



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: Town Of Centerville WWTP	Current NPDES No: TN0024937	Existing Tracking No: TNB024937
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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) Gary Jacobs	Title or Position: Mayor		
	Mailing Address: 102 East Swan st	City: Centerville	State: TN	Zip: 37033
	Phone: () 931 729-4265	E-mail: mayor@centervilletn.org		
2	Name of Local Contact Person: (if appropriate, write "same as #1") Jarrett Chad Dotson	Title or Position: Plant Operator		
	Site Address: (this may or may not be the same as street address) 110 Lawson st	Site City: Centerville	State: TN TN	Zip: 37033
	Phone: () 931 729-4265	E-mail: wwtp@centervilletn.org		
Write in the box (to the right) or circle the number (above) to indicate where to send correspondence: 2				

All non-exceptional 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)	<u>60 mt</u> (tons)
Estimated annual amount of biosolids to be land applied (dry weight basis)	<u>21 MT</u> (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): Aerobic Digestion / Belt press dewatering	
C. CHEMICAL ANALYSIS: Indicate which contaminant standard(s) the biosolids meet: Table 1 Ceiling Contaminant Concentrations: <input checked="" type="checkbox"/> Table 3 Contaminant Concentrations: <input checked="" type="checkbox"/> <ul style="list-style-type: none">Submit analytical results to demonstrate eligibility for and compliance with the quality criteria specified in the General Permit.Submit PCB and TCLP analytical results that are less five years old.	
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: <input type="checkbox"/> Alternative 1 <input type="checkbox"/> Alternative 2 <input type="checkbox"/> Alternative 3 <input type="checkbox"/> Alternative 4 <input type="checkbox"/> Alternative 5 <input type="checkbox"/> Alternative 6 (List PFRP) (List Eq. PFRP) Class B: <input checked="" type="checkbox"/> Alternative 1 <input type="checkbox"/> Alternative 2 <input type="checkbox"/> 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: Aerobic Digestion	

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

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

- ☐ Option 1 ☐ 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 ☒ 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:

Aerobic Digestion

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)

N/A

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.

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)

Area Number	Area (acres)	Application Rate (tons/acre) per section 3.2.2	Latitude (decimal)	Longitude (decimal)
1P	11.64	1.6	35.7176769	-87.6261468
2P	1.49	1.6	35.7154932	-87.6275140

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: Gary Jacobs

Title: Mayor

Signature: 

Telephone: (931) 729-4246

Date Signed: 8/9/23

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

LANDOWNER/TENANT CONSENT FOR BIOSOLIDS APPLICATION

The undersigned hereby agrees to the application of bio-solids by The City of Centerville (the City) at application rates in accordance with applicable laws and regulations.

OWNER NAME: Jerry Kelley

ADDRESS: 2199 Sulphur Creek Road
Pleasantville, TN 37033

PHONE: 931-729-2035 TOTAL ACREAGE: 21

OPERATOR NAME: Anthony & Randall Kelley

FARM LOCATIONS: 2199 Sulphur Creek Rd.

COUNTY: Hickman

1. I understand that the City will coordinate bio-solids deliveries with farming operations.
2. I agree to allow the City and federal, state, and local regulatory staff access to my land for the purposes of permitting the site, inspecting the site, applying bio-solids, obtaining samples from the site and testing. I reserve the right to ask the above parties for proper identification at any time.
3. I understand that the following conditions apply to my land following bio-solids applications:
 - a. Do not graze animals on the land for 30 days after the application of bio-solids.
 - b. Food crops, feed crops (including hay) and fiber crops whose edible parts do not touch the surface of the soil shall not be harvested for 30 days after the application of biosolids.
 - c. Public access to land with a low potential for public exposure (land the public uses infrequently including but not limited to agricultural land and forests) shall be restricted for 30 days.
Public access to land with a high potential for public exposure (land the public uses frequently including but not limited to a public contact site such as parks, playgrounds and golf courses) shall be restricted for 1 year.
4. I agree that this is an exclusive agreement with the City and I will not accept delivery of bio-solids from persons other than the City.
5. The term of this Consent shall continue until either party gives 30 days written notice of intent to terminate this agreement.
6. I certify that I am holder of legal title to the above described property or am authorized by the holder to give consent for the land application of bio-solids and that there are no restrictions to the granting of consent under this form.

