December 18, 2023

TDEC-Division of Water Resources
ATTN: Biosolids Coordinator
William R. Snodgrass-11th Floor
312 Rosa L. Parks Avenue
Nashville, TN 37243

Re: Renewal of General SOP for the Land Application of Non-Exceptional Quality Biosolids
Cleveland Utilities Authority STP—**Tracking #TNB024121**

Biosolids Coordinator:

Cleveland Utilities Authority would like to request a renewal for coverage under the General SOP for the Land Application of Non-Exceptional Quality Biosolids. The following information is provided per Section 6.4 of the referenced permit:

1. Official or legal name of the facility; Cleveland Utilities Authority STP
2. The existing permit tracking number for the facility—**TNB024121**
3. Name, mailing address, and telephone number of the contactor person for the facility:
   Mr. Darrel Hubbard, Jr.
   Wastewater Treatment Facility Supervisor
   PO BOX 2730
   2450 Guthrie Drive NW
   Cleveland, TN 37320
   (423)-336—5165 or (901)282-1373; Email, dhubbard@clevelandutilities.com

Please let me know if you have any inquiries or if any additional information is necessitated.

Warm Regards,

Darrel Hubbard

Darrel Hubbard, Jr.
Supervisor of Wastewater Treatment Facilities
Cleveland Utilities – Water Division; Treatment Facilities
(423)-336-5165 or (423)-336-5195
dhubbard@clevelandutilities.com

Email: Mr. Tim Henderson, President/CEO, Cleveland Utilities Authority
Mr. Craig T. Mullinax P.E., Cleveland Utilities, VP of Water Division
Mr. Chris Wilds, Cleveland Utilities, Manager of Treatment Facilities
Mr. Daniel Dodson, Technical Services Specialist, Synagro South LLC

Ms. Anastasia Sharp, TDEC; Mrs. Angela Oberschmidt, TDEC

Cc: Mr. Steve Barger, Director of Pretreatment and Environmental Regulatory/Compliance

CLEVELAND UTILITIES

BIOSOLIDS LAND APPLICATION PROGRAM

NPDES Permit No. TN0024121

Notice of Intent (NOI) for Land Application of

Non-Exceptional Quality Biosolids

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102
(615) 532-0625

NOTICE OF INTENT (NOI) for Land Application of Non-Exceptional Quality Biosolids

Generator Name: **Cleveland Utilities**	Current NPDES No: **TN0024121**	**Existing Tracking No: TNB024121**

Owner or Operator: (the person or legal entity which controls the site's operation)

1	Name of Official Contact Person: (individual responsible for a site) **DARREL HUBBARD, JR.**	Title or Position: **WWTP SUPERVISOR**		
	Mailing Address: **P.O BOX 2730**	City: **CLEVELAND**	State: **TN**	Zip: **37320**
	Phone: **(901-282-1373)**	E-mail: **DHUBBARD@CLEVELANDUTILITIES.COM**		
2	Name of Local Contact Person: (if appropriate, write "same as #1") **"SAME AS #1"**	Title or Position: **WWTP SUPERVISOR**		
	Site Address: (this may or may not be the same as street address) **1860 OLD LOWER RIVER ROAD**	Site City: **CHARLESTON**	State: **TN**	Zip: **37310**
	Phone: **(901-282-1373)**	E-mail: **DHUBBARD@CLEVELANDUTILITIES.COM**		

Write in the box (to the right) or circle the number (above) to indicate where to send correspondence: **#1**

All non-EQ biosolids land application sites that have been approved by the division prior to the effective date of this permit will be covered under this permit upon receipt of the signed certification statement, completed NOI and a copy of site approval letter(s).

A. OPERATIONAL INFORMATION:
Estimated annual amount of biosolids generated (dry weight basis) **2,400** (tons)
Estimated annual amount of biosolids to be land applied (dry weight basis) **2,400** (tons)

B. BIOSOLIDS TREATMENT PROCESS: Please provide a description of the biosolids treatment process used prior to biosolids being land applied (use a separate sheet if necessary): **After secondary activated sludge process utilizing a 21.6 MGD SBR, solids are pumped to two 9 million gallon anaerobic lagoons for further treatment. Following anaerobic digestion, biosolids are pumped to a de-watering facility utilizing a centrifuge. The approximately 22% cake solids are stored on a covered storage area to await surface land application by a contract with Synagro as class "B" biosolids.**

C. CHEMICAL ANALYSIS: Indicate which contaminant standard(s) the biosolids meet:
Table 1 Ceiling Contaminant Concentrations: (X) **Table 3 Contaminant Concentrations: (X)**

- Submit analytical results to demonstrate eligibility for and compliance with the quality criteria specified in the General Permit. **(*Please see attached)**
- Submit PCB and TCLP analytical results that are less five years old. **(*Please see attached)**

D. PATHOGEN REDUCTION LEVEL ACHIEVED: Indicate alternative used to achieve the pathogen reduction. For Class A, Alternatives 5 and 6; for Class B, Alternatives 2 and 3, list the specific Process to Further Reduce Pathogens (PFRP) or Process to Significantly Reduce Pathogens (PSRP).

Class A: ☐ **Alternative 1** ☐ **Alternative 2** ☐ **Alternative 3**
☐ **Alternative 4** ☐ **Alternative 5** _____ ☐ **Alternative 6** _____
(List PFRP) **(List Eq. PFRP)**

Class B: **(X) Alternative 1** ☐ **Alternative 2** _____ ☐ **Alternative 3** _____
(List PSRP) **(List Eq. PSRP)**

Provide a detailed description of the pathogen treatment process. Attach laboratory analytical and/or process monitoring results, as appropriate, that demonstrate pathogen reduction is being achieved:

Pathogen Reduction is achieved by anaerobic digestion utilizing two 9 million gallon anaerobic lagoons.
(*Please see attached analytical information)

E. VECTOR ATTRACTION REDUCTION LEVEL ACHIEVED: Indicate the option used to achieve the vector attraction reduction.

"X" Option 1 "X" Option 2 ☐ Option 3 ☐ Option 4
☐ Option 5 ☐ Option 6 ☐ Option 7 ☐ Option 8

If one of the vector attraction reduction Options 1 - 5 is selected, do the biosolids meet Class A pathogen reduction requirements prior to or at the same time as meeting the vector attraction reduction requirements?

