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 |
|---|---|---|

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) 60 mt (tons)
Estimated annual amount of biosolids to be land applied (dry weight basis) 26 MT (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:** [Y] **Table 3 Contaminant Concentrations:** [Y]

- 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:** [ ] Alternative 1 [ ] Alternative 2 [ ] Alternative 3
[ ] Alternative 4 [ ] Alternative 5 _____ (List PFRP) [ ] Alternative 6 _____ (List Eq. PFRP)

**Class B:** [■] Alternative 1 [ ] Alternative 2 _____ (List PSRP) [ ] Alternative 3 _____ (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) |
|---|---|---|---|---|
| 1 | 8.36 | 1.6 | 35.7818525N | -87.4527752W |
| 2 | 7.90 | 1.6 | 35.78422N | -87.4504477W |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**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 Jocobs **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: STEVEN D LINKENBEARD

ADDRESS: 250 HOOPLESTON ROAD
CENTERVILLE, TN 37033

PHONE: 615-419-1377 TOTAL ACREAGE: 50

OPERATOR NAME: SAME

FARM LOCATIONS: SAME

COUNTY: HICKMAN

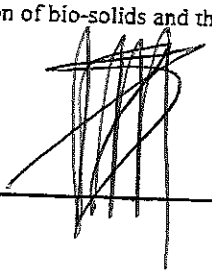
1. I understand that the City will coordinate bio-solids deliveries with farming operations.
2. I agree to allow the City and federal, state, and local regulatory staff access to my land for the purposes of permitting the site, inspecting the site, applying bio-solids, obtaining samples from the site 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

8/9/23
DATE

BIOSOLIDS APPLICATION CROP AND LANDOWNER VERIFICATION FORM

| Field Number | Planned Fertilizer | Crop to be grown following bio-solids application | Comments |
|---|---|---|---|
| #1 Front | | hay | 8.36 acre |
| #2 Rear | | hay | 7.9 acres |

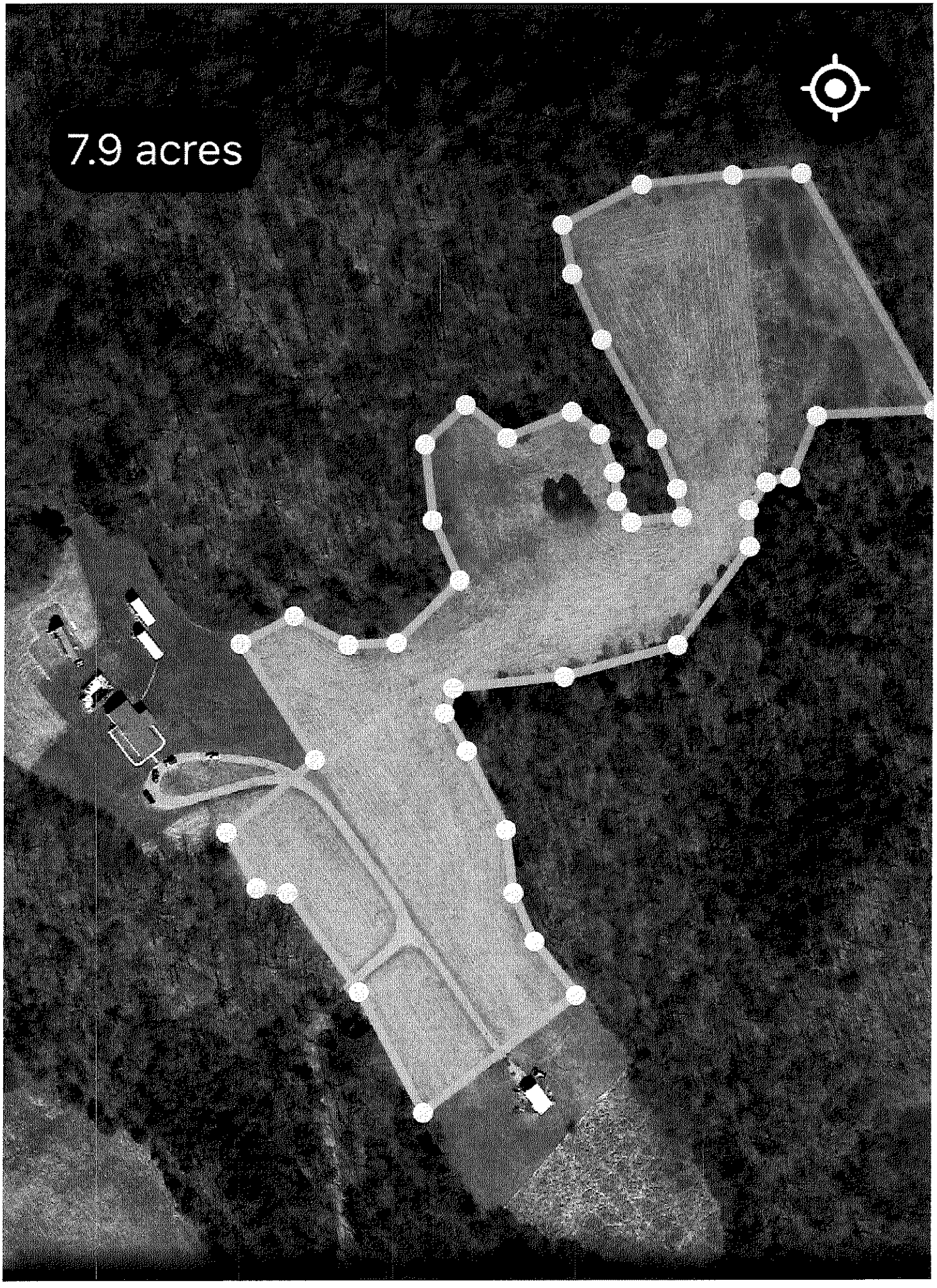
I, STEVE LOWENBERG have advised the City that the landownership and the cropping plan following biosolids application as shown above is accurate. I understand that the City will apply bio-solids to these field(s) at crop nitrogen application rates calculated in accordance with state regulations governing land. The nitrogen application rates will be based on the crops I have identified above. These rates are calculated based upon fertilizer application and crop usages. Application rates and fertilizer values will be provided by the City.

