide (PFOSA)	37.55	5.0	32	0	117	66-140	0			
Perfluorooctanesulfonic Acid (PFOS)	31.02	2.0	29.7	0	104	72-133	0			
Perfluorooctanoic Acid (PFOA)	30.97	2.0	32	0	96.8	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	32.1	5.0	30	0	107	73-137	0			
Perfluoropentanoic Acid (PFPeA)	30.56	5.0	32	0	95.5	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	38.59	5.0	32	0	121	62-139	0			
Perfluorotridecanoic Acid (PFTriA)	41.87	5.0	32	0	131	63-147	0			
Perfluoroundecanoic Acid (PFUnA)	33.17	5.0	32	0	104	80-135	0			
N-ethylperfluoro-1-octanesulfonamide	35.43	5.0	32	0	111	61-131	0			
N-Ethylperfluorooctanesulfonamidoace	30.68	5.0	32	0	95.9	67-140	0			
N-Ethylperfluorooctanesulfonamidoeth	32.58	5.0	32	0	102	69-135	0			
N-methylperfluoro-1-octanesulfonamid	30.03	5.0	32	0	93.8	55-133	0			
N-Methylperfluorooctanesulfonamidoa	31.38	5.0	32	0	98.1	75-133	0			
N-Methylperfluorooctanesulfonamidoe	41.82	5.0	32	0	131	71-135	0			
Hexafluoropropylene oxide dimer acid	33.32	5.0	32	0	104	70-139	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	30.92	5.0	30.1	0	103	74-135	0			
11Cl-Pf3OUdS	27.98	5.0	30.1	0	92.9	61-128	0			
9Cl-PF3ONS	32.09	5.0	29.8	0	108	69-133	0			
Surr: 13C2-FtS 4:2	*159*	0	*149.4*	0	*106*	*50-150*	0			
Surr: 13C2-FtS 6:2	*157.2*	0	*152*	0	*103*	*50-150*	0			
Surr: 13C2-FtS 8:2	*149.5*	0	*153.3*	0	*97.5*	*50-150*	0			
Surr: 13C2-PFDA	*160.9*	0	*160*	0	*101*	*50-150*	0			
Surr: 13C2-PFDoA	*147.6*	0	*160*	0	*92.2*	*50-150*	0			
Surr: 13C2-PFHxA	*159.3*	0	*160*	0	*99.6*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24011462
Project: PFAS 01-23-24

QC BATCH REPORT

Batch ID: **233931** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*191.3*	0	*160*	0	*120*	*50-150*	0
Surr: 13C2-PFTeA	*155.1*	0	*160*	0	*97*	*50-150*	0
Surr: 13C2-PFUnA	*155.9*	0	*160*	0	*97.4*	*50-150*	0
Surr: 13C3-HFPO-DA	*181.5*	0	*160*	0	*113*	*50-150*	0
Surr: 13C3-PFBS	*142.7*	0	*148.8*	0	*95.9*	*50-150*	0
Surr: 13C4-PFBA	*160.4*	0	*160*	0	*100*	*50-150*	0
Surr: 13C4-PFHpA	*181.9*	0	*160*	0	*114*	*50-150*	0
Surr: 13C4-PFOA	*163.1*	0	*160*	0	*102*	*50-150*	0
Surr: 13C4-PFOS	*150.8*	0	*152.8*	0	*98.7*	*50-150*	0
Surr: 13C5-PFNA	*162.7*	0	*160*	0	*102*	*50-150*	0
Surr: 13C5-PFPeA	*169.3*	0	*160*	0	*106*	*50-150*	0
Surr: 13C8-FOSA	*129.3*	0	*160*	0	*80.8*	*50-150*	0
Surr: 18O2-PFHxS	*138.5*	0	*151.2*	0	*91.6*	*50-150*	0
Surr: d5-N-EtFOSA	*102.9*	0	*160*	0	*64.3*	*50-150*	0
Surr: d5-N-EtFOSAA	*164.7*	0	*160*	0	*103*	*50-150*	0
Surr: d9-N-EtFOSE	*130.5*	0	*160*	0	*81.6*	*50-150*	0
Surr: d3-N-MeFOSA	*110.2*	0	*160*	0	*68.9*	*50-150*	0
Surr: d3-N-MeFOSAA	*160*	0	*160*	0	*100*	*50-150*	0
Surr: d7-N-MeFOSE	*113.7*	0	*160*	0	*71.1*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24011462
Project: PFAS 01-23-24