OWNER SIGNATURE

Jerry Kelley

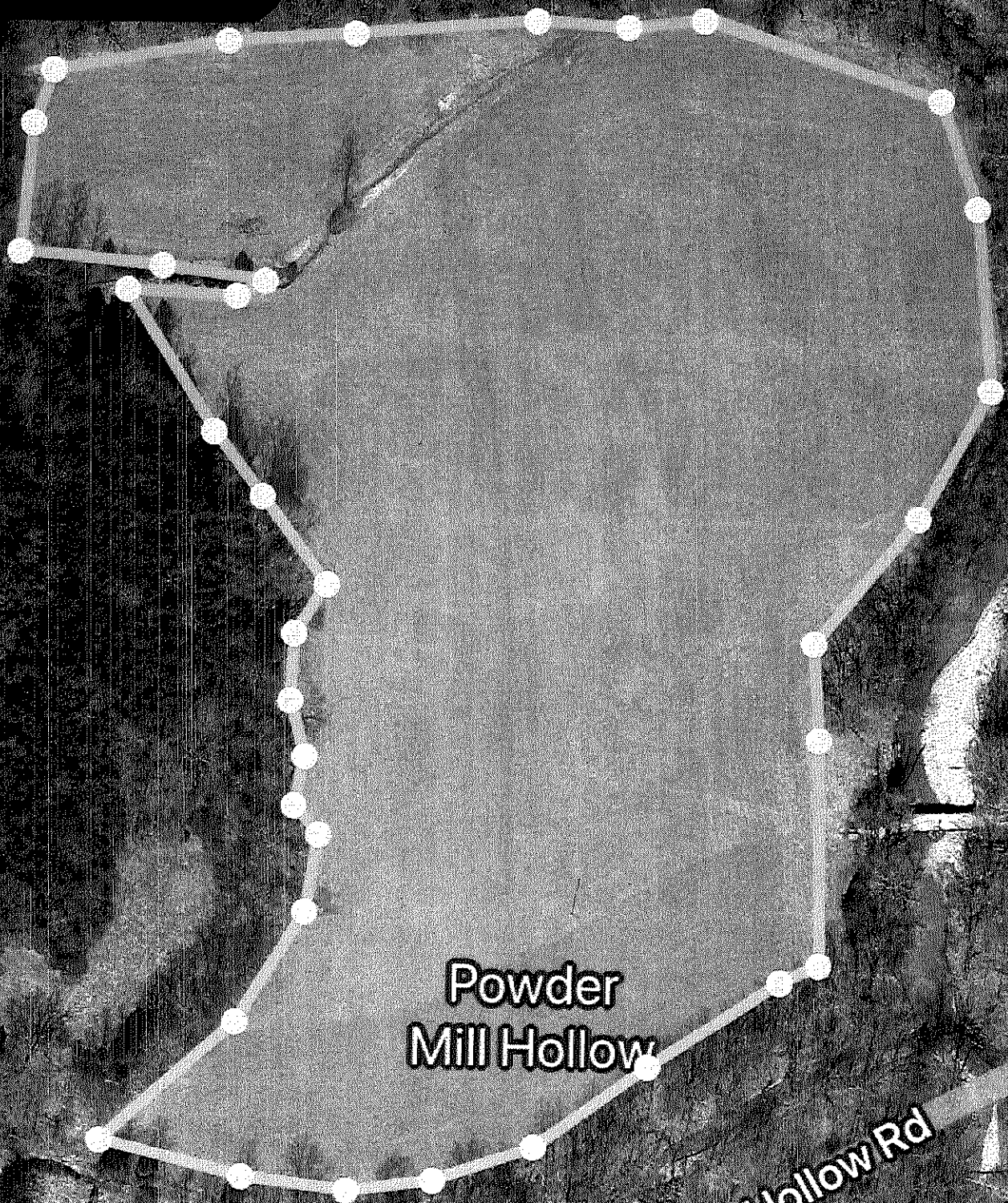
DATE

6/23/2023

Creek Rd



11.64 acres



Powder
Mill Hollow

Terrell Br Rd

Powder Mill Hollow Rd



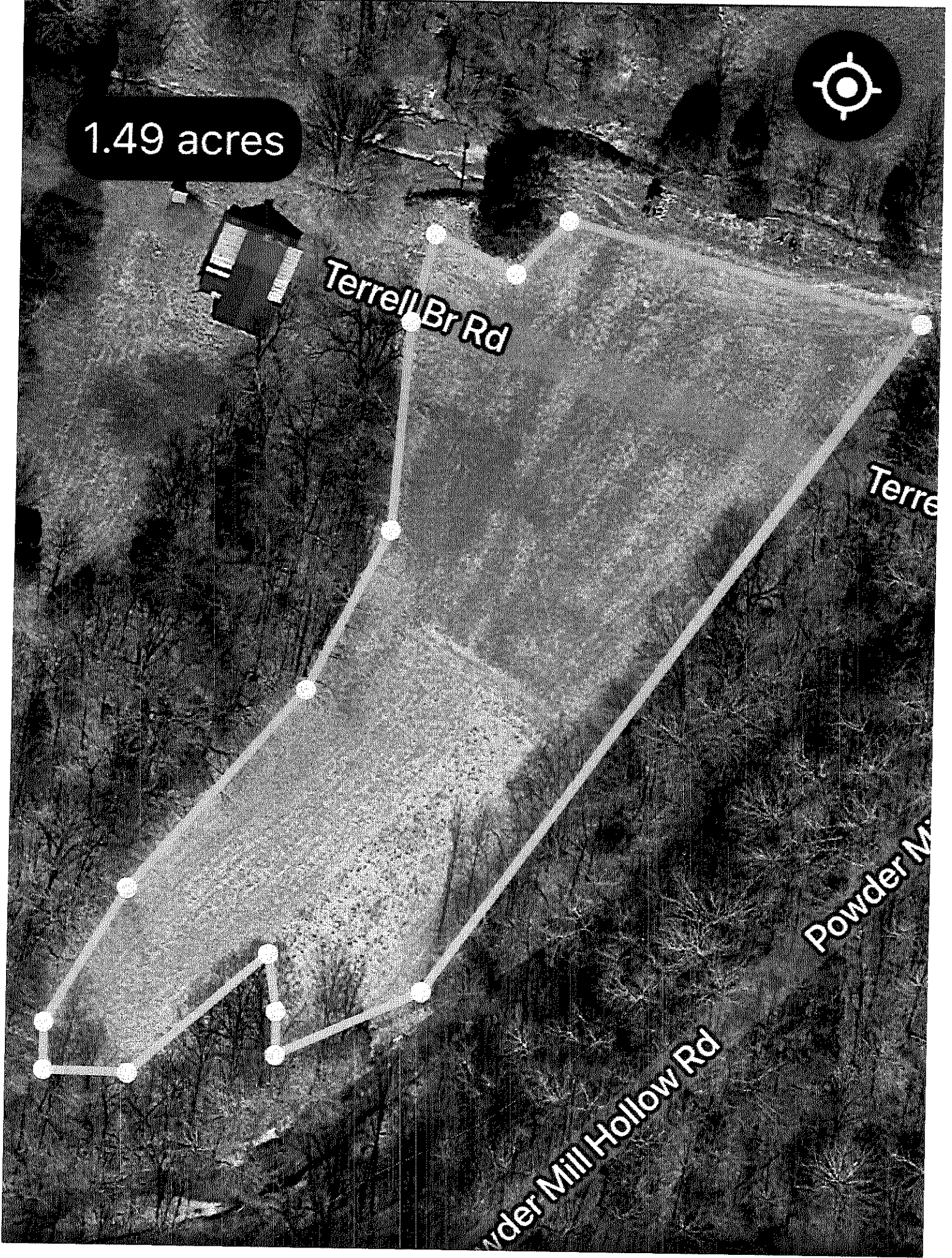
1.49 acres

Terrell Br Rd

Terre

Powder M

Under Mill Hollow Rd



Biosolids Sampling Plan

Tennessee Rules and Regulations, 0400-40-15-.02 Table 1

Table 1
Frequency of Monitoring-Land Application

Amount of Biosolids ¹ (metric tons per calendar year)	Frequency
Greater than 0 but less than 290	Once per year
Equal to or greater than 290 but less than 1,500	Once per quarter (4 times per year)
Equal to or greater than 1,500 but less than 15,000	Once per 60 days (6 times per year)
Equal to or greater than 15,000	Once per month (12 times per year)

¹ Either the amount of bulk biosolids applied to the land or the amount of biosolids prepared for sale or give-away in a bag or other container for application to the land (dry weight basis).

Note: 290 dry metric tons would be 7.67 MG of sludge at 1% total solids.

Containers: Preferred containers are Teflon, glass or stainless steel, plastic, steel or aluminum may be used, but galvanized coatings are to be avoided because they can release zinc into the sample. Containers are thoroughly cleaned using standard lab glassware cleaning processes.

Nine Metals and Four Nitrogens

Early in the Monitoring Period or prior to a hauling event, a sample will be collected from the digester with aeration operating fully in order to have a well-mixed digester. A clean dipper is used to collect multiple aliquots that are composited in the laboratory provided container. Aliquots are collected over at least 15 minutes while the digester is mixing.

Fecal Coliform Testing

Early in the Monitoring Period or prior to a hauling event, seven samples are collected over a two week period of time. Each sample is collected in the laboratory provided container using sterile technique.

Fecal Coliform Testing, Follow-up

Subsequent hauling events will include a single Fecal Coliform sample prior to hauling.