☐ Yes "X" No

Provide a detailed description of the vector attraction reduction treatment process. Attach laboratory analytical and/or process monitoring results, as appropriate, that demonstrate vector attraction reduction is being achieved:

Vector Attraction Reduction is achieved by anaerobic digestion utilizing two 9 million gallon anaerobic lagoons.
(*Please see attached analytical information)

F. If one of the vector attraction reduction Options 1 - 8 above was not performed, indicate how the vector attraction reduction will be performed on the field as part of the land application process:

☐ **Option 9 (Subsurface Injection)** ☐ **Option 10 (Incorporation)**

G. SAMPLING PLAN: Include a detailed copy of the biosolids sampling plan as specified in the instructions. The sampling plan must address sampling protocols for contaminants, pathogen reduction, and vector attraction reduction quality criteria. **(*Please see attached)**

H. LAND APPLICATION AREA(s): Include a list of land application area(s) that will be used for disposal of biosolids. Attach a detailed map showing appropriate buffers in accordance with section 3.2.1(add additional pages if necessary).
(*Please see attached Land Data Sheet)

Area Number	Area (acres)	Application Rate (tons/acre) per section 3.2.2	Latitude (decimal)	Longitude (decimal)

I. CERTIFICATION: I certify, under penalty of law, that contaminant concentrations in the biosolids, pathogen reduction, vector attraction reduction, and other quality criteria of the biosolids stated in the regulations have been met or, if appropriate, will be met prior to land application of biosolids. I further certify that other information in this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my own knowledge as well as the inquiry of the person(s) who manage the system, or those directly responsible for gathering the information, the information submitted, to the best of my knowledge and belief, is true, accurate and complete. I further acknowledge that the facility or generator of biosolids described above is eligible for coverage under TDEC's General Permit for the Land Application of Biosolids. I am aware that there are significant penalties for submitting false information, including possibility of fines and imprisonment for knowing violations. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Name: Darrel Hubbard, Jr. **Title:** WWTP Supervisor

Signature: Darrel Hubbard

Telephone: (901-282-1373) **Date Signed:** 12 / 18 / 23

NOTE: In evaluating NOI forms, TDEC may request additional information to complete its review to determine the eligibility for coverage under TDEC's General Permit.

Submit the original completed and signed form to *Water.Permits@tn.gov* or:
Biosolids NOI Processing - Division of Water Resources
William R. Snodgrass - Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243-1102

Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

10/19/2023

Synagro SW LLC/ Technical
D Dodson/14-0059
POB 2545
Knoxville, TN, 37901

Ref: Analytical Testing
Report Number: 23-278-0005
Project Description: Clevland

Dear D Dodson/14-0059:
Waypoint Analytical Virginia, Inc. received sample(s) on 10/5/2023 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method. Sub-contracted testing is noted on the Sample Summary Table if applicable.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters (NELAP and non-NELAP) were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2012) and NELAC unless otherwise indicated.

Certain parameters (chlorine, pH, dissolved oxygen, sulfite...) are required to be analyzed within 15 minutes of sampling. Usually, but not always, any field parameter analyzed at the laboratory is outside of this holding time. Refer to sample analysis time for confirmation of holding time compliance.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Brandi Watson

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Sample Summary Table

Report Number: **23-278-0005**

Client Project Description: **Clevland**

Lab No	Client Sample ID	Matrix	Date Collected	Date Received	Method	Lab ID
63621	Clevland WWTP	Solids	10/03/2023 09:00	10/05/2023		
63621	Clevland WWTP	Solids	10/03/2023 09:00	10/05/2023	SM-2540G	WP MTN
63621	Clevland WWTP	Solids	10/03/2023 09:00	10/05/2023	SW-7471B	WP MTN
63621	Clevland WWTP	Solids	10/03/2023 09:00	10/05/2023	SM-4500-NH3C-TKN	WP MTN
63621	Clevland WWTP	Solids	10/03/2023 09:00	10/05/2023	4500NO3F-2016	WP MTN
63621	Clevland WWTP	Solids	10/03/2023 09:00	10/05/2023	6010D	WP MTN
63621	Clevland WWTP	Solids	10/03/2023 09:00	10/05/2023	SM-4500-NH3C	WP MTN
63621	Clevland WWTP	Solids	10/03/2023 09:00	10/05/2023	9045D	WP MTN
63621	Clevland WWTP	Solids	10/03/2023 09:00	10/05/2023	AOAC 955.01	WP MTN

WP MTN - Memphis, TN: Waypoint Analytical - TN, Memphis, TN

Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

95042
Synagro SW LLC/ Technical
D Dodson/14-0059
POB 2545
Knoxville , TN 37901

Project Clevland
Information :

Report Date : 10/19/2023
Received : 10/05/2023

Brandi Watson

Report Number : **23-278-0005**

REPORT OF ANALYSIS

Lab No : **63621**
Sample ID : **Clevland WWTP**

Matrix: **Solids**
Sampled: **10/3/2023 9:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Total Kjeldahl Nitrogen	**49100**	mg/Kg - dry	1100	1	10/18/23 10:30	JPJ	SM-4500-NH3C-TKN
Calcium	**23600**	mg/Kg - dry	219	1	10/11/23 01:45	TJS	6010D
Magnesium	**4690**	mg/Kg - dry	21.9	1	10/11/23 01:45	TJS	6010D
Sodium	**309**	mg/Kg - dry	110	1	10/11/23 01:45	TJS	6010D
Iron	**13300**	mg/Kg - dry	43.9	1	10/11/23 01:45	TJS	6010D
Aluminum	**11800**	mg/Kg - dry	21.9	1	10/11/23 01:45	TJS	6010D
Nitrate+Nitrite-N	<21.9	mg/Kg - dry	21.9	1	10/11/23 15:39	CLP	4500NO3F-2016
Chromium	**68.4**	mg/Kg - dry	1.10	1	10/11/23 01:45	TJS	6010D
Arsenic	**5.75**	mg/Kg - dry	2.19	1	10/11/23 01:45	TJS	6010D
Mercury	<0.825	mg/Kg - dry	0.825	1	10/10/23 11:46	MRE	SW-7471B
pH	**8.7**	s.u.		1	10/09/23 16:05	CNB	9045D
Calcium Carbonate Equivalent	**5.9**	%	0.1	1	10/12/23 15:15	DXT	AOAC 955.01
Total Volatile Solids	**66.5**	%	0.010	1	10/09/23 17:26	CJR	SM-2540G
Molybdenum	**13.4**	mg/Kg - dry	1.10	1	10/11/23 01:45	TJS	6010D

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Lead	**22.1**	mg/Kg - dry	1.32	1	10/11/23 01:45	TJS	6010D
Manganese	**401**	mg/Kg - dry	2.19	1	10/11/23 01:45	TJS	6010D
Nickel	**28.7**	mg/Kg - dry	1.10	1	10/11/23 01:45	TJS	6010D
Potassium	**1290**	mg/Kg - dry	43.9	1	10/12/23 20:06	BKN	6010D

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

Waypoint ANALYTICAL

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www.waypointanalytical.com

95042
Synagro SW LLC/ Technical
D Dodson/14-0059
POB 2545
Knoxville , TN 37901

Project Clevland
Information :