QC BATCH REPORT

Batch ID: **233931** Instrument ID **LCMS1** Method: **E537 Mod**

LCSD Sample ID: **LCSD-233931-233931** Units: **ng/L** Analysis Date: **1/24/2024 09:13 PM**
Client ID: Run ID: **LCMS1_240124B** SeqNo: **10425956** Prep Date: **1/24/2024** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	31.33	5.0	29.9	0	105	67-143	30.67	2.13	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS	30.95	5.0	30.3	0	102	66-151	27.57	11.6	30	
Fluorotelomer Sulphonic Acid 8:2 (FtS	33.08	5.0	30.7	0	108	71-148	34.03	2.82	30	
Fluorotelomer Sulphonic Acid 10:2 (Ft	35.6	5.0	30.8	0	116	54-178	32.36	9.55	30	
Perfluorobutanesulfonic Acid (PFBS)	28.55	5.0	28.3	0	101	69-131	28.45	0.371	30	
Perfluorobutanoic Acid (PFBA)	31.37	5.0	32	0	98	73-139	32.68	4.11	30	
Perfluorodecanesulfonic Acid (PFDS)	28.05	5.0	30.8	0	91.1	64-128	29.78	5.98	30	
Perfluorodecanoic Acid (PFDA)	32.76	5.0	32	0	102	77-135	33.39	1.9	30	
Perfluorododecanesulfonic Acid (PFDc	28.83	5.0	31	0	93	59-122	33.02	13.6	30	
Perfluorododecanoic Acid (PFDoA)	34.68	5.0	32	0	108	77-137	36.39	4.8	30	
Perfluoroheptanesulfonic Acid (PFHpS	31.2	5.0	30.5	0	102	70-137	31.19	0.0308	30	
Perfluoroheptanoic Acid (PFHpA)	30.09	5.0	32	0	94	72-130	29.42	2.23	30	
Perfluorohexadecanoic Acid (PFHxDA	27.1	5.0	32	0	84.7	64-142	25.41	6.42	30	
Perfluorohexanesulfonic Acid (PFHxS)	29.11	5.0	29.1	0	100	68-131	31.13	6.69	30	
Perfluorohexanoic Acid (PFHxA)	30.5	5.0	32	0	95.3	72-129	32.24	5.56	30	
Perfluorononanesulfonic Acid (PFNS)	28.92	5.0	30.7	0	94.2	70-132	32.39	11.3	30	
Perfluorononanoic Acid (PFNA)	32.26	5.0	32	0	101	79-131	33.8	4.69	30	
Perfluorooctadecanoic Acid (PFODA)	26.71	5.0	32	0	83.5	71-144	24.75	7.64	30	
Perfluorooctanesulfonamide (PFOSA)	39.92	5.0	32	0	125	66-140	37.27	6.87	30	
Perfluorooctanesulfonic Acid (PFOS)	27.04	2.0	29.7	0	91	72-133	28.88	6.59	30	
Perfluorooctanoic Acid (PFOA)	28.66	2.0	32	0	89.6	71-133	33.02	14.1	30	
Perfluoropentanesulfonic Acid (PFPeS	30.97	5.0	30	0	103	73-137	33.85	8.89	30	
Perfluoropentanoic Acid (PFPeA)	31.84	5.0	32	0	99.5	72-129	30.3	4.94	30	
Perfluorotetradecanoic Acid (PFTeA)	40.24	5.0	32	0	126	62-139	39.53	1.78	30	
Perfluorotridecanoic Acid (PFTriA)	43.11	5.0	32	0	135	63-147	41.86	2.95	30	
Perfluoroundecanoic Acid (PFUnA)	34.07	5.0	32	0	106	80-135	33.82	0.726	30	
N-ethylperfluoro-1-octanesulfonamide	33.82	5.0	32	0	106	61-131	34.95	3.3	30	
N-Ethylperfluorooctanesulfonamidoace	33.08	5.0	32	0	103	67-140	30.64	7.64	30	
N-Ethylperfluorooctanesulfonamidoeth	32.44	5.0	32	0	101	69-135	30.99	4.58	30	
N-methylperfluoro-1-octanesulfonamid	31.24	5.0	32	0	97.6	55-133	28.1	10.6	30	
N-Methylperfluorooctanesulfonamidoa	32.68	5.0	32	0	102	75-133	33.59	2.77	30	
N-Methylperfluorooctanesulfonamidoe	41.9	5.0	32	0	131	71-135	39.71	5.38	30	
Hexafluoropropylene oxide dimer acid	31.88	5.0	32	0	99.6	70-139	30.29	5.11	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	29.49	5.0	30.1	0	98	74-135	31.66	7.1	30	
11Cl-Pf3OUdS	26.25	5.0	30.1	0	87.2	61-128	27.47	4.56	30	
9Cl-PF3ONS	29.77	5.0	29.8	0	99.9	69-133	30.88	3.67	30	
Surr: 13C2-FtS 4:2	*149.8*	0	*149.4*	0	*100*	*50-150*	162.6	*8.19*	*30*	
Surr: 13C2-FtS 6:2	*150*	0	*152*	0	*98.7*	*50-150*	173	*14.3*	*30*	
Surr: 13C2-FtS 8:2	*149*	0	*153.3*	0	*97.2*	*50-150*	161	*7.74*	*30*	
Surr: 13C2-PFDA	*153.9*	0	*160*	0	*96.2*	*50-150*	162	*5.09*	*30*	
Surr: 13C2-PFDoA	*158.1*	0	*160*	0	*98.8*	*50-150*	159.4	*0.861*	*30*	
Surr: 13C2-PFHxA	*167*	0	*160*	0	*104*	*50-150*	167.3	*0.213*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: US Ecology
Work Order: 24011462
Project: PFAS 01-23-24