Specific Oxygen Uptake Rate (SOUR) Testing

Prior to a hauling event duplicate SOUR tests will be conducted on the fully stabilized sludge. From a thoroughly mixing digester a sample of about 1 L is collected in a clean container and analyzed immediately. The duplicate test will be analyzed using a fresh sample.

Land Application Plan

1. Previous biosolids applications where metals exceeded Table 3
 - a. No previous applications of biosolids have been made.
2. Type of Crop
 - a. Perennial grass for hay and pasture- Typically hay harvested in May –June and possibly later in the summer.
3. Agronomic loading rate.
 - a. Agronomic loading rate is calculated from nitrogen testing and expected crop nitrogen usage. TDEC standard form is used. Rate calculations are for the upcoming growing season.
4. Method of Application-
 - a. Biosolids will be applied using a manure spreading truck spreading pressed dewatered sludge.
5. Seasonal biosolids applications-
 - a. Biosolids may be applied in all seasons of the year, depending upon weather and soil condition.
6. Biosolids applied in Hickman county
7. See attached maps



BACKGROUND INFORMATION/QUESTIONS

FILL IN BELOW

WWTP NAME	Town Of Centerville
WWTP NPDES PERMIT NUMBER	TN0024937
SITE NAME	Huddleston RD
COUNTY	Hickman
E.A.C.	
SITE TRACKING NUMBER	
LABORATORY NAME	Centerville/ ESC
DATE OF ANALYSIS	

SLUDGE/BIOSOLID ANALYSIS LABORATORY RESULTS

(Attached a copy of the laboratory analysis used for these calculations to this report)

TOTAL KJELDAHL NITROGEN (TKN)	77,700	mg/kg
AMMONIUM NITROGEN (NH ₄ -N)	4,040	mg/kg
NITRATE + NITRITE NITROGEN (NO ₃ -N + NO ₂ -N)	9,300	mg/kg
NITROGEN FROM SUPPLEMENTAL FERTILIZERS (If Appropriate)		lbs/acre
NITROGEN FROM IRRIGATION WATER (If Appropriate)		lbs/acre
NITROGEN FROM PREVIOUS CROP (Unless 2 is based on soil testing)		lbs/acre
OTHER (If Appropriate) Specify _____		lbs/acre

SELECT CROP TYPE

(SELECT ONLY ONE)

YES

1 - CORN (GRAIN) EXPECT YIELD 100 - 125 BUSHELS	<input type="checkbox"/>
2 - CORN (GRAIN) EXPECT YIELD 126 - 150 BUSHELS	<input type="checkbox"/>
3 - CORN (SILAGE) EXPECT YIELD 20 TONS	<input type="checkbox"/>
4 - SOYBEANS EXPECT YIELD 30 BUSHELS	<input type="checkbox"/>
5 - SOYBEANS EXPECT YIELD 40 BUSHELS	<input type="checkbox"/>
6 - SOYBEANS EXPECT YIELD 50 BUSHELS	<input type="checkbox"/>
7 - WHEAT EXPECT YIELD 40 BUSHELS	<input type="checkbox"/>
8 - SUMMER ANNUAL GRASS EXPECT YIELD 6 TONS (1 CUTTINGS)	<input type="checkbox"/>
9 - HYBRID HAY EXPECT YIELD 8 TONS (4 CUTTINGS)	<input type="checkbox"/>
10 - TALL FESCUE HAY EXPECT YIELD 3 TONS (2 CUTTINGS)	<input checked="" type="checkbox"/>
11 - ORCHARD GRASS HAY EXPECT YIELD 4 TONS (2 CUTTINGS)	<input type="checkbox"/>
12 - SORGHUM (GRAIN) EXPECT YIELD 60 BUSHELS	<input type="checkbox"/>
13 - COTTON EXPECT YIELD 1 BALE / ACRE	<input type="checkbox"/>
14 - COTTON EXPECT YIELD 1.5 BALE / ACRE	<input type="checkbox"/>

CROP TYPE (LBS N/ACRE/YEAR)

120

VOLATILIZATION FACTORS K_v

(SELECT ONLY ONE)

- 1 - ARE BIOSOLIDS LIQUID AND SURFACE APPLIED?
2 - ARE BIOSOLIDS LIQUID AND INJECTED INTO SOIL?
3 - ARE BIOSOLID DEWATERED AND APPLIED IN ANY MANNER?