Report Date : 10/19/2023
Received : 10/05/2023

Brandi Watson

Report Number : **23-278-0005**

REPORT OF ANALYSIS

Lab No : **63621**
Sample ID : **Clevland WWTP**

Matrix: **Solids**
Sampled: **10/3/2023 9:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Selenium	**10.8**	mg/Kg - dry	2.19	1	10/11/23 01:45	TJS	6010D
Sulfur	**12600**	mg/Kg - dry	43.9	1	10/11/23 01:45	TJS	6010D

Analytical Method: SM-2540G

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Moisture	**77.2**	%	0.010	1	10/09/23 17:26	CJR	L709658

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Total Solids	**22.8**	%	0.010	1	10/09/23 17:26	CJR	SM-2540G
Phosphorus	**21100**	mg/Kg - dry	21.9	1	10/11/23 01:45	TJS	6010D
Copper	**427**	mg/Kg - dry	2.19	1	10/11/23 01:45	TJS	6010D
Zinc	**1330**	mg/Kg - dry	5.48	1	10/11/23 01:45	TJS	6010D
Ammonia Nitrogen	**6930**	mg/Kg - dry	439	1	10/18/23 14:37	JPJ	SM-4500-NH3C
Organic N	**42190**	mg/Kg - dry	1096	1	10/18/23 10:30		CALCULATION
Cadmium	**1.64**	mg/Kg - dry	0.439	1	10/11/23 01:45	TJS	6010D

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Client: Synagro SW LLC/ Technical
Project: Clevland
Lab Report Number: 23-278-0005
Date: 10/18/2023

CASE NARRATIVE

Metals Analysis Method 6010D
Sample 78029 (2,2 - Surface)
Analyte: Aluminum
QC Batch No: L709847/L709508
The matrix spike and/or the matrix spike duplicate was outside quality control acceptance ranges. A dilution test was performed and passed quality control acceptance ranges. No matrix interference is suspected.

Sample 78029 (2,2 - Surface)
Analyte: Calcium
QC Batch No: L709847/L709508
The matrix spike and/or the matrix spike duplicate was outside quality control acceptance ranges. A dilution test was performed and passed quality control acceptance ranges. No matrix interference is suspected.

Sample 78029 (2,2 - Surface)
Analyte: Iron
QC Batch No: L709847/L709508
The matrix spike and/or the matrix spike duplicate was outside quality control acceptance ranges. A dilution test was performed and passed quality control acceptance ranges. No matrix interference is suspected.

Sample 78029 (2,2 - Surface)
Analyte: Magnesium
QC Batch No: L709847/L709508
The matrix spike and/or the matrix spike duplicate was outside quality control acceptance ranges. A dilution test was performed and passed quality control acceptance ranges. No matrix interference is suspected.

Sample 78029 (2,2 - Surface)
Analyte: Sodium
QC Batch No: L709847/L709508
The matrix spike and/or the matrix spike duplicate was outside quality control acceptance ranges. A dilution test was performed and passed quality control acceptance ranges. No matrix interference is suspected.

Sample 78029 (2,2 - Surface)
Analyte: Phosphorus
QC Batch No: L709847/L709508
The matrix spike and/or the matrix spike duplicate was outside quality control acceptance ranges. A dilution test was performed and passed quality control acceptance ranges. No matrix interference is suspected.

Sample 82083 (WBR)
Analyte: Phosphorus
QC Batch No: L710659/L710235
The matrix spike and/or the matrix spike duplicate was outside quality control acceptance ranges. A dilution test was performed and passed quality control acceptance ranges. No matrix interference is suspected.

Waypoint ANALYTICAL

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Shipment Receipt Form

Customer Number: **95042**
Customer Name: **Synagro SW LLC/ Technical**
Report Number: **23-278-0005**

Shipping Method

○ Fed Ex	○ US Postal	○ Lab	○ Other :	
◉ UPS	○ Client	○ Courier	Thermometer ID:	

Shipping container/cooler uncompromised?	◉ Yes	○ No	
Number of coolers/boxes received	1		
Custody seals intact on shipping container/cooler?	○ Yes	○ No	◉ Not Present
Custody seals intact on sample bottles?	○ Yes	○ No	◉ Not Present
Chain of Custody (COC) present?	◉ Yes	○ No	
COC agrees with sample label(s)?	◉ Yes	○ No	
COC properly completed	◉ Yes	○ No	
Samples in proper containers?	◉ Yes	○ No	
Sample containers intact?	◉ Yes	○ No	
Sufficient sample volume for indicated test(s)?	◉ Yes	○ No	
All samples received within holding time?	◉ Yes	○ No	
Cooler temperature in compliance?	◉ Yes	○ No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	◉ Yes	○ No	
Water - Sample containers properly preserved	○ Yes	○ No	◉ N/A
Water - VOA vials free of headspace	○ Yes	○ No	◉ N/A
Trip Blanks received with VOAs	○ Yes	○ No	◉ N/A
Soil VOA method 5035 – compliance criteria met	○ Yes	○ No	◉ N/A

☐ High concentration container (48 hr) ☐ Low concentration EnCore samplers (48 hr)

☐ High concentration pre-weighed (methanol -14 d) ☐ Low conc pre-weighed vials (Sod Bis -14 d)

Special precautions or instructions included?	○ Yes	◉ No

Comments:

Signature: David Lennon Date & Time: 10/05/2023 10:12:27

Synagro SW LLC/ Technical
Cleveland
23-278-0005
95042
10-05-2023
10:10:54

CHAIN OF CUSTODY

ories

7621 W

-271-6446 Email: supportale@aleastern.com

Account #

Submitted By	Charge To	Copy To
Daniel Dodson	Synagro	

Project	Cleveland 540082

Sample Information

Sample ID	Lab Number (Lab Use Only)	Collection Information: Type	Date	Time	Container Information: Number of Bottles	Type	Volume	Please Check Desired Tests: SL1	SL2	503 Metals	Nitrogen Series	pH	CCE	Ag	Cl	Volatile Solids	Others
Cleveland WWTP	63621	✓ Grab / Composite	10-3-23	9:00	1	Glass / ✓ Plastic	oz / pint / ✓ qt		✓	✓	✓	✓				✓	
		Grab / Composite				Glass / Plastic	oz / pint / qt										
		Grab / Composite				Glass / Plastic	oz / pint / qt										
		Grab / Composite				Glass / Plastic	oz / pint / qt										

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
David Dodson	10-3-23	3:30	[illegible]	10-5-2023	11:00

Test Package Details

SL1: Total Solids (Moisture) Total Kjeldahl Nitrogen, Phosphorus and Potassium
SL2: Basic Test SL1 plus Sulfur, Calcium, Magnesium, Sodium, Iron, Aluminum, Manganese, Copper And Zinc
503 Metals: Arsenic, Cadmium, Chromium, Mercury, Molybdenum, Lead, Nickel, Selenium. (Copper & Zinc included in SL2)
Nitrogen Series: Total Kjeldahl, Ammonium, Nitrate & Organic Nitrogen.
CCE: Calcium Carbonate Equivalent or Total neutralization Value (For Lime Treated Sludge)

Special Instructions or Remarks

mg/kg - dry

State of Tennessee (ID #02034)
Alabama Dept. of Environmental Management (ID #40780)

AIRL, INC.
1550 37TH STREET, NE
CLEVELAND, TENNESSEE 37312
(423) 476-7766 Fax: (423) 476-7714
ISO/IEC 17025:2017, PJLA-76332
Testing Accreditation

Scope of Accreditation:
Wastewater, Surface Water, Ground Water, Drinking Water, Solids, Hazardous Waste, Soils, Sediments, and Sludges.

