Town of Bristol, RI

WATER POLLUTION CONTROL DEPARTMENT
2 PLANT AVENUE
BRISTOL, RI 02809-3015
(401) 253-8877 fax: (401) 253-2910

Jose' J. Da Silva, Superintendent

TOWN HALL
10 COURT STREET
BRISTOL, RI 02809
(401) 253-7000

June 23, 2021

Jennifer Wood
MassDEP Residuals Program
MassDEP
One Winter Street
Boston MA 02108

Re: Annual Report: Bristol RI Compost - AOS

Dear Ms. Wood:

In accordance with the requirements of the Approval of Suitability (AOS) for a residual product distributed/ applied for beneficial use within the Commonwealth of Massachusetts, please find attached the annual report for Bristol RI Water Pollution Control Facility. The annual report is prepared in accordance with and pursuant to 310 CMR 32.60(2)(a) and (b).

Sincerely

Jose Da'Silva
Superintendent

BRISTOL COMPOST FACILITY ANNUAL REPORT
June 2021
MassDEP - 310 CMR 32.00: LAND APPLICATION OF SLUDGE AND SEPTAGE

1. Description of the stabilization method used to comply with 310 CMR 32.12(1),
   The Bristol Sludge Composting Facility uses in-vessel composting technology. The technology produces a product which is environmentally safe and can be beneficially used as a soil conditioner and meets the EPA criteria for Class A Biosolids.

2. Compost Facility Location
   The facility is located on the west end of the Town of Bristol's Municipal Solid Waste Landfill property, located on Minturn Road in Bristol.

3. Description of Facility Operation
   The site consists of a perimeter roadway, paved yard waste storage and processing areas, a paved finished compost storage area, the compost building itself, the odor control Bio-Filter, and a vehicle parking area. Paved areas around the facility have been designed for yard waste storage and processing, and cured compost storage. Four Quonset Hut style buildings are used to cover the amendment (yard waste) and the finished compost for storage/curing.

   The compost facility operation can be divided into four processes:
   - Yard waste grinding
   - Sludge/amendment mixing
   - Compost Processing
   - Compost Finishing

   Yard waste is used as the primary amendment for the composting process. Amendments are added to the sludge prior to composting to increase the porosity, adjust the moisture content and to add carbon to facilitate aerobic decomposition of the mixture. A tub grinder is used to process the yard waste material to a uniform size.

   The yardwaste is then mixed with the sludge inside the compost building. The main compost building consists of four main sections.
   - the receiving and mixing area
   - the compost processing area
   - the finish area
   - the office/control building

   Sludge and yard waste are loaded into a mixer and then discharged to the floor of the compost building before being loaded into the composting bays.

   The facility utilizes the horizontal agitated bin type of in-vessel composting technology and has 4-bays available for composting. Each of the four bays is 220 feet long and is capable of processing approximately 14 cubic yards of compost input per day. The sludge and bulking agent mixture is loaded into one end of the reactor. An IPS agitator advances the mixture through the reactor. Air is introduced into the bays through a system of blowers and perforated pipes and exhausted through the crushed stone floor of the reactor. Compost is discharged from the end of the reactor.

Aisles located on the outside walls provide access to the finishing end of the building as well as to the aeration blowers which are centered on each of the five aeration zones. The aeration blowers, providing air to the compost bays, are located along the south wall of compost bay number 4.

A plastic curtain wall at the mixing end of the bay area helps contain moisture produced by the composting process within the bay area. The moisture is evacuated from the building through exhaust ductwork which is located between the roof trusses above the compost bays.

Once the compost mixture has been processed through the composting bays, it is discharged into the compost storage building. The Finished Area is unloaded with the Front End Loader, which will either deposit the compost in a curing pile for curing or if fully cured and there is an identified need, the finished product will be loaded into dump trucks for utilization.

4. Analyses of all sludge or septage samples
   The following is a summary and schedule for sampling of the facility's compost operation. In addition to the items listed in the Table, Temperature of the compost is also monitored throughout the process.

Material	Test	Sample	Frequency
Sludge	TCLP	Grab	Annual
	Metals	Grab	Monthly
Amendment	TCLP	Grab	Annual
Compost	Metals	Grab	Every other Month
	Fecal Coliform	Composite	Every other Month
	PFAS(*)	Grab	Quarterly

(*) PFAS sampling is consistent with the Town's AOS and includes the following compounds:

COMPOUND		CAS#
Perfluorobutanoic Acid	PFBA	375-22-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorobutanesulfonic Acid	PFBS	375-73-5
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorodecanesulfonic Acid	PFDS	335-77-3

The results of the Laboratory Analysis for TCLP, and metals Parameters are included as Attachment 1. PFAS results are included as Attachment 2.

5. Copies of all information and material submitted to the Department in compliance with 310 CMR 32.13 and 32.14;

(a) a listing of industrial discharges to the owner's or operator's facility including, whenever known, a description, by quantity and quality, of the content of all industrial discharges to such facility; Current SIU's (ADF listed in Fac Plan):

- Galilean Seafood (ADF 20,150 gpd)
- St. Gobain Performance Plastics (ADF 900 gpd)
- Roger Williams University (ADF 7,500 gpd)

(b) the quantity of septage discharged into the owner's or operator's facility, expressed in gallons of septage per day;

- 525 Gallons per day

(c) the daily wastewater flow through the owner's or operator's facility, expressed in gallons per day;

Influent Parameter	Average Month	Maximum Month
Flow, mgd	3.79	4.25
BOD_5, lb/d	5,418	6,273
TSS, lb/d	4,767	5,967

(d) the quantity of sludge generated by the owner's or operator's facility, expressed in dry tons of sludge per day;

2020 BRISTOL, RI SLUDGE DEWATERING					
		PRIMARY SLUDGE + WAS			
MONTH	PLANT FLOW ADF (MGD)	GAL/DAY	% SOLIDS	DRY LBS/DAY	DRY TONS/DAY
Jan-20	3.82	13,725	3.0%	3,434	1.72
Feb-20	3.64	12,252	3.2%	3,270	1.63
Mar-20	3.74	14,469	3.1%	3,741	1.87
Apr-20	4.74	12,103	3.3%	3,331	1.67
May-20	3.76	12,525	3.3%	3,447	1.72
Jun-20	2.33	14,729	3.3%	4,054	2.03
Jul-20	2.03	19,121	3.7%	5,900	2.95
Aug-20	1.82	17,551	3.7%	5,416	2.71
Sep-20	1.83	18,152	3.5%	5,299	2.65
Oct-20	2.02	28,855	2.9%	6,979	3.49
Nov-20	2.55	20,469	3.1%	5,292	2.65
Dec-20	4.92	14,782	3.7%	4,561	2.28
Avg Month	3.10	16,561	3.3%	4,560	2.28
Max Month	4.92	28,855	3.7%	6,979	3.49

(e) a description of the stabilization process the owner or operator proposes to utilize to comply with 310 CMR 32.12; and

The Bristol Compost Facility utilizes In-vessel horizontal plug-flow composting technology and meets the criteria of a Process to Further Reduce Pathogens (PFRP). The focus of the process is to raise the compost mixture temperature to a minimum of 55 degrees Celsius for a minimum of three days and that it remains in the active composting phase for a minimum of fourteen days.

The compost material must be processed for a total of thirty days within the active and curing phase of the composting operation.

6. Studies and technical data;
    - Class A Biosolids Compost Facility Operation and Maintenance Plan, August 2014, BETA Group, Inc.
    - Preliminary Design Report and Environmental Assessment: Solids Handling Improvements, Bristol Water Pollution Control Facility, May 2021, BETA Group, Inc.

7. Address of each place where sludge or septage was stored and for each such place, how long sludge or septage was stored there.

Sludge processed at the Composting Facility is generated at the Bristol Water Pollution Control Facility (WPCF). The sludge is comprised of primary and secondary sludge (from the Rotating Biological Contractors) that is co-settled in the primary clarifiers at the WPCF. The sludge is treated with hydrogen peroxide at the discharge end of the pumps to control odors and an inorganic polymer to aide dewatering. The sludge is dewatered to a consistency of about 24 percent solids utilizing belt filter presses.

Dewatered sludge is maintained in a roll-off container and it is hauled daily to the compost facility and unloaded directly into a mixer where it is combined with yard waste (Amendment) prior to being introduced into the composting bay.

<u>For Type I product (i.e. unrestricted use):</u>
Before transferring ownership, custody, or possession of Type I sludge, the person selling or distributing such sludge shall enter into its records the following information:

1. the amount of Type I sludge distributed or sold in lots equal to or less than five cubic yards;
2. the name and addresses of each person to whom Type I sludge in lots greater than five cubic yards was sold or distributed, specifying for each such person the amount sold or distributed.

The Town maintains a log of people that take finished compost from the facility. The Town also uses Aggresource to distribute Compost. Aggresource has completed an annual report for their AOS for distribution of compost from the Bristol facility and issued it to MassDEP and it is included here as Attachment 3.

ATTACHMENT 1
Sludge and Compost Analysis
TCLP
Metals
Fecal Coliform

TCLP Results

CERTIFICATE OF ANALYSIS

Glenn Conway
Town of Bristol - WPCF
2 Plant Avenue
Bristol, RI 02809

RE: Compost TCLP Annual Sampling (N/A)
ESS Laboratory Work Order Number: 21A0235

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 11:30 am, Jan 19, 2021

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

SAMPLE RECEIPT

The following samples were received on January 12, 2021 for the analyses specified on the enclosed Chain of Custody Record.

The samples and analyses listed below were analyzed in accordance with the Guidelines Establishing Test Procedures for the Analysis of Pollutants, 40 CFR Part 136, as amended.

Lab Number	Sample Name	Matrix	Analysis
21A0235-01	Sludge	Soil	1311, 1311/6010C, 1311/7470A, 1311/8081B, 1311/8151A, 1311/8260B, 1311/8270D
21A0235-02	Yardwaste	Soil	1311, 1311/6010C, 1311/7470A, 1311/8081B, 1311/8151A, 1311/8260B, 1311/8270D

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

PROJECT NARRATIVE

1311/8270D Semi Volatile TCLP Compounds
D1A0218-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Pyridine (23% @ 20%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Sludge
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 100
Final Volume: 5
Extraction Method: 3510C

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-01
Sample Matrix: Soil
Units: mg/L
Analyst: DMC
Prepared: 1/13/21 14:13

All methods used are in accordance with 40 CFR 136.

1311/8081B Pesticide TCLP Compounds

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyzed	Sequence	Batch
Chlordane (Total)	ND (0.00500)		1311/8081B		1	01/14/21 13:05	D1A0207	DA11305
Endrin	ND (0.00050)		1311/8081B		1	01/14/21 13:05	D1A0207	DA11305
gamma-BHC (Lindane)	ND (0.00050)		1311/8081B		1	01/14/21 13:05	D1A0207	DA11305
Heptachlor	ND (0.00050)		1311/8081B		1	01/14/21 13:05	D1A0207	DA11305
Heptachlor Epoxide	ND (0.00050)		1311/8081B		1	01/14/21 13:05	D1A0207	DA11305
Methoxychlor	ND (0.00050)		1311/8081B		1	01/14/21 13:05	D1A0207	DA11305
Toxaphene	ND (0.0130)		1311/8081B		1	01/14/21 13:05	D1A0207	DA11305

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*71 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*113 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*85 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Sludge
Date Sampled: 01/12/21 08:00
Percent Solids: N/A

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-01
Sample Matrix: Soil
Units: mg/L

Extraction Method: 3005A TCLP

All methods used are in accordance with 40 CFR 136.

1311 TCLP Metals

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	ND (0.050)		1311/6010C		1	KJK	01/14/21 22:37	50	50	DA11332
Barium	**0.184** (0.050)		1311/6010C		1	KJK	01/14/21 22:37	50	50	DA11332
Cadmium	ND (0.0100)		1311/6010C		1	KJK	01/14/21 22:37	50	50	DA11332
Chromium	ND (0.020)		1311/6010C		1	KJK	01/14/21 22:37	50	50	DA11332
Lead	ND (0.050)		1311/6010C		1	KJK	01/14/21 22:37	50	50	DA11332
Mercury	ND (0.00050)		1311/7470A		1	BJV	01/14/21 14:14	20	40	DA11339
Selenium	ND (0.050)		1311/6010C		1	KJK	01/14/21 22:37	50	50	DA11332
Silver	ND (0.010)		1311/6010C		1	KJK	01/14/21 22:37	50	50	DA11332

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Sludge
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 35
Final Volume: 4
Extraction Method: 3510C

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-01
Sample Matrix: Soil
Units: mg/L
Analyst: DMC
Prepared: 1/13/21 21:15

All methods used are in accordance with 40 CFR 136.

1311/8151A TCLP Herbicide Compounds

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyzed	Sequence	Batch
2,4,5-TP (Silvex)	ND (0.002)		1311/8151A		1	01/15/21 15:31	D1A0224	DA11337
2,4-D	ND (0.009)		1311/8151A		1	01/15/21 15:31	D1A0224	DA11337

	%Recovery	Qualifier	Limits
Surrogate: DCAA	*68 %*		*30-150*
Surrogate: DCAA [2C]	*73 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Sludge
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-01
Sample Matrix: Soil
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

1311/8260B Volatile TCLP Compounds

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyzed	Sequence	Batch
1,1-Dichloroethene	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
1,2-Dichloroethane	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
1,4-Dichlorobenzene	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
2-Butanone	ND (2.50)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
Benzene	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
Carbon Tetrachloride	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
Chlorobenzene	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
Chloroform	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
Tetrachloroethene	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
Trichloroethene	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416
Vinyl Chloride	ND (0.100)		1311/8260B		1	01/14/21 16:07	D1A0211	DA11416

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*105 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*101 %*		*70-130*
Surrogate: Dibromofluoromethane	*101 %*		*70-130*
Surrogate: Toluene-d8	*99 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Sludge
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 200
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-01
Sample Matrix: Soil
Units: mg/L
Analyst: TJ
Prepared: 1/14/21 8:35

All methods used are in accordance with 40 CFR 136.

1311/8270D Semi Volatile TCLP Compounds

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyzed	Sequence	Batch
2,4,5-Trichlorophenol	ND (0.05)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
2,4,6-Trichlorophenol	ND (0.05)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
2,4-Dinitrotoluene	ND (0.05)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
2-Methylphenol	ND (0.05)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
3+4-Methylphenol	**0.26** (0.10)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
Hexachlorobenzene	ND (0.05)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
Hexachlorobutadiene	ND (0.05)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
Hexachloroethane	ND (0.02)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
Nitrobenzene	ND (0.05)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
Pentachlorophenol	ND (0.25)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402
Pyridine	ND (0.50)		1311/8270D		1	01/15/21 23:02	D1A0220	DA11402

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichlorobenzene-d4	*73 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*83 %*		*15-110*
Surrogate: 2-Chlorophenol-d4	*82 %*		*15-110*
Surrogate: 2-Fluorobiphenyl	*70 %*		*30-130*
Surrogate: 2-Fluorophenol	*74 %*		*15-110*
Surrogate: Nitrobenzene-d5	*82 %*		*30-130*
Surrogate: Phenol-d6	*84 %*		*15-110*
Surrogate: p-Terphenyl-d14	*35 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Sludge
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1311

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-01
Sample Matrix: Soil
Units: °C
Analyst: BJV
Prepared: 1/12/21 20:30

All methods used are in accordance with 40 CFR 136.