Signatures:

Farm Operator — Date 8/9/23

City Representative — Date 8/9/23

Huddle
8.36 acres
Huddleston Rd
Huddleston Rd


7.9 acres

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

**Tennessee Department of Environment and Conservation - Division of Water Pollution Control**

**Exhibit B - Agronomic Application Rate Calculations Based on Nitrogen (N)**

**Revision 05/08/14**

| BACKGROUND INFORMATION/QUESTIONS | FILL IN BELOW |
|---|---|
| WWTP NAME | Town Of Centerville |
| WWTP NPDES PERMIT NUMBER | TN0024937 |
| SITE NAME | 1796 Tottysbend |
| COUNTY | Hickman |
| E.A.C. | |
| SITE TRACKING NUMBER | |
| LABORATORY NAME | Pace Analytical |
| DATE OF ANALYSIS | 1/18/23 |

## 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) | 0 | lbs/acre |
| NITROGEN FROM IRRIGATION WATER (If Appropriate) | 0 | lbs/acre |
| NITROGEN FROM PREVIOUS CROP (Unless 2 is based on soil testing) | 0 | lbs/acre |
| OTHER (If Appropriate) Specify _____ | 0 | lbs/acre |

## SELECT CROP TYPE

| (SELECT ONLY ONE) | YES |
|---|---|
| 1 - CORN (GRAIN) EXPECT YIELD 100 - 125 BUSHELS | ☐ |
| 2 - CORN (GRAIN) EXPECT YIELD 126 - 150 BUSHELS | ☐ |
| 3 - CORN (SILAGE) EXPECT YIELD 20 TONS | ☐ |
| 4 - SOYBEANS EXPECT YIELD 30 BUSHELS | ☐ |
| 5 - SOYBEANS EXPECT YIELD 40 BUSHELS | ☐ |
| 6- SOYBEANS EXPECT YIELD 50 BUSHELS | ☐ |
| 7- WHEAT EXPECT YIELD 40 BUSHELS | ☐ |
| 8 - SUMMER ANNUAL GRASS EXPECT YIELD 6 TONS (1 CUTTINGS) | ☐ |
| 9 - HYBRID HAY EXPECT YIELD 8 TONS (4 CUTTINGS) | ☐ |
| 10 - TALL FESCUE HAY EXPECT YIELD 3 TONS (2 CUTTINGS) | ☑ |
| 11 - ORCHARD GRASS HAY EXPECT YIELD 4 TONS (2 CUTTINGS) | ☐ |
| 12 - SORGHUM (GRAIN) EXPECT YIELD 60 BUSHELS | ☐ |
| 13 - COTTON EXPECT YIELD 1 BALE / ACRE | ☐ |
| 14 - COTTON EXPECT YIELD 1.5 BALE / ACRE | ☐ |