YES

☐☐☒

VOLATILIZATION FACTORS K_v =

0.5

MINERALIZATION RATE F_M

WHAT BIOSOLID PROCESS GENERATE THE FRACTION (F_M) OF
ORGANIC NITROGEN? (SELECT ONLY ONE)

SELECT PROCESS

- NONE (Unstabilized)
ALKALINE STABILIZATION
AEROBIC DIGESTION
ANAEROBIC DIGESTION
COMPOSING

☐☐☒☐☐

SELECTION CHOICE:

1 SELECTED

MINERALIZATION RATE F_M =

0.3

AGRONOMIC LOADING RATE

1.6

tons/acre



ANALYTICAL REPORT

January 23, 2023

Centerville Sewage Treatment Plant

Sample Delivery Group: L1577123
Samples Received: 01/18/2023
Project Number:
Description:

Report To: Jarrett (Chad) Dotson
110 Lawson St
Centerville, TN 37033

1

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 Al

9 Sc

Entire Report Reviewed By:

Reagan Johnson
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

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

ACCOUNT:
Centerville Sewage Treatment Plant

PROJECT:

SDG:
L1577123

DATE/TIME:
01/23/23 17:21

PAGE:
1 of 15

SLUDGE

Collected date/time: 01/18/23 06:55

SAMPLE RESULTS - 01

L1577123

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	0.810		1	01/22/2023 15:44	WG1991540

Wet Chemistry by Method 350.1

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	32.7	10.0	4040	1230		1	01/20/2023 17:55	WG1990127

Wet Chemistry by Method 4500NOrg C-2011

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Kjeldahl Nitrogen, TKN	630	20.0	7700	2470		1	01/20/2023 00:28	WG1989498

Wet Chemistry by Method 9056A

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	75.3	20.0	9300	2470		1	01/20/2023 01:56	WG1991335

Mercury by Method 7471A

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Mercury	ND	0.0400	ND	4.94		1	01/20/2023 09:22	WG1991740

Metals (ICP) by Method 6010B

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Arsenic	ND	0.200	ND	24.7		.1	01/22/2023 19:59	WG1992080
Cadmium	ND	0.0500	ND	6.17		.1	01/22/2023 19:59	WG1992080
Chromium	0.167	0.100	20.6	12.3		.1	01/22/2023 19:59	WG1992080
Copper	0.961	0.200	119	24.7		.1	01/22/2023 19:59	WG1992080
Lead	0.296	0.0500	36.6	6.17		.1	01/22/2023 19:59	WG1992080
Molybdenum	0.0542	0.0500	6.69	6.17		.1	01/22/2023 19:59	WG1992080
Nickel	ND	0.200	ND	24.7		.1	01/22/2023 19:59	WG1992080
Selenium	ND	0.200	ND	24.7		.1	01/22/2023 19:59	WG1992080
Zinc	4.16	0.500	513	61.7		.1	01/22/2023 19:59	WG1992080

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

SLUDGE

Collected date/time: 01/18/23 06:55

SAMPLE RESULTS - 01

L1576970

Microbiology by Method EPA 1681

Analyte	Result MPN/g	Qualifier	Dilution	Analysis date / time	Batch
Fecal Coliform -Geom.Mean	<48000		1000	01/18/2023 14:11	WG1991698
Fecal Coliform -1	44000		1000	01/18/2023 14:11	WG1991698
Fecal Coliform -2	<17840		1000	01/18/2023 14:11	WG1991698
Fecal Coliform -3	44000		1000	01/18/2023 14:11	WG1991698
Fecal Coliform -4	42000		1000	01/18/2023 14:11	WG1991698
Fecal Coliform -5	74000		1000	01/18/2023 14:11	WG1991698
Fecal Coliform -6	46000		1000	01/18/2023 14:11	WG1991698
Fecal Coliform -7	130000		1000	01/18/2023 14:11	WG1991698

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

ACCOUNT:

Centerville Sewage Treatment Plant

PROJECT:

SDG:

L1576970

DATE/TIME:

01/25/23 10:57

PAGE:

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ANALYTICAL REPORT

January 25, 2019

Centerville Sewage Treatment Plant

Sample Delivery Group: L1061724
Samples Received: 01/16/2019
Project Number: TCLP/PCB SLUDGE
Description: sludge

Report To: Jarrett (Chad) Dotson
110 Lawson St
Centerville, TN 37033

Entire Report Reviewed By:

Stacy Kennedy
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



DIGESTER

Collected date/time: 01/15/19 14:45

SAMPLE RESULTS - 01

L1061724

ONE LAB. NATIONWIDE.



Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		1/21/2019 9:52:39 AM	WG1226240
TCLP ZHE Extraction	-		1/21/2019 10:45:55 AM	WG1226323
Fluid	1		1/21/2019 9:52:39 AM	WG1226240
Initial pH	6.61		1/21/2019 9:52:39 AM	WG1226240
Final pH	4.94		1/21/2019 9:52:39 AM	WG1226240

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	01/22/2019 12:08	WG1226579

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	01/22/2019 13:29	WG1226617
Barium	ND		0.100	100	1	01/22/2019 13:29	WG1226617
Cadmium	ND		0.100	1	1	01/22/2019 13:29	WG1226617
Chromium	ND		0.100	5	1	01/22/2019 13:29	WG1226617
Lead	ND		0.100	5	1	01/22/2019 13:29	WG1226617
Selenium	ND		0.100	1	1	01/22/2019 13:29	WG1226617
Silver	ND		0.100	5	1	01/22/2019 13:29	WG1226617

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	01/22/2019 20:07	WG1226698
Carbon tetrachloride	ND		0.0500	0.50	1	01/22/2019 20:07	WG1226698
Chlorobenzene	ND		0.0500	100	1	01/22/2019 20:07	WG1226698
Chloroform	ND		0.250	6	1	01/22/2019 20:07	WG1226698
1,2-Dichloroethane	ND		0.0500	0.50	1	01/22/2019 20:07	WG1226698
1,1-Dichloroethene	ND		0.0500	0.70	1	01/22/2019 20:07	WG1226698
2-Butanone (MEK)	ND		0.500	200	1	01/22/2019 20:07	WG1226698
Tetrachloroethene	ND		0.0500	0.70	1	01/22/2019 20:07	WG1226698
Trichloroethene	ND		0.0500	0.50	1	01/22/2019 20:07	WG1226698
Vinyl chloride	ND		0.0500	0.20	1	01/22/2019 20:07	WG1226698
(S) Toluene-d8	103		80.0-120			01/22/2019 20:07	WG1226698
(S) Dibromofluoromethane	106		75.0-120			01/22/2019 20:07	WG1226698
(S) a,a,a-Trifluorotoluene	102		80.0-120			01/22/2019 20:07	WG1226698
(S) 4-Bromofluorobenzene	104		77.0-126			01/22/2019 20:07	WG1226698

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	01/22/2019 19:14	WG1226568
2,4-D	ND		0.00200	10	1	01/22/2019 19:14	WG1226568
(S) 2,4-Dichlorophenyl Acetic Acid	65.0		14.0-158			01/22/2019 19:14	WG1226568

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	01/24/2019 16:42	WG1225807
Endrin	ND		0.00500	0.02	1	01/24/2019 16:42	WG1225807
Heptachlor	ND		0.00500	0.0080	1	01/24/2019 16:42	WG1225807

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 Al

9 Sc

ACCOUNT:

Centerville Sewage Treatment Plant

PROJECT:

TCLP/PCB SLUDGE

SDG:

L1061724

DATE/TIME:

01/25/19 14:41

PAGE:

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DIGESTER

Collected date/time: 01/15/19 14:45

SAMPLE RESULTS - 01

L1061724

ONE LAB. NATIONWIDE.



Pesticides (GC) by Method 8081B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch	
Lindane	ND		0.00500	0.40	1	01/24/2019 16:42	WG1225807	¹ Cp
Methoxychlor	ND		0.00500	10	1	01/24/2019 16:42	WG1225807	² Tc
Toxaphene	ND		0.0100	0.50	1	01/24/2019 16:42	WG1225807	³ Ss
(S) Decachlorobiphenyl	111		10.0-128			01/24/2019 16:42	WG1225807	
(S) Tetrachloro-m-xylene	68.1		10.0-127			01/24/2019 16:42	WG1225807	

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	01/25/2019 06:23	WG1226988	⁵ Sr
2,4-Dinitrotoluene	ND		0.100	0.13	1	01/25/2019 06:23	WG1226988	⁶ Qc
Hexachlorobenzene	ND		0.100	0.13	1	01/25/2019 06:23	WG1226988	⁷ Gl
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	01/25/2019 06:23	WG1226988	
Hexachloroethane	ND		0.100	3	1	01/25/2019 06:23	WG1226988	⁸ Al
Nitrobenzene	ND		0.100	2	1	01/25/2019 06:23	WG1226988	
Pyridine	ND		0.100	5	1	01/25/2019 06:23	WG1226988	⁹ Sc
3&4-Methyl Phenol	ND		0.100	400	1	01/25/2019 06:23	WG1226988	
2-Methylphenol	ND		0.100	200	1	01/25/2019 06:23	WG1226988	
Pentachlorophenol	ND		0.100	100	1	01/25/2019 06:23	WG1226988	
2,4,5-Trichlorophenol	ND		0.100	400	1	01/25/2019 06:23	WG1226988	
2,4,6-Trichlorophenol	ND		0.100	2	1	01/25/2019 06:23	WG1226988	
(S) 2-Fluorophenol	32.6		10.0-120			01/25/2019 06:23	WG1226988	
(S) Phenol-d5	18.8		10.0-120			01/25/2019 06:23	WG1226988	
(S) Nitrobenzene-d5	41.6		10.0-127			01/25/2019 06:23	WG1226988	
(S) 2-Fluorobiphenyl	45.3		10.0-130			01/25/2019 06:23	WG1226988	
(S) 2,4,6-Tribromophenol	46.0		10.0-155			01/25/2019 06:23	WG1226988	
(S) p-Terphenyl-d14	60.4		10.0-128			01/25/2019 06:23	WG1226988	