Lab Report 354398

2330
Synagro, Inc.
Attention: Daniel Dodson
P.O. Box 2545
Knoxville, TN 37901

Date Received 10/4 /2023
Date Sampled 10/04/2023
Date Requested 10/11/2023
Rush Status ASAP
Phone (865) 594-7609
Extension
☐ *Fax* (865) 971-7486
☑ *eMail:*
PO#

Sample Information

Drying Pad Cleveland Waste Center
Sludge Sampled by AIRL

Lab Report: 354398		*Result*		*LCL*	*Method*	*SDL*	*Date*	*Time*	*Analyst*
	Fecal Coliform-Geometric Mean	112053	col/dry gm	1	SM 9222D	1	10/11/2023	15:15	KEP
01 0920	Fecal Coliform	129826	col/dry gm	100	SM 9222D	100	10/5/2023	9:35	KEP
02 0922	Fecal Coliform	89978	col/dry gm	100	SM 9222D	100	10/5/2023	9:35	KEP
03 0924	Fecal Coliform	107002	col/dry gm	100	SM 9222D	100	10/5/2023	9:35	KEP
04 0926	Fecal Coliform	110492	col/dry gm	100	SM 9222D	100	10/5/2023	9:35	KEP
05 0928	Fecal Coliform	129965	col/dry gm	100	SM 9222D	100	10/5/2023	9:35	KEP
06 0930	Fecal Coliform	156693	col/dry gm	100	SM 9222D	100	10/5/2023	9:35	KEP
07 0932	Fecal Coliform	78864	col/dry gm	100	SM 9222D	100	10/5/2023	9:35	KEP
	Total Solids	22.98	% wt.	0.01	SM2540B	0.01	10/5/2023	8:05	SLW

Lowest Calibration Level [LCL] - reporting limit; Sample Detection Level [SDL] - Sample Specific

QA/QC Procedures required by the Method(s) were followed unless otherwise noted. Performance and acceptance standards for required QA/QC procedures were achieved unless otherwise noted. No significant modifications have been made to the Method(s). I attest that, based upon my inquiry of those individuals immediately responsible for reviewing the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Report approved by: Roy H Buttram
TECHNICAL DIRECTOR

2023 Vector Attraction Reduction

2450 Guthrie Drive, NW • P.O. Box 2730 • Cleveland, TN 37320-2730 • (423) 472-4521

Cleveland Utilities

12/14/23

To Whom it may concern,

Cleveland Utilities utilizes maximum 17% volatile solids reduction by 40 Day Bench Digestion per 40 CFR 503.33(b)(2) **or** minimum 38% volatile solids reduction 40 CFR 503.33(b)(1) to comply with Vector Attraction Reduction requirements given in 40 CFR 503.33. These requirements were met for all of 2022. The following are 2022 results:

Date	40 day Digestion Initial % Volatile Maximum 17% Reduction	40 day Digestion Final % Volatile Maximum 17% Reduction	38% Minimum Reduction Initial % Volatile	38% Minimum Reduction Final % Volatile	% Reduction
1/12/23			78%	66%	45%
4/28/23			78%	68%	40%
7/26/23			76%	60%	53%
8/31/23			76%	64%	44%
9/20/23			76%	66%	39%
11/1/23			77%	66%	42%

Sincerely,
Cleveland Utilities
Water Division

Darrel Hubbard, Jr.
Wastewater Treatment Plant Supervisor

2450 Guthrie Drive, NW • P.O. Box 2730 • Cleveland, TN 37320-2730 • (423) 472-4521

Attachment

G. Sampling Plan:

Nutrients/Metals-Sampling of the biosolids is conducted bimonthly; six times per year (based on EPA 503 monitoring frequency). A sample is collected from the covered concrete storage pad and placed in an approved container and labeled appropriately. A chain of custody (COC) form is filled out. The sample, with COC, is shipped to an independent laboratory for testing. See attached laboratory report for results.

TCLP/PCB-Sampling of the biosolids is conducted once every five years (based on TDEC general permit). A sample is collected from the covered concrete storage pad and placed in an approved container and labeled appropriately. A COC form is filled out. The sample, with COC, is shipped to an independent laboratory for testing. See attached laboratory report for results.

Pathogen Reduction-Sampling of the biosolids is conducted bimonthly; six times per year (based on EPA 503 monitoring frequency). Seven representative samples of the biosolids is collected from the covered concrete storage pad, placed in approved containers and labeled appropriately. A COC form is filled out. The sample, with COC, is shipped to an independent laboratory for testing of fecal coliform. See attached laboratory report for results.

Vector Attraction Reduction-Sampling of the biosolids is conducted bimonthly; six times per year (based on EPA 503 monitoring frequency). Representative samples of the biosolids are collected from the sludge feed sampling port entering the centrifuge from anaerobic lagoons and concurrently from a composite sample of sludge being wasted from the SBR into the anaerobic lagoons, placed in approved containers and labeled appropriately. The samples are delivered to Cleveland Utilities on site laboratory for testing of percent total volatile solids. Either the VanKleek calculation or 40 day bench digested is utilized to calculate percent reduction to confirm compliance. See attached laboratory report for results.