| | |
|---|---|
| CROP TYPE (LBS N/ACRE/YEAR) | 120 |

## VOLATILIZATION FACTORS $K_V$

| (SELECT ONLY ONE) | YES |
|---|---|
| 1 - ARE BIOSOLIDS LIQUID AND SURFACE APPLIED? | ☐ |
| 2 - ARE BIOSOLIDS LIQUID AND INJECTED INTO SOIL? | ☐ |
| 3 - ARE BIOSOLID DEWATERED AND APPLIED IN ANY MANNER? | ☑ |

**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

Entire Report Reviewed By: Reagan Johnson

Reagan Johnson
Project Manager



## 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) | RDL (Wet) | Result (dry) | RDL (dry) | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|---|
| | mg/kg | mg/kg | mg/kg | mg/kg | | | | |
| 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) | RDL (Wet) | Result (dry) | RDL (dry) | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|---|
| | mg/kg | mg/kg | mg/kg | mg/kg | | | | |
| Kjeldahl Nitrogen, TKN | 630 | 20.0 | 77700 | 2470 | | 1 | 01/20/2023 00:28 | WG1989498 |

## Wet Chemistry by Method 9056A

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

## Mercury by Method 7471A

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

## Metals (ICP) by Method 6010B

| Analyte | Result (wet) | RDL (Wet) | Result (dry) | RDL (dry) | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|---|
| | mg/kg | mg/kg | mg/kg | mg/kg | | | | |
| 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 |

# SLUDGE

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

# SAMPLE RESULTS - 01

L1576970

## Microbiology by Method EPA 1681

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| | MPN/g | | | | |
| 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 |

Pace Analytical®
National Center for Testing & Innovation

# 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

Stacy Kennedy
Project Manager



## 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 |

## 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 |
| Methoxychlor | ND | | 0.00500 | 10 | 1 | 01/24/2019 16:42 | WG1225807 |
| Toxaphene | ND | | 0.0100 | 0.50 | 1 | 01/24/2019 16:42 | WG1225807 |
| *(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 |
| 2,4-Dinitrotoluene | ND | | 0.100 | 0.13 | 1 | 01/25/2019 06:23 | WG1226988 |
| Hexachlorobenzene | ND | | 0.100 | 0.13 | 1 | 01/25/2019 06:23 | WG1226988 |
| 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 |
| Nitrobenzene | ND | | 0.100 | 2 | 1 | 01/25/2019 06:23 | WG1226988 |
| Pyridine | ND | | 0.100 | 5 | 1 | 01/25/2019 06:23 | WG1226988 |
| 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 |