ACCOUNT:

Centerville Sewage Treatment Plant

PROJECT:

TCLP/PCB SLUDGE

SDG:

L1061724

DATE/TIME:

01/25/19 14:41

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DIGESTER

Collected date/time: 01/15/19 14:45

SAMPLE RESULTS - 02

L1061724

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	0.990		1	01/18/2019 23:42	<u>WG1225115</u>

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
PCB 1016	ND	0.255	ND	25.8		15	01/18/2019 15:10	<u>WG1224617</u>
PCB 1221	ND	0.255	ND	25.8		15	01/18/2019 15:10	<u>WG1224617</u>
PCB 1232	ND	0.255	ND	25.8		15	01/18/2019 15:10	<u>WG1224617</u>
PCB 1242	ND	0.255	ND	25.8		15	01/18/2019 15:10	<u>WG1224617</u>
PCB 1248	ND	0.255	ND	25.8		15	01/18/2019 15:10	<u>WG1224617</u>
PCB 1254	ND	0.255	ND	25.8		15	01/18/2019 15:10	<u>WG1224617</u>
PCB 1260	ND	0.255	ND	25.8		15	01/18/2019 15:10	<u>WG1224617</u>
(S) Decachlorobiphenyl	78.9			10.0-135			01/18/2019 15:10	<u>WG1224617</u>
(S) Tetrachloro-m-xylene	75.3			10.0-139			01/18/2019 15:10	<u>WG1224617</u>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Centerville Sewage Treatment Plant

PROJECT:

TCLP/PCB SLUDGE

SDG:

L1061724

DATE/TIME:

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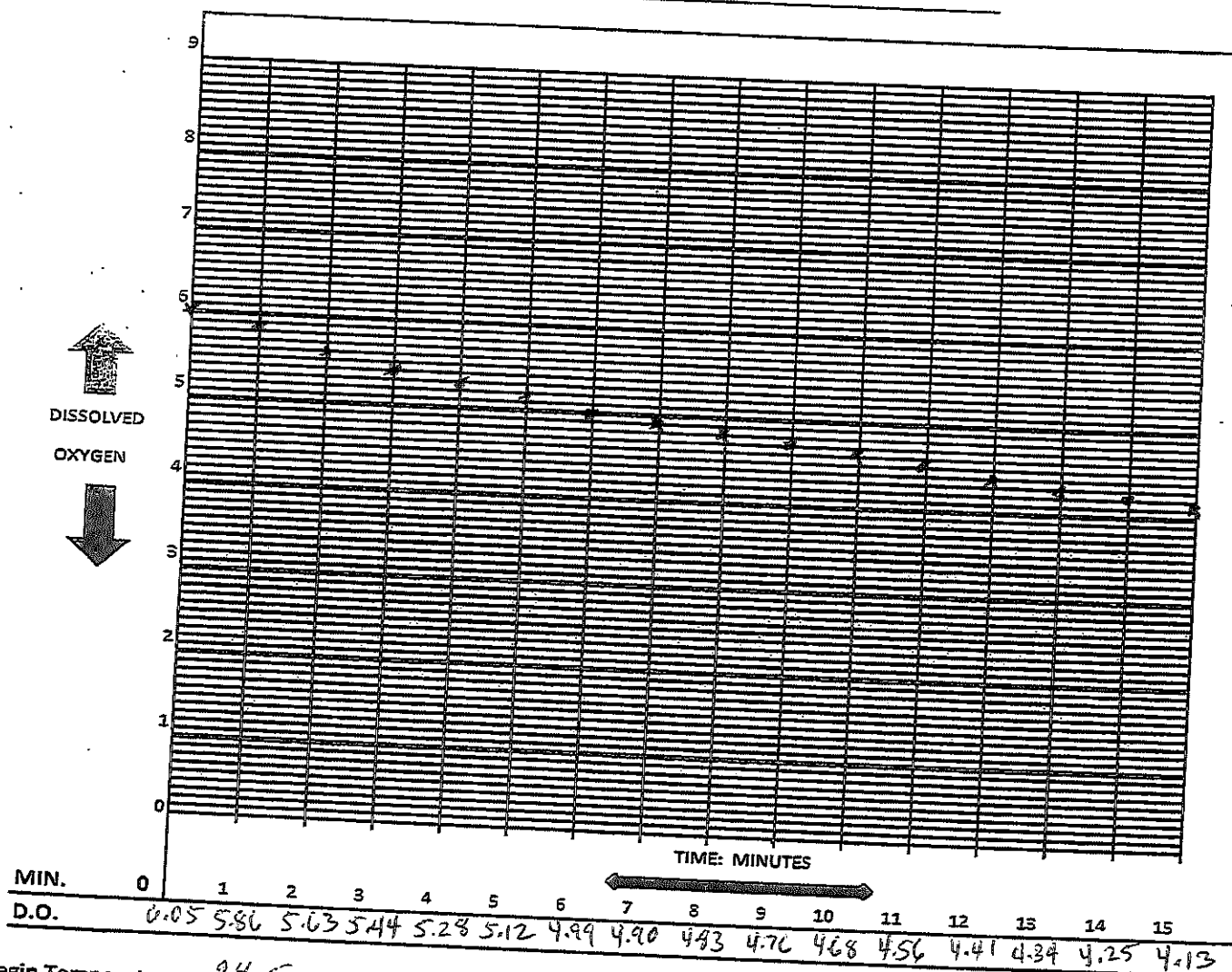
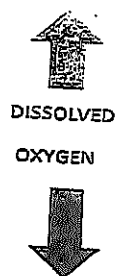
SPECIFIC OXYGEN UPTAKE RATE