QC BATCH REPORT

Batch ID: **233931** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*193.8*	0	*160*	0	*121*	*50-150*	200	*3.19*	*30*
Surr: 13C2-PFTeA	*144.7*	0	*160*	0	*90.5*	*50-150*	165.3	*13.2*	*30*
Surr: 13C2-PFUnA	*151.7*	0	*160*	0	*94.8*	*50-150*	153	*0.813*	*30*
Surr: 13C3-HFPO-DA	*191.4*	0	*160*	0	*120*	*50-150*	192.1	*0.364*	*30*
Surr: 13C3-PFBS	*139.4*	0	*148.8*	0	*93.7*	*50-150*	144.8	*3.84*	*30*
Surr: 13C4-PFBA	*167.2*	0	*160*	0	*105*	*50-150*	167.1	*0.0957*	*30*
Surr: 13C4-PFHpA	*162.3*	0	*160*	0	*101*	*50-150*	178.6	*9.55*	*30*
Surr: 13C4-PFOA	*167*	0	*160*	0	*104*	*50-150*	164.2	*1.71*	*30*
Surr: 13C4-PFOS	*159.4*	0	*152.8*	0	*104*	*50-150*	155.8	*2.27*	*30*
Surr: 13C5-PFNA	*169.7*	0	*160*	0	*106*	*50-150*	165.4	*2.55*	*30*
Surr: 13C5-PFPeA	*160.2*	0	*160*	0	*100*	*50-150*	174.8	*8.69*	*30*
Surr: 13C8-FOSA	*124.8*	0	*160*	0	*78*	*50-150*	131	*4.89*	*30*
Surr: 18O2-PFHxS	*143.9*	0	*151.2*	0	*95.2*	*50-150*	140.5	*2.45*	*30*
Surr: d5-N-EtFOSA	*100.8*	0	*160*	0	*63*	*50-150*	108.5	*7.32*	*30*
Surr: d5-N-EtFOSAA	*146.1*	0	*160*	0	*91.3*	*50-150*	167	*13.3*	*30*
Surr: d9-N-EtFOSE	*133.1*	0	*160*	0	*83.2*	*50-150*	139.6	*4.82*	*30*
Surr: d3-N-MeFOSA	*106.3*	0	*160*	0	*66.4*	*50-150*	113.5	*6.55*	*30*
Surr: d3-N-MeFOSAA	*149.7*	0	*160*	0	*93.6*	*50-150*	153.7	*2.64*	*30*
Surr: d7-N-MeFOSE	*116.5*	0	*160*	0	*72.8*	*50-150*	120.9	*3.72*	*30*