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

## 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 | WG1225115 |

## Polychlorinated Biphenyls (GC) by Method 8082

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

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

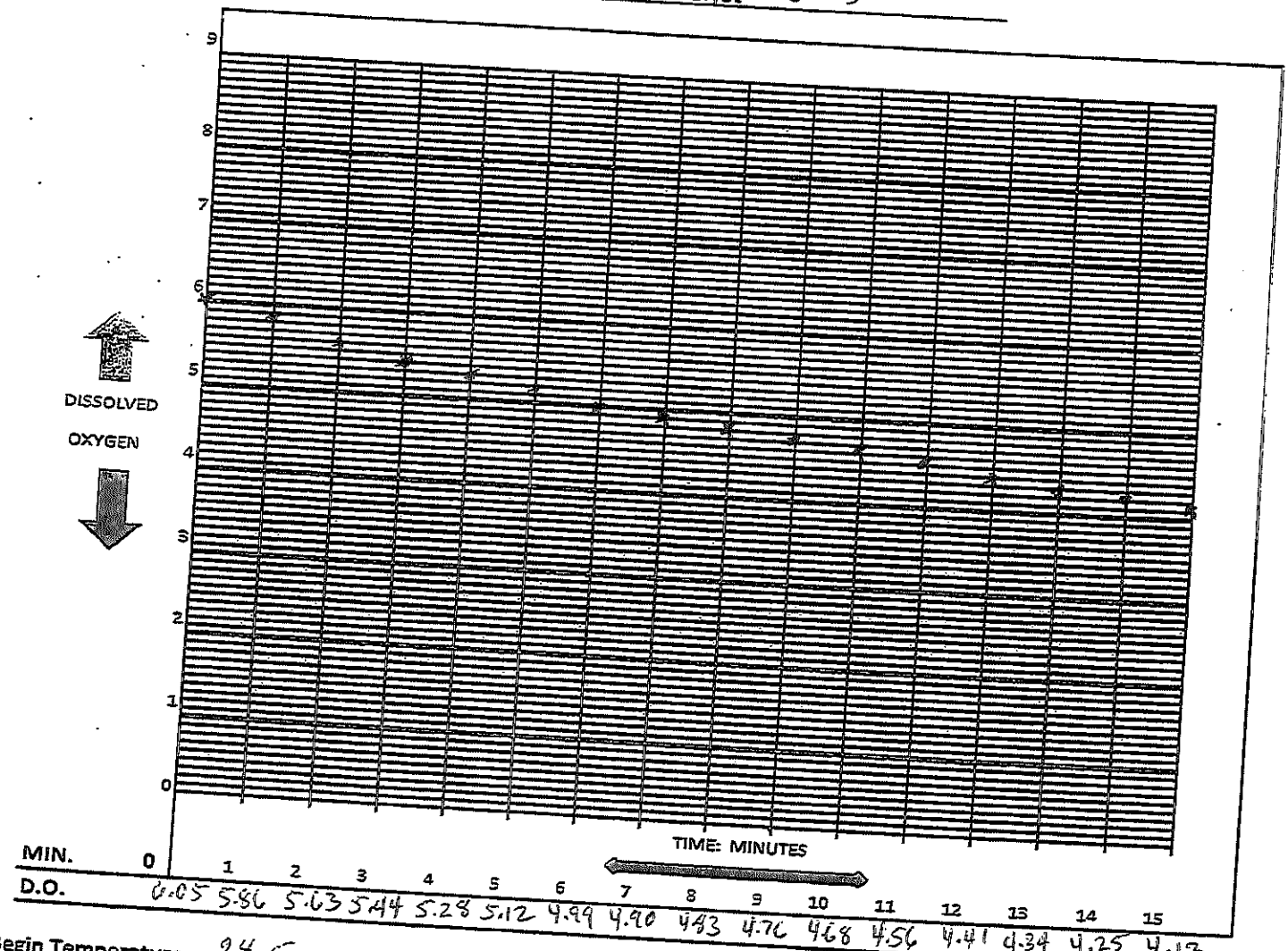
# SPECIFIC OXYGEN UPTAKE RATE

Date: 5-25-23

Sample Location Digester

Time 1239

Analyst JCD




| MIN. | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D.O. | 6.05 | 5.86 | 5.63 | 5.44 | 5.28 | 5.12 | 4.99 | 4.90 | 4.83 | 4.76 | 4.68 | 4.56 | 4.41 | 4.34 | 4.25 | 4.13 |

Begin Temperature: 24.5 Average Temperature: 24.3 End Temperature: 24.0

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

OUR MG O2/L/hr = Begin Dissolved Oxygen – End Dissolved Oxygen X 60
Elapsed Time

OUR = ( 6.05 mg/L - 4.13 mg/L) X 60 = 7.68 mg O2/L/hr
( 15 ) Minutes

# 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

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

$$\% \text{ Solids} \frac{(105.8866)-(105.1260)}{(189.9808)-(105.1260)} = \frac{(0.7606)}{(84.8548)} = .00896 * 100 = 0.896$$

Specific Oxygen Uptake Rate (SOUR)

$$\text{SOUR mg O2/hr/g} = \frac{\text{OUR mgO}_2\text{/L/hr}}{\text{\% Total Solids X 1000g/l}}$$

NOTE: enter solids as a decimal

$$\text{SOUR} = \frac{7.68}{(.00896) \times 1000 \text{ g/l}} \text{ mg O}_2\text{/L/hr} = \frac{7.68}{8.96} \text{ mg O}_2\text{/hr/g} \quad .85$$

Temperature Adjustment

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

.85 MG O2/hr/g X .82 MG O2/hr/g @20°C = .70

@ 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.

$$SOUR@20°C = SOUR @ Ambient\ Temp. * A^{(20-Ambient\ temp.)}$$

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

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

Simplified

SOUR @20° C = SOUR @ Ambient Temp. * Correction

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

| 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 |