Date: 5-25-23

Sample Location Digester

Time 1234

Analyst JCD



Begin Temperature: 24.5

Average Temperature: 24.3

End Temperature: 24.0

Oxygen Uptake Rate (OUR) (S.M.2710B)

OUR MG O₂/L/hr = $\frac{\text{Begin Dissolved Oxygen} - \text{End Dissolved Oxygen}}{\text{Elapsed Time}} \times 60$

OUR = $\left(\frac{6.05 \text{ mg/L} - 4.13 \text{ mg/L}}{15 \text{ Minutes}} \right) \times 60 = 7.68 \text{ mg O}_2/\text{L/hr}$

SOUR Total Solids TEST

Date 5-25-23 Time 1240 Operator Initials JCD

Total Solids see S.M 2540G

Weight of Dish

A = 105.1260

Weight of Dish and Sludge (Wet)

B = 189.9808

Weight of Dish after drying

C = 105.8866

$$\% \text{ Solids} = \frac{(C - A)}{(B - A)} \times 100$$

$$\% \text{ Solids} = \frac{(105.8866 - 105.1260)}{(189.9808 - 105.1260)} \times 100 = \frac{0.7606}{84.8548} \times 100 = 0.896$$

Specific Oxygen Uptake Rate (SOUR)

$$\text{SOUR mg O}_2/\text{hr/g} = \frac{\text{OUR mg O}_2/\text{L/hr}}{\% \text{ Total Solids} \times 1000 \text{ g/l}}$$

NOTE: enter solids as a decimal

$$\text{SOUR} = \frac{(7.68 \text{ mg O}_2/\text{L/hr})}{(0.00896 \times 1000 \text{ g/l})} = \frac{7.68}{8.96} \text{ mg O}_2/\text{hr/g} = 0.85$$

Temperature Adjustment

SOUR @ Average Temperature X correction factor = SOUR @ 20° C

$$0.85 \text{ MG O}_2/\text{hr/g} \times 0.82 = 0.70 \text{ MG O}_2/\text{hr/g @ 20}^\circ\text{C}$$

@ 24 °C

Test Passes if Result ≤ 1.5

Specific Oxygen Uptake Rate Temperature Adjustment

SOUR is determined at the digester's ambient temperature and then adjusted as follows.

$$\text{SOUR@20}^\circ\text{C} = \text{SOUR @ Ambient Temp.} \times A^{(20-\text{Ambient temp.})}$$

Where A = 1.05 above 20°
= 1.07 below 20°

These factors are good between 10° C and 30° C

Simplified

$$\text{SOUR @20}^\circ\text{C} = \text{SOUR @ Ambient Temp.} \times \text{Correction}$$

$$\text{Correction} = A^{(20-\text{Ambient Temp})}$$

Temp° C	Correction
10	1.97
11	1.84
12	1.72
13	1.60
14	1.50
15	1.40
16	1.31
17	1.22
18	1.14
19	1.07
20	1.00
21	0.95
22	0.90
23	0.86
24	0.82
25	0.78
26	0.75
27	0.71
28	0.68
29	0.64
30	0.61