TCLP Extraction by 1311

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Batch
Temperature (Min C)	**21.8** (N/A)		1311		1	BJV	01/13/21 13:55	DA11234
Temperature (Max C)	**22.3** (N/A)		1311		1	BJV	01/13/21 13:55	DA11234
Temperature (Range)	**Temperature is within 23 +/-2 °C.** (N/A)							

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Sludge
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 25
Final Volume: 500
Extraction Method: 5030B TCLP

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-01
Sample Matrix: Soil
Units: °C
Analyst: MD
Prepared: 1/13/21 14:55

All methods used are in accordance with 40 CFR 136.

ZHE Extraction by 1311

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyst	Analyzed	Batch
Temperature (Min C)	**23.0** (N/A)		1311		1	MD	01/14/21 8:00	DA11506
Temperature (Max C)	**25.5** (N/A)		1311		1	MD	01/14/21 8:00	DA11506
Temperature (Range)	**Temperature is not within 23 +/-2 °C.** (N/A)							

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Yardwaste
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 100
Final Volume: 5
Extraction Method: 3510C

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-02
Sample Matrix: Soil
Units: mg/L
Analyst: DMC
Prepared: 1/13/21 14:13

All methods used are in accordance with 40 CFR 136.

1311/8081B Pesticide TCLP Compounds

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyzed	Sequence	Batch
Chlordane (Total)	ND (0.00500)		1311/8081B		1	01/14/21 13:32	D1A0207	DA11305
Endrin	ND (0.00050)		1311/8081B		1	01/14/21 13:32	D1A0207	DA11305
gamma-BHC (Lindane)	ND (0.00050)		1311/8081B		1	01/14/21 13:32	D1A0207	DA11305
Heptachlor	ND (0.00050)		1311/8081B		1	01/14/21 13:32	D1A0207	DA11305
Heptachlor Epoxide	ND (0.00050)		1311/8081B		1	01/14/21 13:32	D1A0207	DA11305
Methoxychlor	ND (0.00050)		1311/8081B		1	01/14/21 13:32	D1A0207	DA11305
Toxaphene	ND (0.0130)		1311/8081B		1	01/14/21 13:32	D1A0207	DA11305

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*60 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*56 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*81 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Yardwaste
Date Sampled: 01/12/21 08:00
Percent Solids: N/A

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-02
Sample Matrix: Soil
Units: mg/L

Extraction Method: 3005A TCLP

All methods used are in accordance with 40 CFR 136.

1311 TCLP Metals

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	ND (0.050)		1311/6010C		1	KJK	01/14/21 22:40	50	50	DA11332
Barium	ND (0.050)		1311/6010C		1	KJK	01/14/21 22:40	50	50	DA11332
Cadmium	ND (0.0100)		1311/6010C		1	KJK	01/14/21 22:40	50	50	DA11332
Chromium	ND (0.020)		1311/6010C		1	KJK	01/14/21 22:40	50	50	DA11332
Lead	ND (0.050)		1311/6010C		1	KJK	01/14/21 22:40	50	50	DA11332
Mercury	ND (0.00050)		1311/7470A		1	BJV	01/14/21 14:16	20	40	DA11339
Selenium	ND (0.050)		1311/6010C		1	KJK	01/14/21 22:40	50	50	DA11332
Silver	ND (0.010)		1311/6010C		1	KJK	01/14/21 22:40	50	50	DA11332

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Yardwaste
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 35
Final Volume: 4
Extraction Method: 3510C

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-02
Sample Matrix: Soil
Units: mg/L
Analyst: DMC
Prepared: 1/13/21 21:15

All methods used are in accordance with 40 CFR 136.

1311/8151A TCLP Herbicide Compounds

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyzed	Sequence	Batch
2,4,5-TP (Silvex)	ND (0.002)		1311/8151A		1	01/15/21 16:00	D1A0224	DA11337
2,4-D	ND (0.009)		1311/8151A		1	01/15/21 16:00	D1A0224	DA11337

	%Recovery	Qualifier	Limits
Surrogate: DCAA	*67 %*		*30-150*
Surrogate: DCAA [2C]	*57 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Yardwaste
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-02
Sample Matrix: Soil
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

1311/8260B Volatile TCLP Compounds

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyzed	Sequence	Batch
1,1-Dichloroethene	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
1,2-Dichloroethane	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
1,4-Dichlorobenzene	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
2-Butanone	ND (2.50)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
Benzene	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
Carbon Tetrachloride	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
Chlorobenzene	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
Chloroform	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
Tetrachloroethene	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
Trichloroethene	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416
Vinyl Chloride	ND (0.100)		1311/8260B		1	01/14/21 16:34	D1A0211	DA11416

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*108 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*96 %*		*70-130*
Surrogate: Dibromofluoromethane	*105 %*		*70-130*
Surrogate: Toluene-d8	*99 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Yardwaste
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 200
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-02
Sample Matrix: Soil
Units: mg/L
Analyst: TJ
Prepared: 1/14/21 8:35

All methods used are in accordance with 40 CFR 136.

1311/8270D Semi Volatile TCLP Compounds

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyzed	Sequence	Batch
2,4,5-Trichlorophenol	ND (0.05)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
2,4,6-Trichlorophenol	ND (0.05)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
2,4-Dinitrotoluene	ND (0.05)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
2-Methylphenol	ND (0.05)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
3+4-Methylphenol	ND (0.10)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
Hexachlorobenzene	ND (0.05)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
Hexachlorobutadiene	ND (0.05)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
Hexachloroethane	ND (0.02)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
Nitrobenzene	ND (0.05)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
Pentachlorophenol	ND (0.25)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402
Pyridine	ND (0.50)		1311/8270D		1	01/15/21 23:31	D1A0220	DA11402

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichlorobenzene-d4	*80 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*82 %*		*15-110*
Surrogate: 2-Chlorophenol-d4	*85 %*		*15-110*
Surrogate: 2-Fluorobiphenyl	*79 %*		*30-130*
Surrogate: 2-Fluorophenol	*77 %*		*15-110*
Surrogate: Nitrobenzene-d5	*90 %*		*30-130*
Surrogate: Phenol-d6	*83 %*		*15-110*
Surrogate: p-Terphenyl-d14	*45 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Yardwaste
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1311

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-02
Sample Matrix: Soil
Units: °C
Analyst: BJV
Prepared: 1/12/21 20:30

All methods used are in accordance with 40 CFR 136.

TCLP Extraction by 1311

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Batch
Temperature (Min C)	**21.8** (N/A)		1311		1	BJV	01/13/21 13:55	DA11234
Temperature (Max C)	**22.3** (N/A)		1311		1	BJV	01/13/21 13:55	DA11234
Temperature (Range)	**Temperature is within 23 +/-2 °C.** (N/A)							

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling
Client Sample ID: Yardwaste
Date Sampled: 01/12/21 08:00
Percent Solids: N/A
Initial Volume: 25
Final Volume: 500
Extraction Method: 5030B TCLP

ESS Laboratory Work Order: 21A0235
ESS Laboratory Sample ID: 21A0235-02
Sample Matrix: Soil
Units: °C
Analyst: MD
Prepared: 1/13/21 14:55

All methods used are in accordance with 40 CFR 136.

ZHE Extraction by 1311

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyst	Analyzed	Batch
Temperature (Min C)	**23.0** (N/A)		1311		1	MD	01/14/21 8:00	DA11506
Temperature (Max C)	**25.5** (N/A)		1311		1	MD	01/14/21 8:00	DA11506
Temperature (Range)	**Temperature is not within 23 +/-2 °C.** (N/A)							

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
1311/8081B Pesticide TCLP Compounds										
Batch DA11305 - 3510C										
Blank										
Chlordane (Total)	ND	0.00500	mg/L							
Chlordane (Total) [2C]	ND	0.00500	mg/L							
Endrin	ND	0.00050	mg/L							
Endrin [2C]	ND	0.00050	mg/L							
gamma-BHC (Lindane)	ND	0.00050	mg/L							
gamma-BHC (Lindane) [2C]	ND	0.00050	mg/L							
Heptachlor	ND	0.00050	mg/L							
Heptachlor [2C]	ND	0.00050	mg/L							
Heptachlor Epoxide	ND	0.00050	mg/L							
Heptachlor Epoxide [2C]	ND	0.00050	mg/L							
Methoxychlor	ND	0.00050	mg/L							
Methoxychlor [2C]	ND	0.00050	mg/L							
Surrogate: Decachlorobiphenyl	*0.00212*		mg/L	*0.002500*		*85*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.00200*		mg/L	*0.002500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.00235*		mg/L	*0.002500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.00230*		mg/L	*0.002500*		*92*	*30-150*			
LCS										
Endrin	0.00024	0.00005	mg/L	0.0002500		96	40-140			
Endrin [2C]	0.00023	0.00005	mg/L	0.0002500		94	40-140			
gamma-BHC (Lindane)	0.00025	0.00005	mg/L	0.0002500		100	40-140			
gamma-BHC (Lindane) [2C]	0.00025	0.00005	mg/L	0.0002500		98	40-140			
Heptachlor	0.00024	0.00005	mg/L	0.0002500		96	40-140			
Heptachlor [2C]	0.00024	0.00005	mg/L	0.0002500		96	40-140			
Heptachlor Epoxide	0.00026	0.00005	mg/L	0.0002500		104	40-140			
Heptachlor Epoxide [2C]	0.00025	0.00005	mg/L	0.0002500		99	40-140			
Methoxychlor	0.00025	0.00005	mg/L	0.0002500		100	40-140			
Methoxychlor [2C]	0.00024	0.00005	mg/L	0.0002500		98	40-140			
Surrogate: Decachlorobiphenyl	*0.000209*		mg/L	*0.0002500*		*84*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.000202*		mg/L	*0.0002500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.000234*		mg/L	*0.0002500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.000230*		mg/L	*0.0002500*		*92*	*30-150*			
LCS Dup										
Endrin	0.00026	0.00005	mg/L	0.0002500		103	40-140	7	20	
Endrin [2C]	0.00025	0.00005	mg/L	0.0002500		101	40-140	7	20	
gamma-BHC (Lindane)	0.00027	0.00005	mg/L	0.0002500		107	40-140	7	20	
gamma-BHC (Lindane) [2C]	0.00026	0.00005	mg/L	0.0002500		106	40-140	7	20	
Heptachlor	0.00026	0.00005	mg/L	0.0002500		105	40-140	9	20	
Heptachlor [2C]	0.00026	0.00005	mg/L	0.0002500		103	40-140	7	20	
Heptachlor Epoxide	0.00027	0.00005	mg/L	0.0002500		107	40-140	3	20	
Heptachlor Epoxide [2C]	0.00026	0.00005	mg/L	0.0002500		105	40-140	6	20	
Methoxychlor	0.00026	0.00005	mg/L	0.0002500		104	40-140	4	20	
Methoxychlor [2C]	0.00026	0.00005	mg/L	0.0002500		105	40-140	7	20	

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
1311/8081B Pesticide TCLP Compounds										
Batch DA11305 - 3510C										
Surrogate: Decachlorobiphenyl	*0.000208*		mg/L	*0.0002500*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.000204*		mg/L	*0.0002500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.000243*		mg/L	*0.0002500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.000238*		mg/L	*0.0002500*		*95*	*30-150*			
1311 TCLP Metals										
Batch DA11332 - 3005A_TCLP										
Blank										
Arsenic	ND	0.050	mg/L							
Barium	ND	0.050	mg/L							
Cadmium	ND	0.0100	mg/L							
Chromium	ND	0.020	mg/L							
Lead	ND	0.050	mg/L							
Selenium	ND	0.050	mg/L							
Silver	ND	0.010	mg/L							
Blank										
Arsenic	ND	0.050	mg/L							
Barium	ND	0.050	mg/L							
Cadmium	ND	0.0100	mg/L							
Chromium	ND	0.020	mg/L							
Lead	ND	0.050	mg/L							
Selenium	ND	0.050	mg/L							
Silver	ND	0.010	mg/L							
LCS										
Arsenic	0.500	0.050	mg/L	0.5000		100	80-120			
Barium	0.483	0.050	mg/L	0.5000		97	80-120			
Cadmium	0.245	0.0100	mg/L	0.2500		98	80-120			
Chromium	0.482	0.020	mg/L	0.5000		96	80-120			
Lead	0.484	0.050	mg/L	0.5000		97	80-120			
Selenium	1.04	0.050	mg/L	1.000		104	80-120			
Silver	0.253	0.010	mg/L	0.2500		101	80-120			
LCS Dup										
Arsenic	0.490	0.050	mg/L	0.5000		98	80-120	2	20	
Barium	0.474	0.050	mg/L	0.5000		95	80-120	2	20	
Cadmium	0.239	0.0100	mg/L	0.2500		96	80-120	2	20	
Chromium	0.474	0.020	mg/L	0.5000		95	80-120	2	20	
Lead	0.473	0.050	mg/L	0.5000		95	80-120	2	20	
Selenium	1.00	0.050	mg/L	1.000		100	80-120	3	20	
Silver	0.250	0.010	mg/L	0.2500		100	80-120	1	20	
Batch DA11339 - 7470A_TCLP										
Blank										
Mercury	ND	0.00050	mg/L							
LCS										

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
1311 TCLP Metals										
Batch DA11339 - 7470A_TCLP										
Mercury	0.00555	0.00050	mg/L	0.006042		92	80-120			
LCS Dup										
Mercury	0.00565	0.00050	mg/L	0.006042		93	80-120	2	20	
1311/8151A TCLP Herbicide Compounds										
Batch DA11337 - 3510C										
Blank										
2,4,5-TP (Silvex)	ND	0.002	mg/L							
2,4,5-TP (Silvex) [2C]	ND	0.002	mg/L							
2,4-D	ND	0.009	mg/L							
2,4-D [2C]	ND	0.009	mg/L							
Surrogate: DCAA	*0.0536*		mg/L	*0.05714*		*94*	*30-150*			
Surrogate: DCAA [2C]	*0.0510*		mg/L	*0.05714*		*89*	*30-150*			
LCS										
2,4,5-TP (Silvex)	0.005	0.002	mg/L	0.005429		86	40-140			
2,4,5-TP (Silvex) [2C]	0.005	0.002	mg/L	0.005429		84	40-140			
2,4-D	0.043	0.009	mg/L	0.05371		81	40-140			
2,4-D [2C]	0.044	0.009	mg/L	0.05371		83	40-140			
Surrogate: DCAA	*0.0543*		mg/L	*0.05714*		*95*	*30-150*			
Surrogate: DCAA [2C]	*0.0557*		mg/L	*0.05714*		*97*	*30-150*			
LCS Dup										
2,4,5-TP (Silvex)	0.005	0.002	mg/L	0.005429		90	40-140	5	20	
2,4,5-TP (Silvex) [2C]	0.005	0.002	mg/L	0.005429		88	40-140	5	20	
2,4-D	0.044	0.009	mg/L	0.05371		82	40-140	2	20	
2,4-D [2C]	0.046	0.009	mg/L	0.05371		85	40-140	3	20	
Surrogate: DCAA	*0.0455*		mg/L	*0.05714*		*80*	*30-150*			
Surrogate: DCAA [2C]	*0.0466*		mg/L	*0.05714*		*82*	*30-150*			
1311/8260B Volatile TCLP Compounds										
Batch DA11416 - 5030B										
Blank										
1,1-Dichloroethene	ND	0.0050	mg/L							
1,2-Dichloroethane	ND	0.0050	mg/L							
1,4-Dichlorobenzene	ND	0.0050	mg/L							
2-Butanone	ND	0.125	mg/L							
Benzene	ND	0.0050	mg/L							
Carbon Tetrachloride	ND	0.0050	mg/L							
Chlorobenzene	ND	0.0050	mg/L							
Chloroform	ND	0.0050	mg/L							
Tetrachloroethene	ND	0.0050	mg/L							
Trichloroethene	ND	0.0050	mg/L							