The following samples were analyzed in this batch: 24011462-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Chain of Custody Form

Page 1 of 1

24011462

USECOLOGY - DETROIT: US Ecology
Project: PFAS 01-23-24

ALS Project Manager:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	P121-3002592	Project Name	PFAS 01-23-24	A	PFAS MI 28 compound / 537 M
Work Order		Project Number		B	
Company Name	US Ecology Detroit South	Bill To Company	US Ecology, Inc.	C	
Send Report To	Jim Bahen	Invoice Attn.	Tyler Coombs	D	
Address	1923 Frederick St	Address	17440 College Parkway	E	
			STE 300	F	
City/State/Zip	Detroit / MI / 48211	City/State/Zip	Livonia / MI / 48152	G	
Phone	313-347-1362	Phone		H	
Fax		Fax	accounts.payable@usecology.com	I	
e-Mail Address	jbahen@republicservices.com,jdanko@republicservices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SG012224	01/22/24	9:45	WW	8	3	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
Jim Bahen JBahen

Shipment Method: Pick-up

Turnaround Time: (Business Days)
☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Jim Bahen	01/23/24	1323		01/23/24	1323
Relinquished by:	Date: 1/23/24	Time: 500	Received by (Laboratory):	Date: 1/23/24	Time: 500
Logged by (Laboratory): KV	Date: 1/24/24	Time: 0855	Checked by (Laboratory):		

Notes: 1/23/24 2200

ALS Cooler ID	Cooler Temp
123	2.7°
PM	

QC Package: (Check Box Below)
☐ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

Revision 2 - Effective 11/9/2016

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **USECOLOGY - DETROIT**
Date/Time Received: **23-Jan-24 22:00**
Work Order: **24011462**
Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 24-Jan-24 (Date)
Reviewed by: Chelsey Cook (eSignature) 25-Jan-24 (Date)

Matrices: Water
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.7/3.7 C	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/24/2024 8:53:29 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SG012324
Start Sampling Date:	01/23/24
End Sampling Date:	01/23/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/23/24					
Collection Time	10:05 AM					
Acidity/Alkalinity (pH)	9.0	1.0	5-11.5	S.U.	JCB	01/23/24
Temperature	14			Deg C		
Analysis Time	10:09 AM					

Validated By:

Jim Bahen
Laboratory Manager

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US ecology

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Sample ID:	SC012324
Start Sampling Date:	01/22/24
End Sampling Date:	01/23/24
Sample Type:	Site Composite
Report Date:	02/13/24

Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	Less Than	0.010	0.267	mg/L	KMO	02/09/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/09/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/09/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/09/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/09/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/09/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/09/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/09/24

Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	01/30/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	01/30/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	01/30/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	01/30/24
Silver (Ag)	0.052	0.030	0.12	mg/L	MSP	01/30/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	01/30/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	01/30/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	01/30/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	01/30/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	01/30/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	01/30/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	01/30/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	01/30/24

Weekly Discharge Total Mercury (EPA 245.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Mercury (Hg)	Less Than	0.0002	0.00234	mg/L	MSP	01/30/24

Validated By:

Jim Bahen
Laboratory Manager

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US ecology

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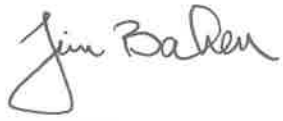
Sample ID:	SG012424
Start Sampling Date:	01/24/24
End Sampling Date:	01/24/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/24/24					
Collection Time	10:30 AM					
Acidity/Alkalinity (pH)	7.4	1.0	5-11.5	S.U.	JCB	01/24/24
Temperature	16			Deg C		
Analysis Time	10:39 AM					

Validated By:



Jim Bahen
Laboratory Manager

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Sample ID:	SC012424
Start Sampling Date:	01/23/24
End Sampling Date:	01/24/24
Sample Type:	Site Composite
Report Date:	02/15/24

Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	Less Than	0.010	0.267	mg/L	KMO	02/09/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/09/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/09/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/09/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/09/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/09/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/09/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/09/24