ANALYTICAL REPORT

April 12, 2023

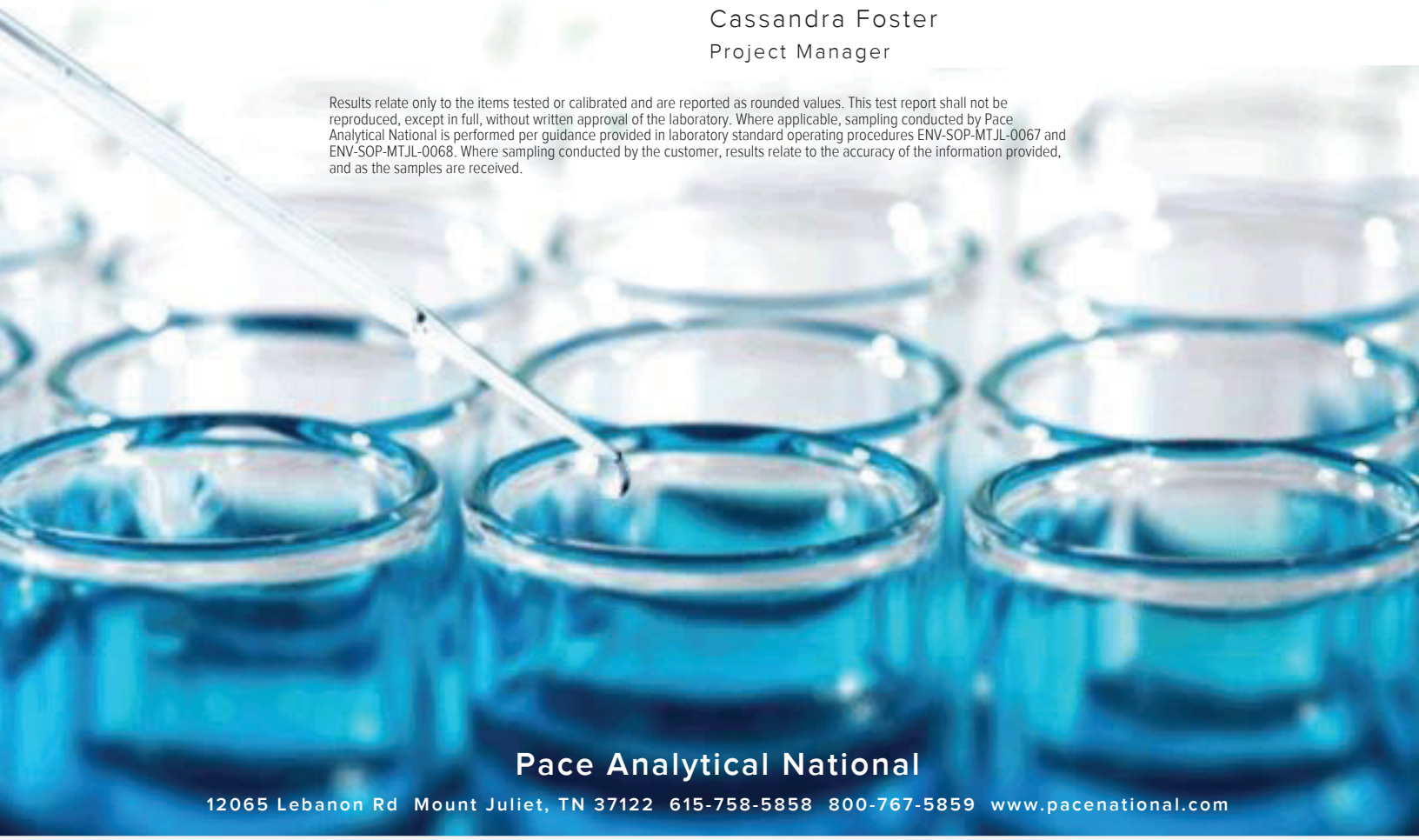
Cleveland Utilities WWTP

Sample Delivery Group:	L1602231
Samples Received:	04/05/2023
Project Number:	BIOSOILDS
Description:	Biosolids 1/5 yrs.
Site:	TN0024121
Report To:	Mr. Steve Barger PO Box 2730 Cleveland, TN 37320

Entire Report Reviewed By:

Cassandra Foster

Project Manager



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

2202878377 L1602231-01 Waste

Collected by: Darrel Hubbard
Collected date/time: 04/04/23 11:30
Received date/time: 04/05/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG2036796	1	04/07/23 15:04	04/07/23 15:04	WC	Mt. Juliet, TN
Preparation by Method 1311	WG2036797	1	04/06/23 13:43	04/06/23 13:43	JTM	Mt. Juliet, TN
Mercury by Method 7470A	WG2038529	1	04/08/23 17:16	04/10/23 11:03	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2038680	1	04/09/23 09:06	04/10/23 19:06	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2038104	1	04/10/23 14:01	04/10/23 14:01	JAH	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG2039203	1	04/11/23 13:01	04/12/23 04:10	HMH	Mt. Juliet, TN
Pesticides (GC) by Method 8081B	WG2038276	1	04/09/23 09:17	04/09/23 23:13	LTB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG2038671	1	04/09/23 13:34	04/10/23 14:34	DSH	Mt. Juliet, TN

2203782791 L1602231-02 Solid

Collected by: Darrel Hubbard
Collected date/time: 04/04/23 11:30
Received date/time: 04/05/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2037626	1	04/07/23 11:26	04/07/23 11:54	MMF	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG2037568	1	04/07/23 08:46	04/08/23 00:45	HLA	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Cassandra Foster
Project Manager

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		4/7/2023 3:04:08 PM	WG2036796
TCLP ZHE Extraction	-		4/6/2023 1:43:43 PM	WG2036797
Fluid	1		4/7/2023 3:04:08 PM	WG2036796
Initial pH	7.41		4/7/2023 3:04:08 PM	WG2036796
Final pH	12.29		4/7/2023 3:04:08 PM	WG2036796

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	04/10/2023 11:03	WG2038529

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	04/10/2023 19:06	WG2038680
Barium	0.103		0.100	100	1	04/10/2023 19:06	WG2038680
Cadmium	ND		0.100	1	1	04/10/2023 19:06	WG2038680
Chromium	ND		0.100	5	1	04/10/2023 19:06	WG2038680
Lead	ND		0.100	5	1	04/10/2023 19:06	WG2038680
Selenium	ND		0.100	1	1	04/10/2023 19:06	WG2038680
Silver	ND		0.100	5	1	04/10/2023 19:06	WG2038680

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	04/10/2023 14:01	WG2038104
Carbon tetrachloride	ND		0.0500	0.50	1	04/10/2023 14:01	WG2038104
Chlorobenzene	ND		0.0500	100	1	04/10/2023 14:01	WG2038104
Chloroform	ND		0.250	6	1	04/10/2023 14:01	WG2038104
1,2-Dichloroethane	ND		0.0500	0.50	1	04/10/2023 14:01	WG2038104
1,1-Dichloroethene	ND		0.0500	0.70	1	04/10/2023 14:01	WG2038104
2-Butanone (MEK)	ND		0.500	200	1	04/10/2023 14:01	WG2038104
Tetrachloroethene	ND		0.0500	0.70	1	04/10/2023 14:01	WG2038104
Trichloroethene	ND		0.0500	0.50	1	04/10/2023 14:01	WG2038104
Vinyl chloride	ND		0.0500	0.20	1	04/10/2023 14:01	WG2038104
(S) Toluene-d8	*101*		*80.0-120*			*04/10/2023 14:01*	WG2038104
(S) 4-Bromofluorobenzene	*89.9*		*77.0-126*			*04/10/2023 14:01*	WG2038104
(S) 1,2-Dichloroethane-d4	*111*		*70.0-130*			*04/10/2023 14:01*	WG2038104