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
1311/8260B Volatile TCLP Compounds										
Batch DA11416 - 5030B										
Vinyl Chloride	ND	0.0050	mg/L							
Surrogate: 1,2-Dichloroethane-d4	*0.0249*		mg/L	*0.02500*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0252*		mg/L	*0.02500*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0255*		mg/L	*0.02500*		*102*	*70-130*			
Surrogate: Toluene-d8	*0.0257*		mg/L	*0.02500*		*103*	*70-130*			
LCS										
1,1-Dichloroethene	0.0112	0.0010	mg/L	0.01000		112	70-130			
1,2-Dichloroethane	0.0105	0.0010	mg/L	0.01000		105	70-130			
1,4-Dichlorobenzene	0.0098	0.0010	mg/L	0.01000		98	70-130			
2-Butanone	0.0542	0.0250	mg/L	0.05000		108	70-130			
Benzene	0.0104	0.0010	mg/L	0.01000		104	70-130			
Carbon Tetrachloride	0.0110	0.0010	mg/L	0.01000		110	70-130			
Chlorobenzene	0.0099	0.0010	mg/L	0.01000		99	70-130			
Chloroform	0.0106	0.0010	mg/L	0.01000		106	70-130			
Tetrachloroethene	0.0075	0.0010	mg/L	0.01000		75	70-130			
Trichloroethene	0.0102	0.0010	mg/L	0.01000		102	70-130			
Vinyl Chloride	0.0105	0.0010	mg/L	0.01000		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0264*		mg/L	*0.02500*		*105*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0246*		mg/L	*0.02500*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0264*		mg/L	*0.02500*		*106*	*70-130*			
Surrogate: Toluene-d8	*0.0245*		mg/L	*0.02500*		*98*	*70-130*			
LCS Dup										
1,1-Dichloroethene	0.0111	0.0010	mg/L	0.01000		111	70-130	0.7	25	
1,2-Dichloroethane	0.0102	0.0010	mg/L	0.01000		102	70-130	3	25	
1,4-Dichlorobenzene	0.0099	0.0010	mg/L	0.01000		99	70-130	1	25	
2-Butanone	0.0516	0.0250	mg/L	0.05000		103	70-130	5	25	
Benzene	0.0106	0.0010	mg/L	0.01000		106	70-130	2	25	
Carbon Tetrachloride	0.0105	0.0010	mg/L	0.01000		105	70-130	5	25	
Chlorobenzene	0.0098	0.0010	mg/L	0.01000		98	70-130	0.9	25	
Chloroform	0.0108	0.0010	mg/L	0.01000		108	70-130	1	25	
Tetrachloroethene	0.0079	0.0010	mg/L	0.01000		79	70-130	5	25	
Trichloroethene	0.0105	0.0010	mg/L	0.01000		105	70-130	3	25	
Vinyl Chloride	0.0101	0.0010	mg/L	0.01000		101	70-130	4	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0257*		mg/L	*0.02500*		*103*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0244*		mg/L	*0.02500*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0257*		mg/L	*0.02500*		*103*	*70-130*			
Surrogate: Toluene-d8	*0.0243*		mg/L	*0.02500*		*97*	*70-130*			
1311/8270D Semi Volatile TCLP Compounds										
Batch DA11402 - 3520C										
Blank										
2,4,5-Trichlorophenol	ND	0.05	mg/L							
2,4,6-Trichlorophenol	ND	0.05	mg/L							
2,4-Dinitrotoluene	ND	0.05	mg/L							
2-Methylphenol	ND	0.05	mg/L							

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
1311/8270D Semi Volatile TCLP Compounds										
Batch DA11402 - 3520C										
3+4-Methylphenol	ND	0.10	mg/L							
Hexachlorobenzene	ND	0.05	mg/L							
Hexachlorobutadiene	ND	0.05	mg/L							
Hexachloroethane	ND	0.02	mg/L							
Nitrobenzene	ND	0.05	mg/L							
Pentachlorophenol	ND	0.25	mg/L							
Pyridine	ND	0.50	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	*0.368*		mg/L	*0.5000*		*74*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*0.600*		mg/L	*0.7500*		*80*	*15-110*			
Surrogate: 2-Chlorophenol-d4	*0.595*		mg/L	*0.7500*		*79*	*15-110*			
Surrogate: 2-Fluorobiphenyl	*0.373*		mg/L	*0.5000*		*75*	*30-130*			
Surrogate: 2-Fluorophenol	*0.550*		mg/L	*0.7500*		*73*	*15-110*			
Surrogate: Nitrobenzene-d5	*0.414*		mg/L	*0.5000*		*83*	*30-130*			
Surrogate: Phenol-d6	*0.586*		mg/L	*0.7500*		*78*	*15-110*			
Surrogate: p-Terphenyl-d14	*0.468*		mg/L	*0.5000*		*94*	*30-130*			
LCS										
2,4,5-Trichlorophenol	0.38	0.05	mg/L	0.5000		76	30-130			
2,4,6-Trichlorophenol	0.36	0.05	mg/L	0.5000		73	30-130			
2,4-Dinitrotoluene	0.39	0.05	mg/L	0.5000		78	40-140			
2-Methylphenol	0.42	0.05	mg/L	0.5000		84	30-130			
3+4-Methylphenol	0.87	0.10	mg/L	1.000		87	30-130			
Hexachlorobenzene	0.37	0.05	mg/L	0.5000		73	40-140			
Hexachlorobutadiene	0.32	0.05	mg/L	0.5000		65	40-140			
Hexachloroethane	0.35	0.02	mg/L	0.5000		70	40-140			
Nitrobenzene	0.40	0.05	mg/L	0.5000		80	40-140			
Pentachlorophenol	0.39	0.25	mg/L	0.5000		79	30-130			
Pyridine	0.37	0.50	mg/L	0.5000		75	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*0.402*		mg/L	*0.5000*		*80*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*0.601*		mg/L	*0.7500*		*80*	*15-110*			
Surrogate: 2-Chlorophenol-d4	*0.653*		mg/L	*0.7500*		*87*	*15-110*			
Surrogate: 2-Fluorobiphenyl	*0.399*		mg/L	*0.5000*		*80*	*30-130*			
Surrogate: 2-Fluorophenol	*0.618*		mg/L	*0.7500*		*82*	*15-110*			
Surrogate: Nitrobenzene-d5	*0.448*		mg/L	*0.5000*		*90*	*30-130*			
Surrogate: Phenol-d6	*0.688*		mg/L	*0.7500*		*92*	*15-110*			
Surrogate: p-Terphenyl-d14	*0.432*		mg/L	*0.5000*		*86*	*30-130*			
LCS Dup										
2,4,5-Trichlorophenol	0.38	0.05	mg/L	0.5000		75	30-130	0.6	20	
2,4,6-Trichlorophenol	0.36	0.05	mg/L	0.5000		72	30-130	0.7	20	
2,4-Dinitrotoluene	0.40	0.05	mg/L	0.5000		81	40-140	3	20	
2-Methylphenol	0.44	0.05	mg/L	0.5000		88	30-130	5	20	
3+4-Methylphenol	0.92	0.10	mg/L	1.000		92	30-130	6	20	
Hexachlorobenzene	0.37	0.05	mg/L	0.5000		74	40-140	0.6	20	
Hexachlorobutadiene	0.32	0.05	mg/L	0.5000		65	40-140	0.2	20	
Hexachloroethane	0.36	0.02	mg/L	0.5000		72	40-140	2	20	
Nitrobenzene	0.41	0.05	mg/L	0.5000		81	40-140	2	20	

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
1311/8270D Semi Volatile TCLP Compounds										
Batch DA11402 - 3520C										
Pentachlorophenol	0.41	0.25	mg/L	0.5000		82	30-130	4	20	
Pyridine	0.37	0.50	mg/L	0.5000		73	40-140	2	20	
Surrogate: 1,2-Dichlorobenzene-d4	*0.408*		mg/L	*0.5000*		*82*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*0.599*		mg/L	*0.7500*		*80*	*15-110*			
Surrogate: 2-Chlorophenol-d4	*0.670*		mg/L	*0.7500*		*89*	*15-110*			
Surrogate: 2-Fluorobiphenyl	*0.387*		mg/L	*0.5000*		*77*	*30-130*			
Surrogate: 2-Fluorophenol	*0.633*		mg/L	*0.7500*		*84*	*15-110*			
Surrogate: Nitrobenzene-d5	*0.451*		mg/L	*0.5000*		*90*	*30-130*			
Surrogate: Phenol-d6	*0.703*		mg/L	*0.7500*		*94*	*15-110*			
Surrogate: p-Terphenyl-d14	*0.427*		mg/L	*0.5000*		*85*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling ESS Laboratory Work Order: 21A0235

Notes and Definitions

Z18	Temperature is not within 23 +/-2 ºC.
Z17	Temperature is within 23 +/-2 ºC.
U	Analyte included in the analysis, but not detected
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost TCLP Annual Sampling

ESS Laboratory Work Order: 21A0235

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

Shipped/Delivered Via: ESS Courier

ESS Project ID: 21A0235
Date Received: 1/12/2021
Project Due Date: 1/19/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) / No / NA
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / (No)
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / (No)
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	125972	Yes	N/A	Yes	8 oz jar	NP	
1	125973	Yes	N/A	Yes	8 oz jar	NP	
1	125980	Yes	N/A	Yes	2 oz. Jar	NP	
2	125976	Yes	N/A	Yes	8 oz jar	NP	
2	125977	Yes	N/A	Yes	8 oz jar	NP	
2	125981	Yes	N/A	Yes	2 oz. Jar	NP	

2nd Review
Were all containers scanned into storage/lab? Initials AG
Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Amber Jessica Date & Time: 1/12/21 17:52

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

ESS Project ID: 21A0235

Date Received: 1/12/2021

Reviewed By: [signature]

Date & Time: 1/12/21 1805

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 21A0235

Turn Time	5 Days
Regulatory State	Rhode Island
Is this project for any of the following?:	◯ CT RCP ◯ MA MCP ◯ RGP
Reporting Limits	
Electonic Deliverables	☐ Data Checker ☐ Excel ☐ Other (Please Specify ---)

Company Name Bristol WPCF	**Project #**	**Project Name** Compost TCLP Annual Sampling	
Contact Person Glenn Conway		**Address** 2 Plant Ave	
City Bristol	**State** RI	**Zip Code** 02809	**PO #**
Telephone Number 401-253-8877	**FAX Number** 401-253-2910	**Email Address** gconway@bristolri.gov	

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: TCLP RCRA8 Metals	TCLP SVOC	TCLP Pesticide	TCLP Herbicide	TCLP VOC
1	01-12-21	0800	Grab	Solid	Sludge	X	X	X	X	X
2	01-12-21	0800	Grab	Solid	Yardwaste	X	X	X	X	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial — AG | AG
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* — 10 | 8
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other* — 1 | 1
Number of Containers per Sample: 1 | 1

Laboratory Use Only

Cooler Present: _____ ◯ Drop Off
Seals Intact: _____ ◯ Pickup
Cooler Temperature: 1.1 °C

Sampled by :

Comments: **Please specify "Other" preservative and containers types in this space**

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
1-12-21 1130	1/12/21 11:30	1/12/21 17:22	Amber Jenna 1/12/21 17:22
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

METALS

CERTIFICATE OF ANALYSIS

Glenn Conway
Town of Bristol - WPCF
2 Plant Avenue
Bristol, RI 02809

RE: Compost Sampling
ESS Laboratory Work Order Number: 21B0307

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

ESS Laboratory Director

REVIEWED
By ESS Laboratory at 11:39 am, Mar 10, 2021

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration may be used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

Sample Receipt
The following sample(s) were received on February 10, 2021 for the analyses specified on the enclosed Chain of Custody Record.

LabNumber	ClientMatrix	SampleName
21B0307-01	Soil	C-1 Compost
21B0307-02	Soil	C-2 Compost

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

PROJECT NARRATIVE

Classical Chemistry

21B0307-01 **Estimated value. Sample hold times were exceeded (H).**
Color

Microbiology

21B0307-01 **Estimated value. Sample hold times were exceeded.**
Salmonella

No other observations noted.

End of Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

Total Metals

Client Sample ID: C-1 Compost
Date Sampled: 02/08/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21B0307-01
Sample Matrix: Soil

Analyte	Results	Units	MRL		Method	DF	Analyst	Analyzed	I/V	F/V
Aluminum	**4120**	mg/kg dry	8.03		6010C	1	KJK	02/11/21 21:43	2.12	100
Arsenic	ND	mg/kg dry	4.01	7	6010C	1	KJK	02/11/21 21:43	2.12	100
Barium	**77.8**	mg/kg dry	4.01		6010C	1	KJK	02/11/21 21:43	2.12	100
Boron	ND	mg/kg dry	8.03		6010C	1	KJK	02/11/21 21:43	2.12	100
Cadmium	ND	mg/kg dry	0.80		6010C	1	KJK	02/11/21 21:43	2.12	100
Chromium	**12.2**	mg/kg dry	1.61		6010C	1	KJK	02/11/21 21:43	2.12	100
Copper	**128**	mg/kg dry	4.01		6010C	1	KJK	02/11/21 21:43	2.12	100
Lead	**56.8**	mg/kg dry	8.03		6010C	1	KJK	02/11/21 21:43	2.12	100
Mercury	**0.199**	mg/kg dry	0.055		7471B	1	JRB	02/16/21 15:50	0.61	40
Molybdenum	**3.41**	mg/kg dry	1.61		6010C	1	KJK	02/11/21 21:43	2.12	100
Nickel	**10.7**	mg/kg dry	4.01		6010C	1	KJK	02/11/21 21:43	2.12	100
Selenium	ND	mg/kg dry	8.03		6010C	1	KJK	02/11/21 21:43	2.12	100
Silver	**1.02**	mg/kg dry	0.80		6010C	1	KJK	02/11/21 21:43	2.12	100
Zinc	**279**	mg/kg dry	4.01		6010C	1	KJK	02/11/21 21:43	2.12	100

8082A Polychlorinated Biphenyls (PCB)

Client Sample ID: C-1 Compost
Date Sampled: 02/08/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21B0307-01
Sample Matrix: Soil
Date Extracted: 2/11/21 9:55

Analyte	Results	Units	MRL	Extraction	DF	Analyst	Analyzed	I/V	F/V
PCB (Total)	ND	mg/kg dry	0.743		1	MJV	02/12/21 12:39	1	1

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*57 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*70 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*60 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*46 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

Classical Chemistry

Client Sample ID: C-1 Compost
Date Sampled: 02/08/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21B0307-01
Sample Matrix: Soil

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Ammonia as N	**0.717**	% dry	0.0844	350.2	100	JLK	02/12/21 16:55
Color	H **Black**	Color Units	N/A	HACH	1	CCP	02/11/10 14:14
Conductivity	WL **10.4**	mmhos/cm	0.005	9050A	1	EEM	02/11/21 10:45
Corrosivity (pH)	**7.59**	S.U.	N/A	9045	1	CCP	02/10/21 19:03
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 22.0 °C.**						
Nitrate as N	ND	mg/kg dry	0.509	353.2	1	JLK	02/11/21 18:39
Percent Moisture	**41**	%	1	2540G	1	CCP	02/10/21 15:34
Total Nitrogen	**37200**	mg/kg dry	5910	4500N	50	EEM	02/16/21 14:56
Total Organic Carbon (Average)	**308000**	mg/kg dry	99.2	9060	1	CCP	02/16/21 16:05