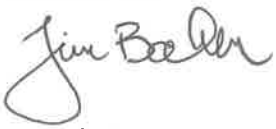
Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	01/30/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	01/30/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	01/30/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	01/30/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	01/30/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	01/30/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	01/30/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	01/30/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	01/30/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	01/30/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	01/30/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	01/30/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	01/30/24

Weekly Discharge Total Mercury (EPA 245.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Mercury (Hg)	Less Than	0.0002	0.00234	mg/L	MSP	02/15/24

Validated By:



Jim Bahen
Laboratory Manager

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US ecology

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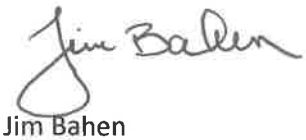
Sample ID:	SG012524
Start Sampling Date:	01/25/24
End Sampling Date:	01/25/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/25/24					
Collection Time	10:45 AM					
Acidity/Alkalinity (pH)	7.6	1.0	5-11.5	S.U.	JCB	01/25/24
Temperature	15			Deg C		
Analysis Time	10:54 AM					

Validated By:



Jim Bahen
Laboratory Manager

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US ecology

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Sample ID:	SC012524
Start Sampling Date:	01/24/24
End Sampling Date:	01/25/24
Sample Type:	Site Composite
Report Date:	02/13/24

Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	Less Than	0.010	0.267	mg/L	KMO	02/09/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/09/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/09/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/09/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/09/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/09/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/09/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/09/24

Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	01/30/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	01/30/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	01/30/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	01/30/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	01/30/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	01/30/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	01/30/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	01/30/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	01/30/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	01/30/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	01/30/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	01/30/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	01/30/24

Weekly Discharge Total Mercury (EPA 245.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Mercury (Hg)	Less Than	0.0002	0.00234	mg/L	MSP	01/30/24

Validated By:

Jim Bahen
Laboratory Manager

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Sample ID:	SG013024
Start Sampling Date:	01/30/24
End Sampling Date:	01/30/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/30/24					
Collection Time	8:45 AM					
Acidity/Alkalinity (pH)	8.0	1.0	5-11.5	S.U.	JCB	01/30/24
Temperature	13			Deg C		
Analysis Time	8:56 AM					

Validated By:

Jim Bahen
Laboratory Manager

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US ecology

US Ecology Detroit (South) · 1923 FREDERICK STREET · DETROIT, MI 48211 · tel 800-495-6059 · fax 313-923-0217 · https://www.usecology.com

Sample ID:	SC013024
Start Sampling Date:	01/29/24
End Sampling Date:	01/30/24
Sample Type:	Site Composite
Report Date:	02/13/24

Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	Less Than	0.010	0.267	mg/L	KMO	02/12/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/12/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/12/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/12/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/12/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/12/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/12/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/12/24

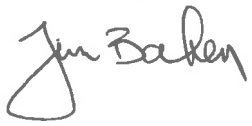
Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	02/13/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	02/13/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	02/13/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	02/13/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	02/13/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	02/13/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	02/13/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	02/13/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	02/13/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	02/13/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	02/13/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	02/13/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	02/13/24

Weekly Discharge Total Mercury (EPA 245.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Mercury (Hg)	Less Than	0.0002	0.00234	mg/L	MSP	02/09/24

Validated By:



Jim Bahen
Laboratory Manager

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Sample ID:	SG013124
Start Sampling Date:	01/31/24
End Sampling Date:	01/31/24
Sample Type:	Site Grab
Report Date:	02/13/24

Weekly Discharge Acidity/Alkalinity (Standard Methods 4500-H^+ B)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Collection Date	01/31/24					
Collection Time	8:45 AM					
Acidity/Alkalinity (pH)	7.9	1.0	5-11.5	S.U.	JCB	01/31/24
Temperature	14			Deg C		
Analysis Time	8:59 AM					

Validated By:

Jim Bahen
Laboratory Manager

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Sample ID:	SC013124
Start Sampling Date:	01/30/24
End Sampling Date:	01/31/24
Sample Type:	Site Composite
Report Date:	02/13/24