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND		0.00200	1	1	04/12/2023 04:10	WG2039203
2,4-D	ND		0.00200	10	1	04/12/2023 04:10	WG2039203
(S) 2,4-Dichlorophenyl Acetic Acid	*81.2*		*14.0-158*			*04/12/2023 04:10*	WG2039203

Pesticides (GC) by Method 8081B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Chlordane	ND		0.00500	0.03	1	04/09/2023 23:13	WG2038276
Endrin	ND		0.00500	0.02	1	04/09/2023 23:13	WG2038276
Heptachlor	ND		0.00400	0.0080	1	04/09/2023 23:13	WG2038276
Lindane	ND		0.00500	0.40	1	04/09/2023 23:13	WG2038276

Pesticides (GC) by Method 8081B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Methoxychlor	ND		0.00500	10	1	04/09/2023 23:13	WG2038276
Toxaphene	ND		0.0100	0.50	1	04/09/2023 23:13	WG2038276
(S) Decachlorobiphenyl	*35.6*		*10.0-128*			*04/09/2023 23:13*	WG2038276
(S) Tetrachloro-m-xylene	*47.6*		*10.0-127*			*04/09/2023 23:13*	WG2038276

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	04/10/2023 14:34	WG2038671
2,4-Dinitrotoluene	ND		0.100	0.13	1	04/10/2023 14:34	WG2038671
Hexachlorobenzene	ND		0.100	0.13	1	04/10/2023 14:34	WG2038671
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	04/10/2023 14:34	WG2038671
Hexachloroethane	ND		0.100	3	1	04/10/2023 14:34	WG2038671
Nitrobenzene	ND		0.100	2	1	04/10/2023 14:34	WG2038671
Pyridine	ND		0.100	5	1	04/10/2023 14:34	WG2038671
3&4-Methyl Phenol	ND		0.100	400	1	04/10/2023 14:34	WG2038671
2-Methylphenol	ND		0.100	200	1	04/10/2023 14:34	WG2038671
Pentachlorophenol	ND		0.100	100	1	04/10/2023 14:34	WG2038671
2,4,5-Trichlorophenol	ND		0.100	400	1	04/10/2023 14:34	WG2038671
2,4,6-Trichlorophenol	ND		0.100	2	1	04/10/2023 14:34	WG2038671
(S) 2-Fluorophenol	*36.5*		*10.0-120*			*04/10/2023 14:34*	WG2038671
(S) Phenol-d5	*26.1*		*10.0-120*			*04/10/2023 14:34*	WG2038671
(S) Nitrobenzene-d5	*74.0*		*10.0-127*			*04/10/2023 14:34*	WG2038671
(S) 2-Fluorobiphenyl	*70.4*		*10.0-130*			*04/10/2023 14:34*	WG2038671
(S) 2,4,6-Tribromophenol	*76.0*		*10.0-155*			*04/10/2023 14:34*	WG2038671
(S) p-Terphenyl-d14	*87.0*		*10.0-128*			*04/10/2023 14:34*	WG2038671

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	3.29		1	04/07/2023 11:54	WG2037626

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
PCB 1016	ND		0.0340	1	04/08/2023 00:45	WG2037568
PCB 1221	ND		0.0340	1	04/08/2023 00:45	WG2037568
PCB 1232	ND		0.0340	1	04/08/2023 00:45	WG2037568
PCB 1242	ND		0.0340	1	04/08/2023 00:45	WG2037568
PCB 1248	ND		0.0170	1	04/08/2023 00:45	WG2037568
PCB 1254	0.0446		0.0170	1	04/08/2023 00:45	WG2037568
PCB 1260	ND		0.0170	1	04/08/2023 00:45	WG2037568
(S) Decachlorobiphenyl	*73.6*		*10.0-135*		*04/08/2023 00:45*	WG2037568
(S) Tetrachloro-m-xylene	*82.5*		*10.0-139*		*04/08/2023 00:45*	WG2037568

Method Blank (MB)

(MB) R3911490-1 04/07/23 11:54

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1602181-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1602181-01 04/07/23 11:54 • (DUP) R3911490-3 04/07/23 11:54

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	1.89	1.89	1	0.000		10

L1602594-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1602594-01 04/07/23 11:54 • (DUP) R3911490-4 04/07/23 11:54

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	30.4	31.0	1	1.89		10

Laboratory Control Sample (LCS)

(LCS) R3911490-2 04/07/23 11:54

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.5	101	85.0-115	

Method Blank (MB)

(MB) R3911314-1 04/10/23 10:28

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.00330	0.0100

Laboratory Control Sample (LCS)

(LCS) R3911314-2 04/10/23 10:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.0300	0.0318	106	80.0-120	

L1601659-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601659-01 04/10/23 10:36 • (MS) R3911314-3 04/10/23 10:39 • (MSD) R3911314-4 04/10/23 10:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0321	0.0316	107	105	1	75.0-125			1.63	20

L1602258-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1602258-01 04/10/23 10:43 • (MS) R3911314-5 04/10/23 10:45 • (MSD) R3911314-6 04/10/23 10:47

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0337	0.0333	112	111	1	75.0-125			1.14	20

Method Blank (MB)

(MB) R3911615-1 04/10/23 18:12

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	0.0444	J	0.0330	0.100
Barium	U		0.0330	0.100
Cadmium	U		0.0330	0.100
Chromium	U		0.0330	0.100
Lead	U		0.0330	0.100
Selenium	U		0.0330	0.100
Silver	U		0.0330	0.100

Laboratory Control Sample (LCS)

(LCS) R3911615-2 04/10/23 18:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	10.0	9.92	99.2	80.0-120	
Barium	10.0	10.7	107	80.0-120	
Cadmium	10.0	10.2	102	80.0-120	
Chromium	10.0	10.2	102	80.0-120	
Lead	10.0	10.0	100	80.0-120	
Selenium	10.0	10.1	101	80.0-120	
Silver	2.00	2.04	102	80.0-120	

L1601470-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601470-01 04/10/23 18:18 • (MS) R3911615-4 04/10/23 18:24 • (MSD) R3911615-5 04/10/23 18:27

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	ND	9.95	9.75	99.5	97.5	1	75.0-125			2.02	20
Barium	10.0	ND	10.7	10.5	107	105	1	75.0-125			2.02	20
Cadmium	10.0	ND	10.1	9.94	101	99.4	1	75.0-125			2.00	20
Chromium	10.0	ND	10.0	9.88	100	98.8	1	75.0-125			1.21	20
Lead	10.0	ND	10.0	9.81	100	98.1	1	75.0-125			2.10	20
Selenium	10.0	ND	10.1	9.83	101	98.3	1	75.0-125			2.78	20
Silver	2.00	ND	2.00	1.98	100	99.1	1	75.0-125			1.08	20