Subcontracted Analysis

Client Sample ID: C-1 Compost
Date Sampled: 02/08/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21B0307-01
Sample Matrix: Soil

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
% Foreign Matter	**0.6**	%		SUB		SUB	02/19/21 0:00		
Moisture Content	**41.2**	%		SUB		SUB	02/19/21 0:00		
Organic Matter	**62.8**	%		SUB		SUB	02/19/21 0:00		
Particle Size	**9.53 mm**			SUB		SUB	02/22/21 9:36		

Compost Standards

Client Sample ID: C-1 Compost
Date Sampled: 02/08/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21B0307-01
Sample Matrix: Soil

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
Compost Standard	**These Compost Standards were provided by client**								
Reduction in Organics	**>60%**								
Reheating - above ambient	**<20 Deg C**								

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

Microbiology

Client Sample ID: C-1 Compost
Date Sampled: 02/08/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21B0307-01
Sample Matrix: Soil

Analyte	Results	Units	Method	Analyst	Analyzed
Fecal Coliform	< **3**	MPN/g dry	9221E	ARG	02/10/21 15:30
Salmonella	<, Ha **12.3**	MPN/4g dry	EPA625R92	RJB	02/16/21 15:00

Client Sample ID: C-2 Compost
Date Sampled: 02/10/21 08:00
Percent Solids: 65

ESS Laboratory Sample ID: 21B0307-02
Sample Matrix: Soil

Analyte	Results	Units	Method	Analyst	Analyzed
Fecal Coliform	< **3**	MPN/g dry	9221E	ARG	02/10/21 15:30

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch DB11127 - 3050B										
Blank										
Aluminum	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Boron	ND	5.00	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Molybdenum	ND	1.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Aluminum	10100	16.7	mg/kg wet	11450		88	80-120			
Arsenic	35.1	8.33	mg/kg wet	43.10		81	80-120			
Barium	530	8.33	mg/kg wet	597.0		89	80-120			
Boron	197	16.7	mg/kg wet	230.0		86	80-120			
Cadmium	97.3	1.67	mg/kg wet	118.0		82	80-120			
Chromium	259	3.33	mg/kg wet	299.0		87	80-120			
Copper	289	8.33	mg/kg wet	330.0		88	80-120			
Lead	127	16.7	mg/kg wet	144.0		88	80-120			
Molybdenum	55.6	3.33	mg/kg wet	60.20		92	80-120			
Nickel	151	8.33	mg/kg wet	171.0		88	80-120			
Selenium	128	16.7	mg/kg wet	154.0		83	80-120			
Silver	62.2	1.67	mg/kg wet	73.50		85	80-120			
Zinc	712	8.33	mg/kg wet	874.0		81	80-120			
LCS Dup										
Aluminum	10300	16.7	mg/kg wet	11450		90	80-120	2	20	
Arsenic	35.7	8.33	mg/kg wet	43.10		83	80-120	2	20	
Barium	487	8.33	mg/kg wet	597.0		82	80-120	8	20	
Boron	200	16.7	mg/kg wet	230.0		87	80-120	2	20	
Cadmium	97.7	1.67	mg/kg wet	118.0		83	80-120	0.5	20	
Chromium	258	3.33	mg/kg wet	299.0		86	80-120	0.2	20	
Copper	292	8.33	mg/kg wet	330.0		89	80-120	1	20	
Lead	128	16.7	mg/kg wet	144.0		89	80-120	0.4	20	
Molybdenum	55.6	3.33	mg/kg wet	60.20		92	80-120	0.02	20	
Nickel	150	8.33	mg/kg wet	171.0		88	80-120	0.4	20	
Selenium	129	16.7	mg/kg wet	154.0		83	80-120	0.1	20	
Silver	62.2	1.67	mg/kg wet	73.50		85	80-120	0.1	20	
Zinc	713	8.33	mg/kg wet	874.0		82	80-120	0.2	20	
Batch DB11128 - 7471A										
Blank										
Mercury	ND	0.033	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch DB11128 - 7471A										
LCS										
Mercury	27.4	3.05	mg/kg wet	27.90		98	80-120			
LCS Dup										
Mercury	26.8	3.14	mg/kg wet	27.90		96	80-120	2	20	
8082A Polychlorinated Biphenyls (PCB)										
Batch DB11003 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0217*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0194*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0219*		mg/kg wet	*0.02500*		*87*	*30-150*			
LCS										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		96	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		104	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		96	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		105	40-140			
Surrogate: Decachlorobiphenyl	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		96	40-140	0.5	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		103	40-140	0.8	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		98	40-140	2	30	

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch DB11003 - 3540C										
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		106	40-140	1	30	
Surrogate: Decachlorobiphenyl	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0197*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Classical Chemistry										
Batch DB11119 - General Preparation										
Blank										
Conductivity	ND	0.005	mmhos/cm							
LCS										
Conductivity	1400		umhos/cm	1413		99	90-110			
Batch DB11139 - General Preparation										
Blank										
Nitrite as N	ND	0.01	mg/kg wet							
LCS										
Nitrite as N	0.26		mg/L	0.2497		102	90-110			
Batch DB11141 - General Preparation										
Blank										
Nitrate/Nitrite as N	ND	0.02	mg/kg wet							
Nitrate/Nitrite as N	ND	0.02	mg/kg wet							
LCS										
Nitrate/Nitrite as N	0.52		mg/L	0.5000		105	90-110			
Nitrate/Nitrite as N	0.52		mg/L	0.5000		105	90-110			
Batch DB11144 - NH4 Prep										
Blank										
Ammonia as N	ND	0.00001	% wet							
LCS										
Ammonia as N	0.00010	0.00001	% wet	0.00009994		99	80-120			
Batch DB11149 - General Preparation										
Blank										
Total Organic Carbon (1)	ND	100	mg/kg							
Total Organic Carbon (2)	ND	100	mg/kg							
LCS										
Total Organic Carbon (1)	10400	100	mg/kg	10000		104	80-120			
Total Organic Carbon (2)	10600	100	mg/kg	10000		106	80-120			
LCS Dup										
Total Organic Carbon (1)	11000	100	mg/kg	10000		110	80-120	6	20	
Total Organic Carbon (2)	10700	100	mg/kg	10000		107	80-120	1	20	
Batch DB11212 - TKN Prep										

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch DB11212 - TKN Prep										
Blank										
Total Kjeldahl Nitrogen as N	ND	75	mg/kg wet							
LCS										
Total Kjeldahl Nitrogen as N	4610	750	mg/kg wet	4375		105	80-120			

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

Notes and Definitions

Z24	Black
Z23	These Compost Standards were provided by client
Z-10	Soil pH measured in water at 22.0 °C.
Z-03b	9.53 mm
Z-03a	>60%
Z-03	<20 Deg C
WL	Results obtained from a deionized water leach of the sample.
U	Analyte included in the analysis, but not detected
Ha	Estimated value. Sample hold times were exceeded.
H	Estimated value. Sample hold times were exceeded (H).
D	Diluted.
<	Less than the Method Detection Limit.
ND	Analyte NOT DETECTED above the detection limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too Numerous to Count

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0307

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

THIELSCH ENGINEERING
195 Frances Avenue
Cranston RI, 02910
Phone: (401)-467-6454
Fax: (401)-467-2398
thielsch.com
Let's Build a Solid Foundation

Client Information:
Bristol WPCF
Bristol, RI
PM: Glenn Conway
Assigned By: Glenn Conway
Collected By: Client

Project Information:
Compost Bi Monthly
Bristol, RI
ESS Project Number: 21B0307
Summary Page: 1 of 1
Report Date: 02.19.21

LABORATORY TESTING DATA SHEET, Report No.: 7421-B-126

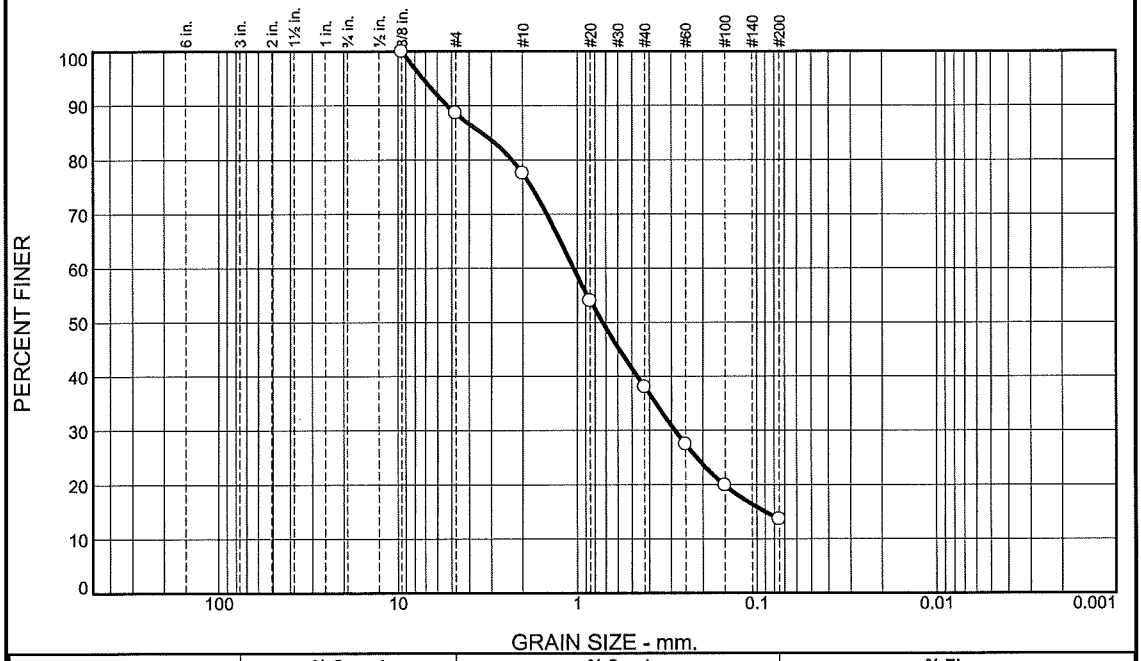
Source	Sample ID	Laboratory No.	Identification Tests								Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
			As Received Water Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	G_s	Dry unit wt. pcf	Test Water Content %	γ_d MAX (pcf) W_{opt} (%)	γ_d MAX (pcf) W_{opt} (%) (Corr.)	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Permeability cm/sec	
			D2216	D4318		D6913			D2974	D854			D1557						
Grab	C1-Compost	21B0307-01	43.1			11.4	75.0	13.6	62.8										Dark Brown Organic silty sand
Organic content test was completed by JM on 02.18.21.																			

Date Received: *02.12.21*

Reviewed By: SK GO

Date Reviewed: *02.19.21*

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	11.4	11.1	39.5	24.4	13.6	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.375"	100.0		
#4	88.6		
#10	77.5		
#20	54.0		
#40	38.0		
#60	27.4		
#100	19.9		
#200	13.6		

* (no specification provided)

Material Description

Dark Brown Organic silty sand

Atterberg Limits (ASTM D 4318)

PL= NP LL= NV PI= NP

Classification

USCS (D 2487)= SM AASHTO (M 145)= A-1-b

Coefficients

D_{90}= 5.2722 D_{85}= 3.4203 D_{60}= 1.0485
D_{50}= 0.7292 D_{30}= 0.2869 D_{15}= 0.0897
D_{10}= C_u= C_c=

Remarks

Date Received: 02.12.21 **Date Tested:** 02.17.21

Tested By: JM

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Grab **Date Sampled:** 02.08.21
Sample Number: C1-Compost

Thielsch Engineering Inc.
Cranston, RI

Client: Bristol WPCF
Project: Compost Bi Monthly
Bristol, RI
Project No: 21B0307 **Figure** 21B0307-01

February 19, 2021

THIELSCH ENGINEERING

ESS Laboratory
185 Frances Avenue
Cranston, RI 02910

Attn: Mr. Glenn Conway
P: (401) 253-8877
E: gconway@bristolri.gov

Re: Inerts & Sharps Testing
ESS Project No. 21B0307

Dear Mr. Conway:

TEI received a soil sample from ESS Laboratory on February 12, 2021. The sample was emptied onto an examining pad, separated by component, weighed and visually examined to determine the percent of foreign matter. Tests were performed under the guidance of ASTM D2488, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)".

Listed below are test results summarizing laboratory visual soil identification for percent Foreign Matter performed on ESS Sample No. 21B0307-01.

Total Dry Weight: 77.38

Sample No.	% "Soil"	% Glass	% Plastic	% Fibers	% Metal
ESS #20B0346-01	99.4	0.1	0.3	0.2	0.0

Comments: None

If you have any questions, please contact me at (401) 467-6454 ext. 3924.

Sincerely,
THIELSCH ENGINEERING, INC.

Steven Accetta
Laboratory Coordinatior

Jessica McDaniel
Laboratory Technician

CTS

CHAIN OF CUSTODY

ESS Laboratory
Division of Thielsch Engineering, Inc.
35 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

ESS Lab # 21B0307

Turn Time: 5 Days
Regulatory State
Is this project for any of the following?: ○ CT RCP ○ MA MCP ○ RGP

Reporting Limits
Electonic Deliverables: ☐ Data Checker ☐ Excel ☐ Other (Please Specify →)

Company Name: Bristol WPCF
Contact Person: Glenn Conway
Project #:
Project Name: Compost Bi monthly
Address: 2 Plant Ave
City: Bristol
State: RI
Zip Code: 02809
PO #:
Telephone Number: 401-253-6877
FAX Number: 401-253-2910
Email Address: gconway@bristolri.gov

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Fecal Coliforms	Metals*	PCB(total)	Color	TOC, Ammonia Nitrogen	Conductivity, pH, Moisture Content	Total Nitrogen, Nitrate Nitrogen	Total Volume Solids	Salmonella (pathogens)	Organic matter	Red. in organics, Reheating (above ambient)	% H2O Insoluble Nitrogen	% Foreign matter	Particle Size Distribution	Electrical Conductivity
1	2-8-21	0800	Grab	Soil	C1-Compost	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	2-10-21	0800	Grab	Soil	C2- Compost	X														

Analysis

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
Number of Containers per Sample:

Laboratory Use Only
Cooler Present: ✓
Seals Intact: N/A
Cooler Temperature: 5.5 °C Blp
○ Drop Off ☒ Pickup

Sampled by :
Comments: Please specify "Other" preservative and containers types in this space
*Metals = Al, B, Cd, Pb, Ni, Ag, Zn, Cu, Cr, Ba, Se, Mo, Hg, As

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
2-10-21 0925	2/10/21 0925	2/10/21 1034	2/10/21 1034
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
2/12/21 0915	2/12/21 0935		

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

Shipped/Delivered Via: ESS Courier

ESS Project ID: 21B0307
Date Received: 2/10/2021
Project Due Date: 2/18/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis: Fecal, Salmonella, Particle Size
    TAT: 5D
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	134961	Yes	N/A	Yes	Plastic Baggie	NP	
1	134962	Yes	N/A	Yes	Plastic Baggie	NP	
1	134963	Yes	N/A	Yes	Plastic Baggie	NP	
2	134960	Yes	N/A	Yes	Plastic Baggie	NP	

2nd Review
Were all containers scanned into storage/lab? Initials Yes / No
Are barcode labels on correct containers? Yes / No / NA
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 2/10/21 1239
Reviewed By: Date & Time: 2/10/21 12:49

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 21B0307

Turn Time	5	Days
Regulatory State		
Is this project for any of the following?:	○ CT RCP ○ MA MCP ○ RGP	

Reporting Limits

Electonic Deliverables ☐ Data Checker ☐ Excel ☐ Other (Please Specify →)

Company Name: Bristol WPCF	Project #:	Project Name: Compost Bi monthly	
Contact Person: Glenn Conway		Address: 2 Plant Ave	
City: Bristol	State: RI	Zip Code: 02809	PO #:
Telephone Number: 401-253-6877	FAX Number: 401-253-2910	Email Address: gconway@bristolri.gov	

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Fecal Coliforms	Metals*	PCB(total)	Color	TOC, Ammonia Nitrogen	Conductivity, pH, Moisture Content	Total Nitrogen, Nitrate Nitrogen	Total Volume Solids	Salmonella (pathogens)	Organic matter	Red. in organics, Retesting (above ambient)	% H2O Insoluble Nitrogen	% Foreign matter	Particle Size Distribution	Electrical Conductivity	
1	2-8-21	0800	Grab	Soil	C1-Compost	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2	2-10-21	0800	Grab	Soil	C2- Compost	X															

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

Number of Containers per Sample:

Laboratory Use Only

Cooler Present: ✓ ○ Drop Off
Seals Intact: N/A ⊘ Pickup
Cooler Temperature: 5.5 °C ICE

Sampled by :

Comments: Please specify "Other" preservative and containers types in this space

*Metals = Al, B, Cd, Pb, Ni, Ag, Zn, Cu, Cr, Ba,Se,Mo, Hg, As

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
2-10-21 0925	2/10/21 0925	2/10/21 1134	2/10/21 1134
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Glenn Conway
Town of Bristol - WPCF
2 Plant Avenue
Bristol, RI 02809

RE: Compost Sampling
ESS Laboratory Work Order Number: 21D0444

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

ESS Laboratory Director

REVIEWED
By ESS Laboratory at 4:54 pm, Apr 27, 2021

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration may be used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

Sample Receipt
The following sample(s) were received on April 14, 2021 for the analyses specified on the enclosed Chain of Custody Record.