Weekly Discharge Organics (EPA 625.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Bis (2-Ethylhexyl) Phthalate	0.011	0.010	0.267	mg/L	KMO	02/12/24
Carbazole	Less Than	0.010	0.392	mg/L	KMO	02/12/24
o-Cresol (2-Methylphenol)	Less Than	0.010	1.92	mg/L	KMO	02/12/24
p-Cresol (4-Methylphenol)	Less Than	0.010	0.698	mg/L	KMO	02/12/24
n-Decane	Less Than	0.010	5.79	mg/L	KMO	02/12/24
Fluoranthene	Less Than	0.010	0.787	mg/L	KMO	02/12/24
n-Octadecane	Less Than	0.010	1.22	mg/L	KMO	02/12/24
2,4,6-Trichlorophenol	Less Than	0.010	0.155	mg/L	KMO	02/12/24

Weekly Discharge Total Metals (EPA 200.7)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Arsenic (As)	Less Than	0.100	0.162	mg/L	MSP	02/13/24
Cadmium (Cd)	Less Than	0.050	0.474	mg/L	MSP	02/13/24
Chromium (Cr)	Less Than	0.100	0.947	mg/L	MSP	02/13/24
Lead (Pb)	Less Than	0.100	0.222	mg/L	MSP	02/13/24
Silver (Ag)	Less Than	0.030	0.12	mg/L	MSP	02/13/24
Copper (Cu)	Less Than	0.100	0.405	mg/L	MSP	02/13/24
Zinc (Zn)	Less Than	0.100	2.87	mg/L	MSP	02/13/24
Nickel (Ni)	Less Than	0.100	3.95	mg/L	MSP	02/13/24
Cobalt (Co)	Less Than	0.100	0.192	mg/L	MSP	02/13/24
Antimony (Sb)	Less Than	0.100	0.249	mg/L	MSP	02/13/24
Titanium (Ti)	Less Than	0.050	0.0947	mg/L	MSP	02/13/24
Vanadium (V)	Less Than	0.050	0.218	mg/L	MSP	02/13/24
Tin (Sn)	Less Than	0.100	0.409	mg/L	MSP	02/13/24

Weekly Discharge Total Mercury (EPA 245.1)

Analyte Name	Result	Reporting Limit	GLWA Limit	Unit	Analyst	Analysis Date
Mercury (Hg)	Less Than	0.0002	0.00234	mg/L	MSP	02/09/24

Validated By:

Jim Bahen
Laboratory Manager

The Reporting Limit is neither the Method Detection Limit nor the GLWA Permit Limit.

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual. This report may only be reproduced in its entirety.

Continuous pH Monitoring Results

REPUBLIC SERVICES

Sustainability in Action

1923 Frederick Street
Detroit, MI 48211

Continuous Discharge Acidity/Alkalinity (USEPA Method 150.2)

GLWA Limit: 5-11.5 SU **Sample Type:** Grab **Analyst:** In-Situ Analysis

Daily Minimum and Maximum pH Readings						
Discharge Date	Minimum pH			Maximum pH		
	Time	pH (SU)	Temperature (°C)	Time	pH (SU)	Temperature (°C)
2-Jan-24	7:01	6.507	13.466	12:31	10.560	7.762
3-Jan-24	5:51	5.613	8.866	6:31	11.145	10.722
4-Jan-24	20:22	7.389	10.834	12:42	10.177	9.347
5-Jan-24	20:12	7.262	10.714	7:02	11.114	14.250
8-Jan-24	12:23	7.262	10.711	18:33	11.398	14.023
9-Jan-24	20:13	7.329	12.579	6:33	11.162	12.970
10-Jan-24	0:43	7.143	12.922	10:54	10.274	12.118
11-Jan-24	22:55	7.066	14.014	11:24	10.823	9.554
12-Jan-24	18:45	6.823	12.909	6:45	12.697	40.459
15-Jan-24	20:46	7.015	9.266	15:36	11.297	6.449
16-Jan-24	13:16	6.367	8.304	11:26	11.156	5.406
17-Jan-24	19:47	7.458	9.379	19:37	9.631	9.971
18-Jan-24	18:57	5.301	11.349	18:27	9.582	12.962
19-Jan-24	11:27	4.481	10.253	18:07	8.636	7.571
22-Jan-24	20:28	7.343	13.512	19:58	11.067	10.133
23-Jan-24	14:08	7.277	8.085	19:39	11.176	10.631
24-Jan-24	20:39	6.929	14.541	17:29	10.790	10.617
25-Jan-24	12:09	7.189	9.207	18:09	11.227	11.752
26-Jan-24	3:49	7.222	11.562	18:20	9.621	10.699
29-Jan-24	11:42	6.658	10.561	13:32	11.042	5.962
30-Jan-24	10:10	6.700	12.998	17:50	10.204	9.369
31-Jan-24	18:00	5.455	11.996	10:40	11.022	3.913

**Exceedances noted with highlighted cell.*

Validated by:

Jake Danko
Operations Supervisor

Samples are tested as received. Results in this report conform to our Laboratory Quality Assurance Manual. This report may only be reproduced in its entirety.