L1602258-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1602258-01 04/10/23 18:29 • (MS) R3911615-6 04/10/23 18:32 • (MSD) R3911615-7 04/10/23 18:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	ND	10.0	9.89	100	98.9	1	75.0-125			1.54	20
Barium	10.0	0.226	10.9	11.0	107	107	1	75.0-125			0.780	20
Cadmium	10.0	ND	10.1	10.0	101	100	1	75.0-125			0.903	20
Chromium	10.0	ND	10.1	9.98	101	99.8	1	75.0-125			1.23	20
Lead	10.0	ND	9.97	9.92	99.7	99.2	1	75.0-125			0.524	20
Selenium	10.0	ND	10.2	9.95	102	99.5	1	75.0-125			2.32	20
Silver	2.00	ND	2.02	2.01	101	101	1	75.0-125			0.485	20

Method Blank (MB)

(MB) R3911836-2 04/10/23 11:59

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0167	0.0500
Carbon tetrachloride	U		0.0167	0.0500
Chlorobenzene	U		0.0167	0.0500
Chloroform	U		0.0833	0.250
1,2-Dichloroethane	U		0.0167	0.0500
1,1-Dichloroethene	U		0.0167	0.0500
2-Butanone (MEK)	U		0.167	0.500
Tetrachloroethene	U		0.0167	0.0500
Trichloroethene	U		0.0167	0.0500
Vinyl chloride	U		0.0167	0.0500
(S) Toluene-d8	*96.8*			*80.0-120*
(S) 4-Bromofluorobenzene	*87.3*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3911836-1 04/10/23 09:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.250	0.248	99.2	70.0-123	
Carbon tetrachloride	0.250	0.235	94.0	68.0-126	
Chlorobenzene	0.250	0.238	95.2	80.0-121	
Chloroform	0.250	0.257	103	73.0-120	
1,2-Dichloroethane	0.250	0.254	102	70.0-128	
1,1-Dichloroethene	0.250	0.237	94.8	71.0-124	
2-Butanone (MEK)	1.25	1.43	114	44.0-160	
Tetrachloroethene	0.250	0.229	91.6	72.0-132	
Trichloroethene	0.250	0.220	88.0	78.0-124	
Vinyl chloride	0.250	0.291	116	67.0-131	
(S) Toluene-d8			*98.9*	*80.0-120*	
(S) 4-Bromofluorobenzene			*90.9*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*111*	*70.0-130*	

L1602300-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1602300-01 04/10/23 16:23 • (MS) R3911836-3 04/10/23 16:43 • (MSD) R3911836-4 04/10/23 17:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.500	ND	0.499	0.515	99.8	103	1	17.0-158			3.16	27
Carbon tetrachloride	0.500	ND	0.515	0.431	103	86.2	1	23.0-159			17.8	28
Chlorobenzene	0.500	ND	0.450	0.367	90.0	73.4	1	33.0-152			20.3	27
Chloroform	0.500	ND	0.519	0.447	104	89.4	1	29.0-154			14.9	28
1,2-Dichloroethane	0.500	ND	0.541	0.468	108	93.6	1	29.0-151			14.5	27
1,1-Dichloroethene	0.500	ND	0.509	0.405	102	81.0	1	11.0-160			22.8	29
2-Butanone (MEK)	2.50	ND	2.80	2.78	112	111	1	10.0-160			0.717	32
Tetrachloroethene	0.500	ND	0.429	0.387	85.8	77.4	1	10.0-160			10.3	27
Trichloroethene	0.500	ND	0.455	0.375	91.0	75.0	1	10.0-160			19.3	25
Vinyl chloride	0.500	ND	0.604	0.524	121	105	1	10.0-160			14.2	27
(S) Toluene-d8					*97.1*	*97.6*		*80.0-120*				
(S) 4-Bromofluorobenzene					*91.6*	*91.1*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*115*	*115*		*70.0-130*				

Method Blank (MB)

(MB) R3912163-1 04/12/23 02:43

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4,5-TP (Silvex)	U		0.000667	0.00200
2,4-D	U		0.000667	0.00200
(S) 2,4-Dichlorophenyl Acetic Acid	*85.0*			*14.0-158*

Laboratory Control Sample (LCS)

(LCS) R3912163-2 04/12/23 02:54

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4,5-TP (Silvex)	0.0500	0.0537	107	50.0-125	E
2,4-D	0.0500	0.0504	101	50.0-120	E
(S) 2,4-Dichlorophenyl Acetic Acid			*105*	*14.0-158*	

L1601597-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601597-01 04/12/23 03:04 • (MS) R3912163-3 04/12/23 03:15 • (MSD) R3912163-4 04/12/23 03:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4,5-TP (Silvex)	0.0500	ND	0.0469	0.0420	93.8	84.0	1	50.0-125			11.0	20
2,4-D	0.0500	ND	0.0485	0.0453	97.0	90.6	1	50.0-120			6.82	20
(S) 2,4-Dichlorophenyl Acetic Acid					*100*	*96.0*		*14.0-158*				

Method Blank (MB)

(MB) R3911215-1 04/09/23 21:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chlordane	U		0.00167	0.00500
Endrin	U		0.00167	0.00500
Heptachlor	U		0.00167	0.00400
Gamma BHC	U		0.00167	0.00500
Methoxychlor	U		0.00167	0.00500
Toxaphene	U		0.00333	0.0100
(S) Decachlorobiphenyl	*45.4*			*10.0-128*
(S) Tetrachloro-m-xylene	*48.1*			*10.0-127*

Laboratory Control Sample (LCS)

(LCS) R3911215-2 04/09/23 21:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Endrin	0.0100	0.00825	82.5	57.0-134	
Heptachlor	0.0100	0.00901	90.1	27.0-132	
Gamma BHC	0.0100	0.00789	78.9	55.0-129	
Methoxychlor	0.0100	0.00747	74.7	54.0-155	
(S) Decachlorobiphenyl			*44.5*	*10.0-128*	
(S) Tetrachloro-m-xylene			*49.9*	*10.0-127*	

L1599321-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1599321-01 04/09/23 21:30 • (MS) R3911215-3 04/09/23 21:40 • (MSD) R3911215-4 04/09/23 21:51

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Endrin	0.0100	ND	0.00813	0.00845	81.3	84.5	1	10.0-160			3.86	39
Heptachlor	0.0100	ND	0.00833	0.00873	83.3	87.3	1	16.0-136			4.69	40
Gamma BHC	0.0100	ND	0.00794	0.00827	79.4	82.7	1	14.0-141			4.07	40
Methoxychlor	0.0100	ND	0.00742	0.00777	74.2	77.7	1	10.0-160			4.61	34
(S) Decachlorobiphenyl					*29.0*	*31.9*		*10.0-128*				
(S) Tetrachloro-m-xylene					*51.5*	*53.9*		*10.0-127*				

Method Blank (MB)