LabNumber	ClientMatrix	SampleName
21D0444-01	Soil	C1-Compost
21D0444-01	Soil	C1-Compost
21D0444-02	Soil	C2-Compost

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

PROJECT NARRATIVE

Classical Chemistry

21D0444-01 **Estimated value. Sample hold times were exceeded (H).**
Color

No other observations noted.

End of Project Narrative.

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

Total Metals

Client Sample ID: C1-Compost
Date Sampled: 04/12/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21D0444-01
Sample Matrix: Soil

Analyte	Results	Units	MRL		Method	DF	Analyst	Analyzed	I/V	F/V
Aluminum	**2130**	mg/kg dry	8.03		6010C	1	KJK	04/16/21 22:01	2.11	100
Arsenic	ND	mg/kg dry	4.02	7	6010C	1	KJK	04/16/21 22:01	2.11	100
Barium	**50.5**	mg/kg dry	4.02		6010C	1	KJK	04/16/21 22:01	2.11	100
Boron	**10.8**	mg/kg dry	8.03		6010C	1	KJK	04/16/21 22:01	2.11	100
Cadmium	ND	mg/kg dry	0.80		6010C	1	KJK	04/16/21 22:01	2.11	100
Chromium	**6.88**	mg/kg dry	1.61		6010C	1	KJK	04/16/21 22:01	2.11	100
Copper	**54.3**	mg/kg dry	4.02		6010C	1	KJK	04/16/21 22:01	2.11	100
Lead	**29.4**	mg/kg dry	8.03		6010C	1	KJK	04/16/21 22:01	2.11	100
Mercury	**0.195**	mg/kg dry	0.056		7471B	1	JRB	04/20/21 12:36	0.6	40
Molybdenum	ND	mg/kg dry	1.61		6010C	1	KJK	04/16/21 22:01	2.11	100
Nickel	**7.48**	mg/kg dry	4.02		6010C	1	KJK	04/16/21 22:01	2.11	100
Selenium	ND	mg/kg dry	8.03		6010C	1	KJK	04/16/21 22:01	2.11	100
Silver	ND	mg/kg dry	0.80		6010C	1	KJK	04/16/21 22:01	2.11	100
Zinc	**136**	mg/kg dry	4.02		6010C	1	KJK	04/16/21 22:01	2.11	100

8082A Polychlorinated Biphenyls (PCB)

Client Sample ID: C1-Compost
Date Sampled: 04/12/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21D0444-01
Sample Matrix: Soil
Date Extracted: 4/14/21 17:50

Analyte	Results	Units	MRL	Extraction	DF	Analyst	Analyzed	I/V	F/V
PCB (Total)	ND	mg/kg dry	0.755		1	MJV	04/15/21 17:26	1	1

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*75 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*74 %*		*30-150*

Classical Chemistry

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

Classical Chemistry

Client Sample ID: C1-Compost
Date Sampled: 04/12/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21D0444-01
Sample Matrix: Soil

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Ammonia as N	0.934	% dry	0.0410	350.2	50	JLK	04/20/21 17:07
Color	H Black	Color Units	N/A	HACH	1	CCP	04/14/21 20:14
Conductivity	WL 6.99	mmhos/cm	0.005	9050A	1	CCP	04/15/21 14:30
Corrosivity (pH)	8.53	S.U.	N/A	9045	1	EAM	04/14/21 20:03
Corrosivity (pH) Sample Temp	Soil pH measured in water at 20.5 °C.						
Nitrate as N	ND	mg/kg dry	0.509	353.2	1	JLK	04/15/21 21:50
Percent Moisture	41	%	1	2540G	1	EAM	04/14/21 22:03
Total Nitrogen	30000	mg/kg dry	2370	4500N	20	JLK	04/19/21 17:11
Total Organic Carbon (Average)	369000	mg/kg dry	96.6	9060	1	CCP	04/19/21 13:47
Water Insoluble Nitrogen	1.22	%	0.140	4500N	50	JLK	04/20/21 17:07

Subcontracted Analysis

Client Sample ID: C1-Compost
Date Sampled: 04/12/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21D0444-01
Sample Matrix: Soil

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
% Foreign Matter	0.4	%		SUB		SUB	04/22/21 0:00		
Moisture Content	41.0	%		SUB		SUB	04/22/21 0:00		
Organic Matter	68.2	%		SUB		SUB	04/22/21 0:00		
Particle Size	9.525 mm			SUB		SUB	04/22/21 0:00		

Compost Standards

Client Sample ID: C1-Compost
Date Sampled: 04/12/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21D0444-01
Sample Matrix: Soil

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
Compost Standard	These Compost Standards were provided by client								
Reduction in Organics	>60%								
Reheating - above ambient	<20 Deg C								

Microbiology

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

Microbiology

Client Sample ID: C1-Compost
Date Sampled: 04/12/21 08:00
Percent Solids: 59

ESS Laboratory Sample ID: 21D0444-01
Sample Matrix: Soil

Analyte	Results	Units	Method	Analyst	Analyzed
Fecal Coliform	< 3	MPN/g dry	9221E	RJB	04/15/21 15:30
Salmonella	< 122	MPN/4g dry	EPA625R92	RJB	04/15/21 15:30

	%Recovery	Qualifier	Limits

Client Sample ID: C2-Compost
Date Sampled: 04/14/21 08:00
Percent Solids: 61

ESS Laboratory Sample ID: 21D0444-02
Sample Matrix: Soil

Analyte	Results	Units	Method	Analyst	Analyzed
Fecal Coliform	< 3	MPN/g dry	9221E	RJB	04/15/21 15:30

	%Recovery	Qualifier	Limits

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch DD11632 - 3050B										
Blank										
Aluminum	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Boron	ND	5.00	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Molybdenum	ND	1.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Aluminum	5900	16.7	mg/kg wet	11450		52	40-160			
Arsenic	38.3	8.33	mg/kg wet	43.10		89	80-120			
Barium	539	8.33	mg/kg wet	597.0		90	80-120			
Boron	205	16.7	mg/kg wet	230.0		89	80-120			
Cadmium	104	1.67	mg/kg wet	118.0		88	80-120			
Chromium	267	3.33	mg/kg wet	299.0		89	80-120			
Copper	301	8.33	mg/kg wet	330.0		91	80-120			
Lead	130	16.7	mg/kg wet	144.0		90	80-120			
Molybdenum	59.6	3.33	mg/kg wet	60.20		99	80-120			
Nickel	157	8.33	mg/kg wet	171.0		92	80-120			
Selenium	129	16.7	mg/kg wet	154.0		84	52-147			
Silver	68.1	1.67	mg/kg wet	73.50		93	80-120			
Zinc	758	8.33	mg/kg wet	874.0		87	80-120			
LCS Dup										
Aluminum	5930	14.1	mg/kg wet	11450		52	40-160	0.5	20	
Arsenic	35.6	7.04	mg/kg wet	43.10		83	80-120	7	20	
Barium	484	7.04	mg/kg wet	597.0		81	80-120	11	20	
Boron	192	14.1	mg/kg wet	230.0		84	80-120	6	20	
Cadmium	99.5	1.41	mg/kg wet	118.0		84	80-120	5	20	
Chromium	254	2.82	mg/kg wet	299.0		85	80-120	5	20	
Copper	283	7.04	mg/kg wet	330.0		86	80-120	6	20	
Lead	124	14.1	mg/kg wet	144.0		86	80-120	5	20	
Molybdenum	55.6	2.82	mg/kg wet	60.20		92	80-120	7	20	
Nickel	149	7.04	mg/kg wet	171.0		87	80-120	6	20	
Selenium	122	14.1	mg/kg wet	154.0		79	52-147	6	20	
Silver	64.7	1.41	mg/kg wet	73.50		88	80-120	5	20	
Zinc	723	7.04	mg/kg wet	874.0		83	80-120	5	20	
Reference										
Lead	3730	28.6	mg/kg wet	4490		83	83-113			
Batch DD11633 - 7471A										

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch DD11633 - 7471A										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	28.2	3.30	mg/kg wet	27.90		101	80-120			
LCS Dup										
Mercury	29.3	3.19	mg/kg wet	27.90		105	80-120	4	20	
8082A Polychlorinated Biphenyls (PCB)										
Batch DD11409 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
LCS										
Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		90	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		93	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		95	40-140			
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		86	40-140			
Surrogate: Decachlorobiphenyl	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		95	40-140	5	30	

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch DD11409 - 3540C										
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		97	40-140	5	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		100	40-140	4	30	
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		90	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0252*		mg/kg wet	*0.02500*		*101*	*30-150*			
Classical Chemistry										
Batch DD11534 - General Preparation										
Blank										
Conductivity	ND	0.005	mmhos/cm							
LCS										
Conductivity	1390		umhos/cm	1413		98	90-110			
Batch DD11551 - General Preparation										
Blank										
Nitrite as N	ND	0.01	mg/kg wet							
LCS										
Nitrite as N	0.27		mg/L	0.2497		107	90-110			
Batch DD11553 - General Preparation										
Blank										
Nitrate/Nitrite as N	ND	0.02	mg/kg wet							
Nitrate/Nitrite as N	ND	0.02	mg/kg wet							
Nitrate/Nitrite as N	ND	0.02	mg/kg wet							
LCS										
Nitrate/Nitrite as N	0.50		mg/L	0.5000		100	90-110			
Nitrate/Nitrite as N	0.50		mg/L	0.5000		100	90-110			
Nitrate/Nitrite as N	0.50		mg/L	0.5000		100	90-110			
Batch DD11567 - General Preparation										
Blank										
Total Organic Carbon (1)	ND	100	mg/kg							
Total Organic Carbon (2)	ND	100	mg/kg							
LCS										
Total Organic Carbon (1)	9760	100	mg/kg	10000		98	80-120			
Total Organic Carbon (2)	9430	100	mg/kg	10000		94	80-120			
LCS Dup										
Total Organic Carbon (1)	9410	100	mg/kg	10000		94	80-120	4	20	
Total Organic Carbon (2)	9300	100	mg/kg	10000		93	80-120	1	20	
Batch DD11648 - TKN Prep										
Blank										
Total Kjeldahl Nitrogen as N	ND	0.3	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch DD11648 - TKN Prep										
Total Kjeldahl Nitrogen as N	ND	0.3	mg/kg wet							
LCS										
Total Kjeldahl Nitrogen as N	19	3	mg/kg wet	20.70		93	80-120			
Total Kjeldahl Nitrogen as N	19	3	mg/kg wet	20.70		93	80-120			
Batch DD11949 - NH4 Prep										
Blank										
Ammonia as N	ND	0.1	mg/kg wet							
Ammonia as N	ND	0.00001	% wet							
LCS										
Ammonia as N	0.00010	0.00001	% wet	0.00009994		95	80-120			
Ammonia as N	1.0	0.1	mg/kg wet	0.9994		95	80-120			

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

Notes and Definitions

Z24	Black
Z23	These Compost Standards were provided by client
Z-10	Soil pH measured in water at 20.5 °C.
Z-03b	9.525 mm
Z-03a	>60%
Z-03	<20 Deg C
WL	Results obtained from a deionized water leach of the sample.
U	Analyte included in the analysis, but not detected
H	Estimated value. Sample hold times were exceeded (H).
D	Diluted.
<	Less than the Method Detection Limit.
ND	Analyte NOT DETECTED above the detection limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too Numerous to Count

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0444

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water; LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste; PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste; RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water; M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste; 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste; 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste; RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit; P330-12-00139

Pennsylvania; 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

THIELSCH ENGINEERING
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Cranston RI, 02910
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Fax: (401)-467-2398
thielsch.com
Let's Build a Solid Foundation

Client Information:
Bristol WPCF
Bristol, RI
PM: Glenn Conway
Assigned By: Glenn Conway
Collected By: Client

Project Information:
Compost Bi Monthly
Bristol, RI
ESS Project Number: 21D0444
Summary Page: 1 of 1
Report Date: 04.21.21

LABORATORY TESTING DATA SHEET, Report No.: 7421-D-162

Source	Sample ID	Laboratory No.	Identification Tests								Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
			As Received Water Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	G_s	Dry unit wt. pcf	Test Water Content %	γ_d MAX (pcf) W_{opt} (%)	γ_d MAX (pcf) W_{opt} (%) (Corr.)	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Permeability cm/sec	
			D2216	D4318		D6913			D2974	D854			D1557						
Grab	C1-Compost	21D0444-01	76.6			16.7	73.1	10.2	68.2										Dark Brown Organic poorly graded sand with silt and gravel

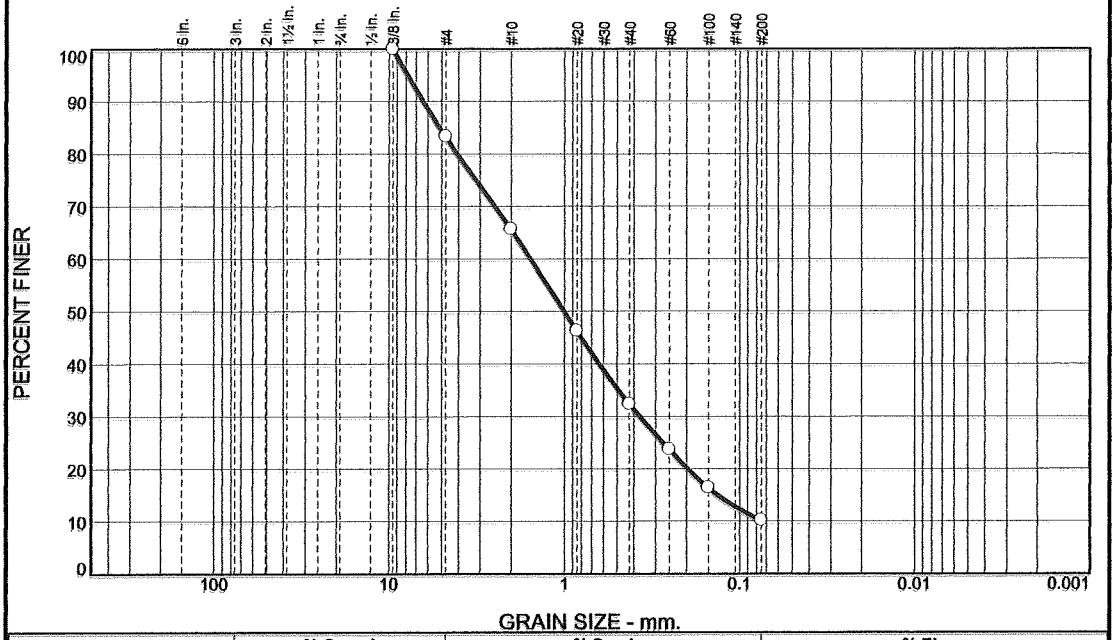
Organic content test was completed by JM on 04.19.21