Exceedance Notifications Submitted to GLWA

REPUBLIC SERVICES

Sustainability in Action

February 21, 2024

Rosam George, Industrial Waste Control Division
Great Lakes Water Authority
9300 West Jefferson, Ste. 230
Detroit, MI 48209

SUBJECT: EQ Detroit Inc. (DBA US Ecology – Detroit South), Notification of Potential Exceedance January 12, 2024, January 19, 2024, and February 5, 2024

Dear Ms. George:

With this correspondence, US Ecology – Detroit South (USE-DS) is notifying the Great Lakes Water Authority (GLWA) of three potential instances of pH exceedance observed through continuous monitoring of wastewater effluent. Additionally, this letter provides information regarding 24-hour notifications associated with these events, subsequent compliant sample information, a process review and identification of potential causes, and corrective actions implemented to remain in compliance with Discharge Permit No. 923-91964-IU.

I. Identification and 24-hr Notifications of Potential pH Exceedance

The Discharge Permit No.: 923-91964-IU, Section G requires USE-DS to contact Great Lakes Water Authority (GLWA) within 24 hours of becoming aware of an exceedance. Please see the below timeline of identification and subsequent notification for each event:

A. Potential pH Exceedances on January 12 and 19, 2024 – Data was acquired on Friday, January 26th for both events. Based on data from the continuous monitoring system, the pH recorded at the discharge weir on January 12th was 12.70 and 12.64 for two consecutive 10-minute intervals at 6:45AM and 6:55AM, respectively, which is above the acceptable range of 5 – 11.5 SU's. The pH recorded at the discharge weir on January 19th was 4.87 and 4.48 for two consecutive 10-minute intervals at 11:17AM and 11:27AM, respectively, which is below the acceptable range of 5 – 11.5 SU's. The validity of these readings was investigated prior to submitting a 24-hour notification to the GLWA. Through this investigation, problems with the continuous pH monitoring system were identified. USEDS confirmed the suspected instrument issues on February 2nd and notified GLWA via phone and email of both the instrument problem and the nonconforming pH readings.

B. Potential pH Exceedance on February 5, 2024 – Data was acquired on February 6th for this event. Based on data from the continuous monitoring system, the pH of effluent discharging to the weir was 11.69, 12.12, 12.31, and 12.40 for four consecutive 10-minute intervals from 7:31AM – 8:01AM, which is above the acceptable range of 5 – 11.5 SU's. A 24-hour notification was submitted to the GLWA on February 7th.

II. Additional Compliant Samples Obtained

In addition to notification requirements, the Discharge Permit No.: 923-91964-IU, Section G requires two additional compliant analyses to be submitted within 30 days. The below table provides minimum and maximum pH values for the days where potential exceedances were identified (highlighted) followed by data from the next two consecutive discharge days to demonstrate a return to compliance.

Sample Date	Parameter	Minimum pH (SU)	Maximum pH (SU)	Permit Limitation	Analysis Type*,**
01/12/24	pH	6.82	12.70	5-11.5 SU	In-Situ Probe
01/15/24	pH	7.02	11.30	5-11.5 SU	In-Situ Probe
01/16/24	pH	6.37	11.16	5-11.5 SU	In-Situ Probe
01/19/24	pH	4.48	8.64	5-11.5 SU	In-Situ Probe
01/22/24	pH	7.34	11.07	5-11.5 SU	In-Situ Probe
01/23/24	pH	7.28	11.18	5-11.5 SU	In-Situ Probe
02/05/24	pH	6.23	12.40	5-11.5 SU	In-Situ Probe
02/06/24	pH	8.00	9.05	5-11.5 SU	Grab Sample
02/07/24	pH	8.60	9.50	5-11.5 SU	Grab Sample

*In-Situ Probe refers to the continuous pH monitoring probe installed in the discharge weir.