(MB) R3911369-1 04/07/23 21:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.0118	0.0340
PCB 1221	U		0.0118	0.0340
PCB 1232	U		0.0118	0.0340
PCB 1242	U		0.0118	0.0340
PCB 1248	U		0.00738	0.0170
PCB 1254	U		0.00738	0.0170
PCB 1260	U		0.00738	0.0170
(S) Decachlorobiphenyl	*37.8*			*10.0-135*
(S) Tetrachloro-m-xylene	*36.9*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R3911369-3 04/07/23 22:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.167	0.0839	50.2	36.0-141	
PCB 1260	0.167	0.0789	47.2	37.0-145	
(S) Decachlorobiphenyl			*49.5*	*10.0-135*	
(S) Tetrachloro-m-xylene			*48.2*	*10.0-139*	

Method Blank (MB)

(MB) R3911179-2 04/09/23 21:40

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,4-Dichlorobenzene	U		0.0333	0.100
2,4-Dinitrotoluene	U		0.0333	0.100
Hexachlorobenzene	U		0.0333	0.100
Hexachloro-1,3-butadiene	U		0.0333	0.100
Hexachloroethane	U		0.0333	0.100
Nitrobenzene	U		0.0333	0.100
Pyridine	U		0.0333	0.100
3&4-Methyl Phenol	U		0.0333	0.100
2-Methylphenol	U		0.0333	0.100
Pentachlorophenol	U		0.0333	0.100
2,4,5-Trichlorophenol	U		0.0333	0.100
2,4,6-Trichlorophenol	U		0.0333	0.100
(S) 2-Fluorophenol	*39.9*			*10.0-120*
(S) Phenol-d5	*27.5*			*10.0-120*
(S) Nitrobenzene-d5	*89.5*			*10.0-127*
(S) 2-Fluorobiphenyl	*81.3*			*10.0-130*
(S) 2,4,6-Tribromophenol	*77.0*			*10.0-155*
(S) p-Terphenyl-d14	*87.9*			*10.0-128*

Laboratory Control Sample (LCS)

(LCS) R3911179-1 04/09/23 21:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,4-Dichlorobenzene	0.500	0.367	73.4	18.0-120	
2,4-Dinitrotoluene	0.500	0.483	96.6	49.0-124	
Hexachlorobenzene	0.500	0.409	81.8	44.0-120	
Hexachloro-1,3-butadiene	0.500	0.348	69.6	19.0-120	
Hexachloroethane	0.500	0.366	73.2	15.0-120	
Nitrobenzene	0.500	0.403	80.6	27.0-120	
Pyridine	0.500	0.0983	19.7	10.0-120	
3&4-Methyl Phenol	0.500	0.275	55.0	31.0-120	
2-Methylphenol	0.500	0.251	50.2	28.0-120	
Pentachlorophenol	0.500	0.437	87.4	23.0-120	
2,4,5-Trichlorophenol	0.500	0.415	83.0	44.0-120	
2,4,6-Trichlorophenol	0.500	0.399	79.8	42.0-120	
(S) 2-Fluorophenol			*38.2*	*10.0-120*	
(S) Phenol-d5			*29.1*	*10.0-120*	
(S) Nitrobenzene-d5			*81.0*	*10.0-127*	

Laboratory Control Sample (LCS)

(LCS) R3911179-1 04/09/23 21:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2-Fluorobiphenyl			*81.7*	*10.0-130*	
(S) 2,4,6-Tribromophenol			*84.5*	*10.0-155*	
(S) p-Terphenyl-d14			*91.8*	*10.0-128*	

L1601573-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601573-02 04/09/23 22:23 • (MS) R3911179-3 04/09/23 22:44 • (MSD) R3911179-4 04/09/23 23:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.500	ND	0.383	0.353	76.6	70.6	1	17.0-120			8.15	40
2,4-Dinitrotoluene	0.500	ND	0.495	0.495	99.0	99.0	1	39.0-125			0.000	25
Hexachlorobenzene	0.500	ND	0.425	0.415	85.0	83.0	1	35.0-122			2.38	24
Hexachloro-1,3-butadiene	0.500	ND	0.353	0.345	70.6	69.0	1	12.0-120			2.29	34
Hexachloroethane	0.500	ND	0.386	0.355	77.2	71.0	1	10.0-120			8.37	40
Nitrobenzene	0.500	ND	0.411	0.399	82.2	79.8	1	12.0-120			2.96	30
Pyridine	0.500	ND	0.141	ND	28.2	13.8	1	10.0-120		J3	68.6	37
3&4-Methyl Phenol	0.500	ND	0.308	0.254	61.6	50.8	1	10.0-120			19.2	36
2-Methylphenol	0.500	ND	0.299	0.236	59.8	47.2	1	10.0-120			23.6	30
Pentachlorophenol	0.500	ND	0.430	0.439	86.0	87.8	1	10.0-128			2.07	37
2,4,5-Trichlorophenol	0.500	ND	0.459	0.427	91.8	85.4	1	33.0-120			7.22	31
2,4,6-Trichlorophenol	0.500	ND	0.433	0.418	86.6	83.6	1	26.0-120			3.53	31
(S) 2-Fluorophenol					*43.5*	*33.8*		*10.0-120*				
(S) Phenol-d5					*31.9*	*25.7*		*10.0-120*				
(S) Nitrobenzene-d5					*83.4*	*75.7*		*10.0-127*				
(S) 2-Fluorobiphenyl					*85.2*	*82.0*		*10.0-130*				
(S) 2,4,6-Tribromophenol					*88.0*	*85.0*		*10.0-155*				
(S) p-Terphenyl-d14					*89.6*	*91.4*		*10.0-128*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Cleveland Utilities WWTP

PO Box 2730
Cleveland, TN 37320

Billing Information:
Accounts Payable
P.O. Box 2730
Cleveland, TN 37320

Pres Chk

Report to:
Mr. Steve Barger

Email To: sbarger@clevelandutilities.com

Project Description:
Biosolids 1/5 yrs.

City/State Collected: Cleveland, TN

Please Circle: PT MT CT (ET)

Phone: 423-478-0698

Client Project #
BIOSOILDS

Lab Project #
CLEV02-BIOSOLIDS

Collected by (print):
Darrel Hubbard

Site/Facility ID #
TN0024121

P.O. #
"As Invoiced"

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed 4/15/2023

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	FULL TCLP 1L-Clr-NoPres	PCB (8082), TS 4ozClr-NoPres	Remarks	Sample # (lab only)
2202878377	Grab	SS		4/4/23 pH	11:30AM	1	X			-01
2203782791	Grab	SS		4/4/23	11:30AM	1		X		-02

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 1602231
J183

Acctnum: CLEV02
Template: T93296
Prelogin: P991268
PM: 923 - Reagan Johnson
PB: 4/3/23 TS
Shipped Via: FedEX Ground

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx ✓ Courier _____

Tracking # 771752143666

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Darrel Hubbard	4/4/23	11:32AM		Ø
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSA °C 4.1 Bottles Received: 2
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 04/05/23 Time: 0700

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)