Date Received: *04.15.21*

Reviewed By:

Date Reviewed: *04.22.21*

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	16.7	17.6	33.3	22.2	10.2	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.375"	100.0		
#4	83.3		
#10	65.7		
#20	46.3		
#40	32.4		
#60	23.7		
#100	16.4		
#200	10.2		

* (no specification provided)

Material Description

Dark Brown Organic poorly graded sand with silt and gravel

Atterberg Limits (ASTM D 4318)

PL= NP LL= NV PI= NP

Classification

USCS (D 2487)= SP-SM AASHTO (M 145)= A-1-b

Coefficients

D_{90}= 6.3519 D_{85}= 5.1258 D_{60}= 1.5481
D_{50}= 1.0030 D_{30}= 0.3704 D_{15}= 0.1328
D_{10}= C_u= C_c=

Remarks

Date Received: 04.15.21 **Date Tested:** 04.20.21

Tested By: JM

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Grab **Date Sampled:** 04.12.21
Sample Number: C1-Compost

Thielsch Engineering Inc.
Cranston, RI

Client: Bristol WPCF
Project: Compost Bi-Monthly
Bristol, RI
Project No: 21D0444

Figure 21D0444-01

April 22, 2021

THIELSCH ENGINEERING

ESS Laboratory
185 Frances Avenue
Cranston, RI 02910

Attn: Mr. Glenn Conway
P: (401) 253-8877
E: gconway@bristolri.gov

Re: Inerts & Sharps Testing
ESS Project No. 21D0444

Dear Mr. Conway:

TEI received a soil sample from ESS Laboratory on April 15, 2021. The sample was emptied onto an examining pad, separated by component, weighed and visually examined to determine the percent of foreign matter. Tests were performed under the guidance of ASTM D2488, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)".

Listed below are test results summarizing laboratory visual soil identification for percent Foreign Matter performed on ESS Sample No. 21D0444-01.

Total Dry Weight: 75.24g

Sample No.	% "Soil"	% Glass	% Plastic	% Fibers	% Metal
ESS #21D0444-01	99.6	0.0	0.32	0.08	0.0

Comments: None

If you have any questions, please contact me at (401) 467-6454 ext. 3924.

Sincerely,
THIELSCH ENGINEERING, INC.

Steven Accetta
Laboratory Coordinatior

Jessica McDaniel
Laboratory Technician

CTS

CHAIN OF CUSTODY

ESS Lab # 21D0444

Reporting Limits

Electronic Deliverables: ☐ Data Checker ☐ Excel ☐ Other (Please Specify -->)

Turn Time: 5 Days

Regulatory State

Is this project for any of the following?: ○ CT RCP ○ MA MCP ○ RCP

Laboratory
n of Thielsch Engineering, Inc.
nces Avenue, Cranston RI 02910
01) 461-7181 Fax (401) 461-4486
ssslaboratory.com

Company Name: Bristol WPCF
Contact Person: Glenn Conway
Project #:
Project Name: Compost Bi monthly
Address: 2 Plant Ave
City: Bristol
State: RI
Zip Code: 02809
PO #:
Telephone Number: 401-253-8877
FAX Number: 401-253-2910
Email Address: gconway@bristolri.gov

Lab	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Fecal Coliforms	Metals*	PCB(total)	Color	TOC, Ammonia Nitrogen	Conductivity, pH, Moisture Content	Total Nitrogen, Nitrate Nitrogen	Total Volume Solids	Salmonella (pathogens)	Organic matter	Rest. to organics, Retreating (above ambient)	% H2O Insoluble Nitrogen	% Foreign matter	Particle Size Distribution	Electrical Conductivity
	4-12-21	0800	Grab	Soil	C1-Compost	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	4-14-21	0800	Grab	Soil	C2- Compost	X														

Container Type: A-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
Number of Containers per Sample:

Laboratory Use Only
Color Present: yes ○ Drop Off
Seals Intact: ○ Pickup
Cooler Temperature: 3.8 °C Ice

Sampled by:

Comments: Please specify "Other" preservative and containers types in this space

*Metals = Al, B, Cd, Pb, Ni, Ag, Zn, Cu, Cr, Ba, Se, Mo, Hg, As

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
4-14-21 1145	4/14/21 11:05	4/14/21 16:47	4/15/21 11:47
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
4/15/21 1459	04/15/21 1455		

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

Shipped/Delivered Via: ESS Courier

ESS Project ID: 21D0444
Date Received: 4/14/2021
Project Due Date: 4/21/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 3.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? (Yes) / No / NA
10. Were any analyses received outside of hold time? Yes (No)

11. Any Subcontracting needed? (Yes) / No Summerville
    ESS Sample IDs: 1-2
    Analysis: Fecal Coliforms (1-2) + Particle Size (1)
    TAT: 5
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
    b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / (No)
    Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	153753	Yes	N/A	Yes	Plastic Baggie	NP	
1	153754	Yes	N/A	Yes	Plastic Baggie	NP	
1	154085	Yes	N/A	Yes	Plastic Baggie	NP	
2	153756	Yes	N/A	Yes	Plastic Baggie	NP	

2nd Review

Initials: TD

Were all containers scanned into storage/lab? (Yes) / No
Are barcode labels on correct containers? Yes / No / (NA)
Are all Flashpoint stickers attached/container ID # circled? Yes / No / (NA)
Are all Hex Chrome stickers attached? Yes / No / (NA)
Are all QC stickers attached? Yes / No / (NA)
Are VOA stickers attached if bubbles noted? Yes / No / (NA)

Completed By: Taylor Davis Date & Time: 4/14/21 1715
Reviewed By: [signature] Date & Time: 4/14/21 1730

CHAIN OF CUSTODY

Laboratory
of Thielsch Engineering, Inc.
ices Avenue, Cranston RI 02910
) 461-7181 Fax (401) 461-4486
laboratory.com

ESS Lab #: 21D0444
Reporting Limits:
Electronic Deliverables: ☐ Data Checker ☐ Excel ☐ Other (Please Specify →)

Turn Time: 5 Days			
Regulatory State: Is this project for any of the following?: ○ CT RCP ○ MA MCP ○ RGP			
Company Name: Bristol WPCF	Project #:	Project Name: Compost Bi monthly	
Contact Person: Glenn Conway		Address: 2 Plant Ave	
City: Bristol	State: RI	Zip Code: 02809	PO #:
Telephone Number: 401-253-6877	FAX Number: 401-253-2310	Email Address: gconway@bristolri.gov	

#	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Fecal Coliforms	Metals*	PCB(total)	Color	TOC, Ammonia Nitrogen	Conductivity, pH, Moisture Content	Total Nitrogen, Nitrate Nitrogen	Total Volume Solids	Salmonella (pathogens)	Organic matter	Red. in organics, Retesting (above emblem)	% H2O Insoluble Nitrogen	% Foreign matter	Particle Size Distribution	Electrical Conductivity
	4-12-21	0800	Grab	Soil	C1-Compost	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	4-14-21	0900	Grab	Soil	C2- Compost	X														

Container Type: A-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
Number of Containers per Sample:

Laboratory Use Only
ler Present: yes ○ Drop Off
als Intact: ○ Pickup
Temperature: 3B °C Ice

Sampled by:
Comments: Please specify "Other" preservative and containers types in this space
*Metals = Al, B, Cd, Pb, Ni, Ag, Zn, Cu, Cr, Ba,Se,Mo, Hg, As

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
4-14-21 1105	4/14/21 11:05	4/14/21 16:47	4/14/21 1647
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

FECAL COLIFORM

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Rick Ferreira
Town of Bristol - WPCF
2 Plant Avenue
Bristol, RI 02809

RE: Compost Sampling
ESS Laboratory Work Order Number: 21D0789

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

REVIEWED
By ESS Laboratory at 5:08 pm, Apr 29, 2021

ESS Laboratory Director

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration may be used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

Sample Receipt
The following sample(s) were received on April 22, 2021 for the analyses specified on the enclosed Chain of Custody Record.

LabNumber	ClientMatrix	SampleName
21D0789-01	Soil	C3-Compost
21D0789-02	Soil	C4-Compost
21D0789-03	Soil	C5-Compost

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0789

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0789

Microbiology

Client Sample ID: C3-Compost
Date Sampled: 04/16/21 08:00
Percent Solids: 69

ESS Laboratory Sample ID: 21D0789-01
Sample Matrix: Soil

Analyte	Results	Units	Method	Analyst	Analyzed
Fecal Coliform	< **3**	MPN/g dry	9221E	AJP	04/23/21 10:30

	%Recovery	Qualifier	Limits

Client Sample ID: C4-Compost
Date Sampled: 04/20/21 08:00
Percent Solids: 63

ESS Laboratory Sample ID: 21D0789-02
Sample Matrix: Soil

Analyte	Results	Units	Method	Analyst	Analyzed
Fecal Coliform	< **3**	MPN/g dry	9221E	AJP	04/23/21 10:30

	%Recovery	Qualifier	Limits

Client Sample ID: C5-Compost
Date Sampled: 04/22/21 08:00
Percent Solids: 65

ESS Laboratory Sample ID: 21D0789-03
Sample Matrix: Soil

Analyte	Results	Units	Method	Analyst	Analyzed
Fecal Coliform	< **3**	MPN/g dry	9221E	AJP	04/23/21 10:30

	%Recovery	Qualifier	Limits

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0789

Notes and Definitions

<	Less than the Method Detection Limit.
ND	Analyte NOT DETECTED above the detection limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too Numerous to Count

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21D0789

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

Shipped/Delivered Via: ESS Courier

ESS Project ID: 21D0789
Date Received: 4/22/2021
Project Due Date: 4/29/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? (Yes) / No / NA
10. Were any analyses received outside of hold time? Yes (No)

11. Any Subcontracting needed? (Yes) / No
    ESS Sample IDs: 1-3
    Analysis: Fecal Coliform
    TAT: 5
12. Were VOAs received? Yes (No)
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
    b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / (No)
    Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	157316	Yes	N/A	Yes	Plastic Baggie	NP	
2	157317	Yes	N/A	Yes	Plastic Baggie	NP	
3	157318	Yes	N/A	Yes	Plastic Baggie	NP	

2nd Review

Were all containers scanned into storage/lab? Initials _____ (Yes) / No
Are barcode labels on correct containers? Yes / No / NA
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Taylor Davis Date & Time: 4/22/21 1610
Reviewed By: _____ Date & Time: 4/26/21 1618

CHAIN OF CUSTODY

Laboratory
of Thielsch Engineering, Inc.
ces Avenue, Cranston RI 02910
) 461-7181 Fax (401) 461-4486
laboratory.com

ESS Lab #: 21D0789

Turn Time: 5 Days
Regulatory State
Is this project for any of the following?: ○ CT RCP ○ MA MCP ○ RGP
Reporting Limits
Electronic Deliverables: ☐ Data Checker ☐ Excel ☐ Other (Please Specify →)

Company Name: Bristol WPCF	Project #:
Project Name: Compost samples 3,4,5	
Contact Person: Glenn Conway	Address: 2 Plant Ave
City: Bristol	State: RI
Zip Code: 02809	PO #:
Telephone Number: 401-253-8877	FAX Number: 401-253-2910
Email Address: gconway@bristolri.gov	

Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: Fecal Coliforms
4-16-21	0800	Grab	Soil	C3-Compost	X
4-20-21	0800	Grab	Soil	C4-Compost	X
4-22-21	0800	Grab	Soil	C5-Compost	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
Number of Containers per Sample:

Laboratory Use Only
Cooler Present: Yes ○ Drop Off
Seals Intact: ○ Pickup
Temperature: 1.0 °C Ice

Sampled by:
Comments: Please specify "Other" preservative and containers types in this space
***** Please release Fecal Coliform results as they become available.

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
4-22-21 1118	4/22/21 11:18	4/22/21 16:12	4/22/21 1612
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

Bill Rabideau
Town of Bristol - WPCF
2 Plant Avenue
Bristol, RI 02809

RE: Compost Sampling (N/A)
ESS Laboratory Work Order Number: 21F0414

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:17 pm, Jun 22, 2021

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

Subcontracted Analyses

BAL Laboratory - Cranston, RI	Fecal Coliform

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21F0414

SAMPLE RECEIPT

The following samples were received on June 11, 2021 for the analyses specified on the enclosed Chain of Custody Record.

The samples and analyses listed below were analyzed in accordance with the Guidelines Establishing Test Procedures for the Analysis of Pollutants, 40 CFR Part 136, as amended.

Lab Number	Sample Name	Matrix	Analysis
21F0414-01	C1-Compost	Soil	%S, 9221E
21F0414-02	C1-Compost	Soil	%S, 9221E

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21F0414

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21F0414

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling
Client Sample ID: C1-Compost
Date Sampled: 06/09/21 08:00
Percent Solids: 64

ESS Laboratory Work Order: 21F0414
ESS Laboratory Sample ID: 21F0414-01
Sample Matrix: Soil

All methods used are in accordance with 40 CFR 136.

Microbiology

Analyte	Results (MRL)	MDL	Method	Limit	Analyst	Analyzed	Units
Fecal Coliform	<3 (N/A)		9221E		ARG	06/14/21 15:30	MPN/g dry
Percent Solids	64 (N/A)		%S		ARG	06/14/21 15:00	%

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling
Client Sample ID: C1-Compost
Date Sampled: 06/11/21 08:00
Percent Solids: 64

ESS Laboratory Work Order: 21F0414
ESS Laboratory Sample ID: 21F0414-02
Sample Matrix: Soil

All methods used are in accordance with 40 CFR 136.