**Grab Sample refers to a grab sample of discharging effluent measured for pH during a discharge event.

III. Process Review and Evaluation of Potential pH Exceedances

The nonconforming data retrieved on Friday, January 26th, triggered a process review which found that based on operator knowledge, treated effluent was not being actively discharged at the time of the nonconforming pH readings on January 12th and 19th. This prompted a comparison of the pH values measured by the continuous monitoring probe versus values obtained from lab-analyzed grab samples, which began the following Tuesday, January 30th. The below table provides data which demonstrates an average difference of approximately 2 SU's between in-situ and grab sample pH measurements.

pH Readings from in-Situ Probe vs. Grab Samples				
Date	Time	Source of Effluent Discharge (Treatment Tank No.)	pH in-Situ (SU's)	pH Grab Sample (SU's)
01/30/24	10:00 AM	202	8.03	6.8
01/31/24	1:00 PM	204	11.01	9.0
02/01/24	8:30 AM	204	10.86	9.0
02/02/24	9:30 AM	204	10.57	8.8
02/05/24	7:00 AM	204	7.68	10.0

IV. Corrective Actions Implemented

Based on the investigation, USE-DS reached out to a product representative to assess the reliability of the continuous pH monitoring equipment and made the determination that the current probe should be placed out of service and replaced with a more robust, industrial-rated probe. The continuous pH monitoring probe was no longer in service as of February 6, 2024. The facility ordered a new probe for immediate installation as well as a back-up probe to prevent future lapses in continuous monitoring. The pH will be monitored manually for each discharge event until the new probe is installed.

In conclusion, three potential permit exceedances were identified, the proper notifications were made, the process was reviewed to identify a potential cause, and additional compliant sample data was obtained. The cause of the discrepant pH readings was investigated, and corrective actions have been implemented.

USE-DS takes compliance very seriously and remains diligent in its efforts to prevent exceedances. Should you have any questions regarding this report, please contact Tabetha Peebles, Environmental Compliance Manager, at 313-347-1328.

Sincerely,

John Barta
General Manager

Cc: Tianna Kilgore, EGLE (via email)

Krupp, Katherine

From: Rosam George <Rosam.George@glwater.org>
Sent: Tuesday, February 6, 2024 7:27 AM
To: Krupp, Katherine
Cc: Peebles, Tabetha; Danko, Jake
Subject: RE: USEDS - Continuous pH Monitoring - System Investigation

Good Morning Katie,

Thanks for the notification. Hopefully the issues will be resolved soon.

Meanwhile, notify the pH exceedance as soon as you become aware of it and continue to submit 30-day report, as you have been doing.

Rosam George
Engineer – Industrial Waste Control Group
Great Lakes Water Authority • 9300 W. Jefferson, Ste: 210 • Detroit, MI 48209
P: 313.297.5844
E: Rosam.George@glwater.org
General Information: 844.455.GLWA(4592)

From: Krupp, Katherine <KKrupp@republicservices.com>
Sent: Friday, February 2, 2024 3:15 PM
To: Rosam George <Rosam.George@glwater.org>
Cc: Peebles, Tabetha <TPeebles@republicservices.com>; Danko, Jake <JDanko@republicservices.com>
Subject: USEDS - Continuous pH Monitoring - System Investigation

Hello Rosam,

The below data was pulled on 1/26/24. As discussed via phone, an internal investigation was conducted to verify the potential exceedances due to the nature of the operations occurring at the times of the readings. As a result of the investigation, issues with the pH probe were discovered that we are currently working on resolving. Operations is logging both continuous pH monitoring from the probe as well as grab samples from discharge events for lab analysis. We will follow up with you next week with additional findings. Let us know if you have any questions.

Date Time	pH	Temp
1/19/2024 11:17:44	4.865	10.337
1/19/2024 11:27:44	4.481	10.253

Date Time	pH	Temp
1/12/2024 06:45:37	12.697	40.459
1/12/2024 06:55:37	12.640	41.136

Thank You!

Katie Krupp
Environmental Specialist
Central Area BU 1
E kkrupp@republicservices.com
P 313-347-1376
C 313-980-9845
Emergency Response: 800.899.4672