Microbiology

Analyte	Results (MRL)	MDL	Method	Limit	Analyst	Analyzed	Units
Fecal Coliform	< 3 (N/A)		9221E		ARG	06/14/21 15:30	MPN/g dry
Percent Solids	64 (N/A)		%S		ARG	06/14/21 15:00	%

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21F0414

Notes and Definitions

<	Less than the Method Detection Limit.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21F0414

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

Shipped/Delivered Via: ESS Courier

ESS Project ID: 21F0414
Date Received: 6/11/2021
Project Due Date: 6/18/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.6 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) / No / NA
10. Were any analyses received outside of hold time? Yes (No)

11. Any Subcontracting needed? ~~Yes~~ / No
    ESS Sample IDs: 1
    Analysis: fecal
    TAT: std
12. Were VOAs received? Yes ~~No~~
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? ~~Yes~~ / No
    a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
    b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

Rec'd 3 bags labeled "6/11", no other info. COC = C1 compost collected 6/9 and C1 compost collected 6/11. Unclear how many samples. w/ 6/11

14. Was there a need to contact Project Manager? (Yes) / ~~No~~ w 6/11/21
    a. Was there a need to contact the client? Yes / No
    Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	175839	Yes	N/A	Yes	Other	NP	
1	176258	Yes	N/A	Yes	Other	NP	
1	176259	Yes	N/A	Yes	Other	NP	

2nd Review
Were all containers scanned into storage/lab? Initials _____
Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / ~~No~~ / NA
Are all Hex Chrome stickers attached? Yes / No / (NA)
Are all QC stickers attached? Yes / No / (NA)
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: _____ Date & Time: 6/11/21 1817
Reviewed By: _____ Date & Time: 6/14/21 1837

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

Shipped/Delivered Via: ESS Courier

ESS Project ID: 21F0414
Date Received: 6/11/2021
Project Due Date: 6/18/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.6 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) / No / NA
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? (Yes) / No
    ESS Sample IDs: **1-2**
    Analysis: **Fecal**
    TAT: **5 day**
12. Were VOAs received? Yes / (No)
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA
13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
    b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

Corrected samples

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / No
    Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	175839	Yes	N/A	Yes	Other	NP	
1	176258	Yes	N/A	Yes	Other	NP	
1	176259	Yes	N/A	Yes	Other	NP	
2	176295	Yes	N/A	Yes	Other	NP	
2	176296	Yes	N/A	Yes	Other	NP	
2	176297	Yes	N/A	Yes	Other	NP	

2nd Review

Were all containers scanned into storage/lab? Initials _____ Yes / No
Are barcode labels on correct containers? Yes / No / NA
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: _____ Date & Time: 6/11/21 1926

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

ESS Project ID: 21F0414
Date Received: 6/11/2021

Reviewed By: _____ Date & Time: _____

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 21F0414

Turn Time: 5 Days
Regulatory State:
Reporting Limits:

Is this project for any of the following?: ○ CT RCP ○ MA MCP ○ RGP

Electonic Deliverables: ☐ Data Checker ☐ Excel ☐ Other (Please Specify →)

Company Name	Project #	Project Name
Bristol WPCF		Compost samples 1-6

Contact Person	Address
Bill Rabideau	2 Plant Ave

City	State	Zip Code	PO #
Bristol	RI	02809	

Telephone Number	FAX Number	Email Address
401-253-8877	401-253-2910	billrab54@yahoo.com

Analysis

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Fecal Coliforms
01	6/9/2021	0800	Grab	Soil	C1-Compost	X
ZØ1	6/11/21	0800	Grab	Soil	C1-Compost	X
01			~~Grab~~	~~Soil~~	~~C1-Compost~~	~~X~~
			~~Grab~~	~~Soil~~	~~C1-Compost~~	~~X~~

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
Number of Containers per Sample:

Laboratory Use Only
Cooler Present: Yes ○ Drop Off
Seals Intact: ○ Pickup
Cooler Temperature: 1.6 °C

Sampled by : Bill Rabideau

Comments: Please specify "Other" preservative and containers types in this space

***** Please release Fecal Coliform results as they become available.

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
6-11-21 1105	6/11/21 11:05	6/11/21 18:05	6/11/21 18:05
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Glenn Conway
Town of Bristol - WPCF
2 Plant Avenue
Bristol, RI 02809

RE: Compost Sampling
ESS Laboratory Work Order Number: 21B0552

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

REVIEWED
By ESS Laboratory at 12:21 pm, Feb 25, 2021

ESS Laboratory Director

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration may be used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

Sample Receipt
The following sample(s) were received on February 18, 2021 for the analyses specified on the enclosed Chain of Custody Record.

LabNumber	ClientMatrix	SampleName
21B0552-01	Soil	C3-Compost
21B0552-02	Soil	C4-Compost
21B0552-03	Soil	C5-Compost

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0552

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling
Client Sample ID: C3-Compost
Date Sampled: 02/12/21 08:00
Percent Solids: 62

ESS Laboratory Work Order: 21B0552
ESS Laboratory Sample ID: 21B0552-01
Sample Matrix: Soil

Microbiology

Analyte		Results	Units	Method	Limit	Analyst	Analyzed
Fecal Coliform	<	**3**	MPN/g dry	9221E		AJP	02/18/21 17:45

	%Recovery	Qualifier	Limits

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling
Client Sample ID: C4-Compost
Date Sampled: 02/16/21 08:00
Percent Solids: 66

ESS Laboratory Work Order: 21B0552
ESS Laboratory Sample ID: 21B0552-02
Sample Matrix: Soil

Microbiology

Analyte		Results	Units	Method	Limit	Analyst	Analyzed
Fecal Coliform	<	**3**	MPN/g dry	9221E		AJP	02/18/21 17:45

	%Recovery	Qualifier	Limits

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling
Client Sample ID: C5-Compost
Date Sampled: 02/18/21 08:00
Percent Solids: 52

ESS Laboratory Work Order: 21B0552
ESS Laboratory Sample ID: 21B0552-03
Sample Matrix: Soil

Microbiology

Analyte		Results	Units	Method	Limit	Analyst	Analyzed
Fecal Coliform	<	**3**	MPN/g dry	9221E		AJP	02/18/21 17:45

	%Recovery	Qualifier	Limits

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0552

Notes and Definitions

<	Less than the Method Detection Limit.
ND	Analyte NOT DETECTED above the detection limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too Numerous to Count

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0552

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: A-179
http://www.health.ri.gov/labs/waterlabs-instate.php

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/out_state.pdf

Maine Potable and Non Potable Water: RI002
http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/labcert/labcert.aspx

New Hampshire (NELAP accredited)Potable and Non PotableWater, Solid and Hazardous Waste: 242405
http://www4.egov.nh.gov/des/nhelap/namesearch.asp

New York (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

United States Department of Agriculture Soil Permit: S-54210

Maryland Potable Water: 301
http://www.mde.state.md.us/assets/document/WSP_labs-2009apr20.pdf

South Carolina Volatile Organic Compounds in Potable Water: 78003

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)
http://www.A2LA.org/dirsearchnew/newsearch.cfm

CPSC ID# 1141
Lead Paint, Lead in Children's Metals Jewelry
http://www.cpsc.gov/cgi-bin/labapplist.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

Shipped/Delivered Via: ESS Courier

ESS Project ID: 21B0552
Date Received: 2/18/2021
Project Due Date: 2/25/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) No / NA
10. Were any analyses received outside of hold time? Yes (No)

11. Any Subcontracting needed? (Yes) / No
    ESS Sample IDs: 1-3
    Analysis: Fecal coliform
    TAT: 5 day
12. Were VOAs received? Yes / (No)
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	136826	Yes	N/A	Yes	Plastic Baggie	NP	
2	136827	Yes	N/A	Yes	Plastic Baggie	NP	
3	136828	Yes	N/A	Yes	Plastic Baggie	NP	

2nd Review
Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? (Yes) No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / (NA)
Are all Hex Chrome stickers attached? Yes / No / (NA)
Are all QC stickers attached? Yes / No / (NA)
Are VOA stickers attached if bubbles noted? Yes / No / (NA)

Completed By: Date & Time: 2/18/21 1610
Reviewed By: Date & Time: 2/18/21 16:34

BAL

D102197

CHAIN OF CUSTODY

ESS Laboratory
Division of Thielsch Engineering, Inc.
Frances Avenue, Cranston RI 02910
(401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

ESS Lab # 2180552

Turn Time: 5 Days
Regulatory State
Is this project for any of the following?: ○ CT RCP ○ MA MCP ○ RGP

Reporting Limits
Electonic Deliverables: ☐ Data Checker ☐ Excel ☐ Other (Please Specify →)

Company Name: Bristol WPCF
Project #:
Project Name: Compost samples 3,4,5
Contact Person: Glenn Conway
Address: 2 Plant Ave
City: Bristol
State: RI
Zip Code: 02809
PO #:
Telephone Number: 401-253-8877
FAX Number: 401-253-2910
Email Address: gconway@bristolri.gov

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: Fecal Coliforms
1	2-12-21	0800	Grab	Soil	C3-Compost	X
2	2-16-21	0800	Grab	Soil	C4-Compost	X
3	2-18-21	0800	Grab	Soil	C5-Compost	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
Number of Containers per Sample:

Laboratory Use Only
Cooler Present: Yes ○ Drop Off
Seals Intact: ○ Pickup
Cooler Temperature: 2.1 °C

Sampled by :
Comments: Please specify "Other" preservative and containers types in this space
***** Please release Fecal Coliform results as they become available.

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
2-18-21 1103	2-18-21 11:03	2/18/21 15:52	2/18/21 1552
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
2/18/21 1651	2/18/21 16:51		

Laboratory

of Thielsch Engineering, Inc.
nces Avenue, Cranston RI 02910
01) 461-7181 Fax (401) 461-4486
slaboratory.com

CHAIN OF CUSTODY

ESS Lab #: 21B0552

Turn Time: 5 Days

Regulatory State:

Is this project for any of the following?: ○ CT RCP ○ MA MCP ○ RGP

Reporting Limits:

Electronic Deliverables: ☐ Data Checker ☐ Excel ☐ Other (Please Specify →)

Company Name	Project #	Project Name
Bristol WPCF		Compost samples 3,4,5

Contact Person	Address
Glenn Conway	2 Plant Ave

City	State	Zip Code	PO #
Bristol	RI	02809	

Telephone Number	FAX Number	Email Address
401-253-8877	401-253-2810	gconway@bristolri.gov

Lab	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: Fecal Coliforms
	2-12-21	0800	Grab	Soil	C3-Compost	X
	2-16-21	0800	Grab	Soil	C4-Compost	X
	2-16-21	0800	Grab	Soil	C5-Compost	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

Number of Containers per Sample:

Laboratory Use Only

Cooler Present: Yes ○ Drop Off

Seals Intact: ○ Pickup

Cooler Temperature: 2.1 °C

Sampled by:

Comments: Please specify "Other" preservative and containers types in this space

***** Please release Fecal Coliform results as they become available.

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
2-18-21 1103	2-18-21 11:03	2/18/21 15:02	2/18/21 1502
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

ATTACHMENT 2
Compost Analysis
PFAS Compounds

CERTIFICATE OF ANALYSIS

Glenn Conway
Town of Bristol - WPCF
2 Plant Avenue
Bristol, RI 02809

RE: Compost Sampling
ESS Laboratory Work Order Number: 21B0309

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

REVIEWED
By ESS Laboratory at 12:15 pm, Feb 23, 2021

ESS Laboratory Director

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration may be used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

Sample Receipt
The following sample(s) were received on February 10, 2021 for the analyses specified on the enclosed Chain of Custody Record.

LabNumber	ClientMatrix	SampleName
21B0309-01	Soil	P-1 PFAS Compost

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0309

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0309

Subcontracted Analysis

Client Sample ID: P-1 PFAS Compost
Date Sampled: 02/10/21 08:00

ESS Laboratory Sample ID: 21B0309-01
Sample Matrix: Soil

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
PFAS	**See Attached**								

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0309

Notes and Definitions

Z-08	See Attached
ND	Analyte NOT DETECTED above the detection limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too Numerous to Count

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 21B0309

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

Your P.O. #: B03062
Your Project #: 21B0309
Your C.O.C. #: na

Attention: Shawn Morrell

ESS Laboratory
185 Frances Ave
Cranston, RI
USA 02910

Report Date: 2021/02/19
Report #: R6525399
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C137830
Received: 2021/02/11, 14:26

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Moisture	1	N/A	2021/02/12	CAM SOP-00445	Carter 2nd ed 51.2 m
PFAS in soil by SPE/LCMS (1)	1	2021/02/18	2021/02/19	CAM SOP-00894	ASTM D7968-17a m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Per- and polyfluoroalkyl substances (PFAS) identified as surrogates on the certificate of analysis represent the extracted internal standard.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

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Your P.O. #: B03062
Your Project #: 21B0309
Your C.O.C. #: na

Attention: Shawn Morrell

ESS Laboratory
185 Frances Ave
Cranston, RI
USA 02910

Report Date: 2021/02/19
Report #: R6525399
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C137830
Received: 2021/02/11, 14:26

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Lori Dufour, Project Manager
Email: Lori.Dufour@bureauveritas.com
Phone# (905) 817-5700
==========
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BV Labs Job #: C137830
Report Date: 2021/02/19

ESS Laboratory
Client Project #: 21B0309
Your P.O. #: B03062

RESULTS OF ANALYSES OF SOIL

BV Labs ID		OVC670			
Sampling Date		2021/02/10 08:00			
COC Number		na			
	UNITS	21B0309-01	RDL	MDL	QC Batch
Inorganics					
Moisture	%	35	1.0	0.50	7198072

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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PERFLUOROALKYL SUBSTANCES (SOIL)

BV Labs ID		OVC670			
Sampling Date		2021/02/10 08:00			
COC Number		na			
	UNITS	21B0309-01	RDL	MDL	QC Batch
Perfluorinated Compounds					
Perfluorobutanoic acid (PFBA)	ug/kg	0.54 J	2.0	0.48	7207168
Perfluoropentanoic acid (PFPeA)	ug/kg	1.7 J	2.0	0.46	7207168
Perfluorohexanoic acid (PFHxA)	ug/kg	6.2	2.0	0.32	7207168
Perfluoroheptanoic acid (PFHpA)	ug/kg	0.35 J	2.0	0.34	7207168
Perfluorooctanoic acid (PFOA)	ug/kg	3.6	2.0	0.40	7207168
Perfluorononanoic acid (PFNA)	ug/kg	0.54 U	2.0	0.54	7207168
Perfluorodecanoic acid (PFDA)	ug/kg	1.9 J	2.0	0.48	7207168
Perfluoroundecanoic acid (PFUnA)	ug/kg	0.50 U	2.0	0.50	7207168
Perfluorododecanoic acid (PFDoA)	ug/kg	0.61 J	2.0	0.38	7207168
Perfluorotridecanoic acid (PFTRDA)	ug/kg	0.44 U	2.0	0.44	7207168
Perfluorobutanesulfonic acid (PFBS)	ug/kg	1.1 J	2.0	0.34	7207168
Perfluoropentanesulfonic acid PFPes	ug/kg	0.52 U	2.0	0.52	7207168
Perfluorohexanesulfonic acid(PFHxS)	ug/kg	0.60 U	2.0	0.60	7207168
Perfluorooctanesulfonic acid (PFOS)	ug/kg	0.54 U	2.0	0.54	7207168
Perfluorononanesulfonic acid (PFNS)	ug/kg	0.48 U	2.0	0.48	7207168
Perfluorodecanesulfonic acid (PFDS)	ug/kg	0.54 U	2.0	0.54	7207168
Surrogate Recovery (%)					
13C2-Perfluorodecanoic acid	%	82	N/A	N/A	7207168
13C2-Perfluorododecanoic acid	%	62	N/A	N/A	7207168
13C2-Perfluorohexanoic acid	%	91	N/A	N/A	7207168
13C2-Perfluoroundecanoic acid	%	80	N/A	N/A	7207168
13C3-Perfluorobutanesulfonic acid	%	92	N/A	N/A	7207168
13C4-Perfluorobutanoic acid	%	88	N/A	N/A	7207168
13C4-Perfluoroheptanoic acid	%	100	N/A	N/A	7207168
13C4-Perfluorooctanesulfonic acid	%	92	N/A	N/A	7207168
13C4-Perfluorooctanoic acid	%	95	N/A	N/A	7207168
13C5-Perfluorononanoic acid	%	47 (1)	N/A	N/A	7207168
13C5-Perfluoropentanoic acid	%	85	N/A	N/A	7207168

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Extracted internal standard analyte recovery was below the defined lower control limit (LCL). Laboratory spiked soil resulted in satisfactory recovery of the extracted internal standard analyte. When considered together, these QC data suggest that matrix interferences may be biasing the data low for the associated native analytes (PFNA, PFNS).

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PERFLUOROALKYL SUBSTANCES (SOIL)

BV Labs ID		OVC670			
Sampling Date		2021/02/10 08:00			
COC Number		na			
	UNITS	21B0309-01	RDL	MDL	QC Batch
18O2-Perfluorohexanesulfonic acid	%	99	N/A	N/A	7207168

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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TEST SUMMARY

BV Labs ID: OVC670
Sample ID: 21B0309-01
Matrix: Soil

Collected: 2021/02/10
Shipped:
Received: 2021/02/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	7198072	N/A	2021/02/12	Kruti Jitesh Patel
PFAS in soil by SPE/LCMS	LCMS	7207168	2021/02/18	2021/02/19	Patrick Yu Peng Li

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GENERAL COMMENTS

Sample OVC670 [21B0309-01] : Per- and polyfluoroalkyl substances (PFAS): Detection limits were adjusted for high moisture content.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
7198072	GYA	RPD - Sample/Sample Dup	Moisture	2021/02/12	2.0		%	20
7207168	YPL	Matrix Spike	13C2-Perfluorodecanoic acid	2021/02/19		96	%	50 - 150
			13C2-Perfluorododecanoic acid	2021/02/19		89	%	50 - 150
			13C2-Perfluorohexanoic acid	2021/02/19		103	%	50 - 150
			13C2-Perfluoroundecanoic acid	2021/02/19		95	%	50 - 150
			13C3-Perfluorobutanesulfonic acid	2021/02/19		98	%	50 - 150
			13C4-Perfluorobutanoic acid	2021/02/19		103	%	50 - 150
			13C4-Perfluoroheptanoic acid	2021/02/19		103	%	50 - 150
			13C4-Perfluorooctanesulfonic acid	2021/02/19		97	%	50 - 150
			13C4-Perfluorooctanoic acid	2021/02/19		102	%	50 - 150
			13C5-Perfluorononanoic acid	2021/02/19		97	%	50 - 150
			13C5-Perfluoropentanoic acid	2021/02/19		102	%	50 - 150
			18O2-Perfluorohexanesulfonic acid	2021/02/19		106	%	50 - 150
			Perfluorobutanoic acid (PFBA)	2021/02/19		96	%	70 - 130
			Perfluoropentanoic acid (PFPeA)	2021/02/19		98	%	70 - 130
			Perfluorohexanoic acid (PFHxA)	2021/02/19		99	%	70 - 130
			Perfluoroheptanoic acid (PFHpA)	2021/02/19		101	%	70 - 130
			Perfluorooctanoic acid (PFOA)	2021/02/19		98	%	70 - 130
			Perfluorononanoic acid (PFNA)	2021/02/19		100	%	70 - 130
			Perfluorodecanoic acid (PFDA)	2021/02/19		100	%	70 - 130
			Perfluoroundecanoic acid (PFUnA)	2021/02/19		100	%	70 - 130
			Perfluorododecanoic acid (PFDoA)	2021/02/19		101	%	70 - 130
			Perfluorotridecanoic acid (PFTRDA)	2021/02/19		99	%	70 - 130
			Perfluorobutanesulfonic acid (PFBS)	2021/02/19		99	%	70 - 130
			Perfluoropentanesulfonic acid PFPes	2021/02/19		103	%	70 - 130
			Perfluorohexanesulfonic acid(PFHxS)	2021/02/19		95	%	70 - 130
			Perfluorooctanesulfonic acid (PFOS)	2021/02/19		134 (1)	%	70 - 130
			Perfluorononanesulfonic acid (PFNS)	2021/02/19		96	%	70 - 130
			Perfluorodecanesulfonic acid (PFDS)	2021/02/19		96	%	70 - 130
7207168	YPL	Spiked Blank	13C2-Perfluorodecanoic acid	2021/02/19		93	%	50 - 150
			13C2-Perfluorododecanoic acid	2021/02/19		88	%	50 - 150
			13C2-Perfluorohexanoic acid	2021/02/19		101	%	50 - 150
			13C2-Perfluoroundecanoic acid	2021/02/19		93	%	50 - 150
			13C3-Perfluorobutanesulfonic acid	2021/02/19		96	%	50 - 150
			13C4-Perfluorobutanoic acid	2021/02/19		100	%	50 - 150
			13C4-Perfluoroheptanoic acid	2021/02/19		105	%	50 - 150
			13C4-Perfluorooctanesulfonic acid	2021/02/19		100	%	50 - 150
			13C4-Perfluorooctanoic acid	2021/02/19		102	%	50 - 150
			13C5-Perfluorononanoic acid	2021/02/19		100	%	50 - 150
			13C5-Perfluoropentanoic acid	2021/02/19		101	%	50 - 150
			18O2-Perfluorohexanesulfonic acid	2021/02/19		101	%	50 - 150
			Perfluorobutanoic acid (PFBA)	2021/02/19		105	%	70 - 130
			Perfluoropentanoic acid (PFPeA)	2021/02/19		104	%	70 - 130
			Perfluorohexanoic acid (PFHxA)	2021/02/19		106	%	70 - 130
			Perfluoroheptanoic acid (PFHpA)	2021/02/19		104	%	70 - 130
			Perfluorooctanoic acid (PFOA)	2021/02/19		103	%	70 - 130
			Perfluorononanoic acid (PFNA)	2021/02/19		105	%	70 - 130
			Perfluorodecanoic acid (PFDA)	2021/02/19		110	%	70 - 130
			Perfluoroundecanoic acid (PFUnA)	2021/02/19		107	%	70 - 130
			Perfluorododecanoic acid (PFDoA)	2021/02/19		106	%	70 - 130
			Perfluorotridecanoic acid (PFTRDA)	2021/02/19		108	%	70 - 130
			Perfluorobutanesulfonic acid (PFBS)	2021/02/19		106	%	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Perfluoropentanesulfonic acid PFPes	2021/02/19		109	%	70 - 130
			Perfluorohexanesulfonic acid(PFHxS)	2021/02/19		105	%	70 - 130
			Perfluorooctanesulfonic acid (PFOS)	2021/02/19		105	%	70 - 130
			Perfluorononanesulfonic acid (PFNS)	2021/02/19		102	%	70 - 130
			Perfluorodecanesulfonic acid (PFDS)	2021/02/19		100	%	70 - 130
7207168	YPL	Method Blank	13C2-Perfluorodecanoic acid	2021/02/19		89	%	50 - 150
			13C2-Perfluorododecanoic acid	2021/02/19		82	%	50 - 150
			13C2-Perfluorohexanoic acid	2021/02/19		96	%	50 - 150
			13C2-Perfluoroundecanoic acid	2021/02/19		88	%	50 - 150
			13C3-Perfluorobutanesulfonic acid	2021/02/19		86	%	50 - 150
			13C4-Perfluorobutanoic acid	2021/02/19		90	%	50 - 150
			13C4-Perfluoroheptanoic acid	2021/02/19		96	%	50 - 150
			13C4-Perfluorooctanesulfonic acid	2021/02/19		92	%	50 - 150
			13C4-Perfluorooctanoic acid	2021/02/19		94	%	50 - 150
			13C5-Perfluorononanoic acid	2021/02/19		90	%	50 - 150
			13C5-Perfluoropentanoic acid	2021/02/19		91	%	50 - 150
			18O2-Perfluorohexanesulfonic acid	2021/02/19		97	%	50 - 150
			Perfluorobutanoic acid (PFBA)	2021/02/19	0.24 U, MDL=0.24		ug/kg	
			Perfluoropentanoic acid (PFPeA)	2021/02/19	0.23 U, MDL=0.23		ug/kg	
			Perfluorohexanoic acid (PFHxA)	2021/02/19	0.16 U, MDL=0.16		ug/kg	
			Perfluoroheptanoic acid (PFHpA)	2021/02/19	0.17 U, MDL=0.17		ug/kg	
			Perfluorooctanoic acid (PFOA)	2021/02/19	0.20 U, MDL=0.20		ug/kg	
			Perfluorononanoic acid (PFNA)	2021/02/19	0.27 U, MDL=0.27		ug/kg	
			Perfluorodecanoic acid (PFDA)	2021/02/19	0.24 U, MDL=0.24		ug/kg	
			Perfluoroundecanoic acid (PFUnA)	2021/02/19	0.25 U, MDL=0.25		ug/kg	
			Perfluorododecanoic acid (PFDoA)	2021/02/19	0.19 U, MDL=0.19		ug/kg	
			Perfluorotridecanoic acid (PFTRDA)	2021/02/19	0.22 U, MDL=0.22		ug/kg	
			Perfluorobutanesulfonic acid (PFBS)	2021/02/19	0.17 U, MDL=0.17		ug/kg	
			Perfluoropentanesulfonic acid PFPes	2021/02/19	0.26 U, MDL=0.26		ug/kg	
			Perfluorohexanesulfonic acid(PFHxS)	2021/02/19	0.30 U, MDL=0.30		ug/kg	
			Perfluorooctanesulfonic acid (PFOS)	2021/02/19	0.27 U, MDL=0.27		ug/kg	
			Perfluorononanesulfonic acid (PFNS)	2021/02/19	0.24 U, MDL=0.24		ug/kg	
			Perfluorodecanesulfonic acid (PFDS)	2021/02/19	0.27 U, MDL=0.27		ug/kg	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
7207168	YPL	RPD - Sample/Sample Dup	Perfluorobutanoic acid (PFBA)	2021/02/19	NC		%	30

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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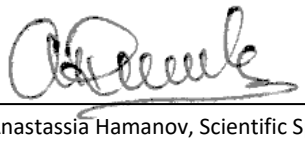
BV Labs Job #: C137830
Report Date: 2021/02/19

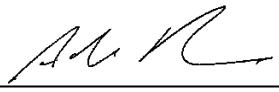
ESS Laboratory
Client Project #: 21B0309
Your P.O. #: B03062

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Anastassia Hamanov, Scientific Specialist



Adam Robinson, Supervisor, LC/MS/MS

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ESS Laboratory Sample and Cooler Receipt Checklist

Client: Bristol WPCF - NETL

Shipped/Delivered Via: ESS Courier

ESS Project ID: 21B0309
Date Received: 2/10/2021
Project Due Date: 2/18/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / (NA)
10. Were any analyses received outside of hold time? (Yes) / No

11. Any Subcontracting needed? (Yes) / No
    ESS Sample IDs:
    Analysis: PEAS
    TAT: 5D
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / (NA)
13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: ____ Time: ____ By: ____
    b. Low Level VOA vials frozen: Date: ____ Time: ____ By: ____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / (No)
    Who was contacted: ____ Date: ____ Time: ____ By: ____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	134968	Yes	N/A	Yes	Other Poly	NP	

2nd Review
Were all containers scanned into storage/lab? Initials ____ (Yes) / No
Are barcode labels on correct containers? Yes / No / NA
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: ____ Date & Time: 2/10/21 1232
Reviewed By: Caroline Gerber Date & Time: 2/10/21 12:42

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 21B0309

Turn Time	5	Days
Regulatory State		
Is this project for any of the following?:	◯ CT RCP ◯ MA MCP ◯ RGP	
Reporting Limits		
Electonic Deliverables	☐ Data Checker ☐ Excel ☐ Other (Please Specify →)	

Company Name: Bristol WPCF	Project #:	Project Name: PFAS Compost	
Contact Person: Glenn Conway		Address: 2 Plant Ave	
City: Bristol	State: RI	Zip Code: 02809	PO #:
Telephone Number: 401-253-6877	FAX Number: 401-253-2910	Email Address: gconway@bristolri.gov	

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PFAS
	2-10-21	0800	Grab	Soil	P-1 PFAS Compost	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial — O

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

Number of Containers per Sample:

Laboratory Use Only

Cooler Present: ✓ ◯ Drop Off
Seals Intact: N/A ☒ Pickup
Cooler Temperature: 3.5 °C FedEx

Sampled by :

Comments: PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUnA, PFDoA, PFTrDA, PFBS, PFPeS, PFHxS, PFOS, PFNS, PFDS

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
2-10-21 0925	2/10/21 0925	2/10/21 1034	2/10/21 1034
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

Glenn Conway
Town of Bristol - WPCF
2 Plant Avenue
Bristol, RI 02809

RE: Compost Sampling
ESS Laboratory Work Order Number: 20J0406

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

ESS Laboratory Director

REVIEWED
By ESS Laboratory at 2:09 pm, Oct 29, 2020

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration may be used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

Sample Receipt
The following sample(s) were received on October 14, 2020 for the analyses specified on the enclosed Chain of Custody Record.

LabNumber	ClientMatrix	SampleName
20J0406-01	Soil	P-1 PFAS Compost

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 20J0406

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 20J0406

Subcontracted Analysis

Client Sample ID: P-1 PFAS Compost
Date Sampled: 10/14/20 08:00

ESS Laboratory Sample ID: 20J0406-01
Sample Matrix: Soil

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed	I/V	F/V
PFAS	**See Attached**								

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 20J0406

Notes and Definitions

Z-08	See Attached
ND	Analyte NOT DETECTED above the detection limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too Numerous to Count

CERTIFICATE OF ANALYSIS

Client Name: Town of Bristol - WPCF
Client Project ID: Compost Sampling

ESS Laboratory Work Order: 20J0406

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

Your P.O. #: B03062
Your Project #: 20J0406
Your C.O.C. #: na

Attention: Shawn Morrell

ESS Laboratory
185 Frances Ave
Cranston, RI
USA 02910

Report Date: 2020/10/26
Report #: R6384494
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0R4004
Received: 2020/10/16, 13:00

Sample Matrix: Solid
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Moisture	1	N/A	2020/10/20	CAM SOP-00445	Carter 2nd ed 51.2 m
PFAS in soil by SPE/LCMS (1)	1	2020/10/22	2020/10/23	CAM SOP-00894	ASTM D7968-17a m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Per- and polyfluoroalkyl substances (PFAS) identified as surrogates on the certificate of analysis represent the extracted internal standard.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

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Your P.O. #: B03062
Your Project #: 20J0406
Your C.O.C. #: na

Attention: Shawn Morrell

ESS Laboratory
185 Frances Ave
Cranston, RI
USA 02910

Report Date: 2020/10/26
Report #: R6384494
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0R4004
Received: 2020/10/16, 13:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Lori Dufour, Project Manager
Email: Lori.Dufour@bvlabs.com
Phone# (905) 817-5700

==========

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BV Labs Job #: C0R4004
Report Date: 2020/10/26

ESS Laboratory
Client Project #: 20J0406
Your P.O. #: B03062

RESULTS OF ANALYSES OF SOLID

BV Labs ID		NXR171			
Sampling Date		2020/10/14 08:00			
COC Number		na			
	UNITS	20J0406-01	RDL	MDL	QC Batch
Inorganics					
Moisture	%	33	1.0	0.50	7009965

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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PERFLUOROALKYL SUBSTANCES (SOLID)

BV Labs ID		NXR171			
Sampling Date		2020/10/14 08:00			
COC Number		na			
	UNITS	20J0406-01	RDL	MDL	QC Batch
Perfluorinated Compounds					
Perfluorobutanoic acid (PFBA)	ug/kg	0.59 J	2.0	0.48	7015576
Perfluoropentanoic acid (PFPeA)	ug/kg	0.64 J	2.0	0.46	7015576
Perfluorohexanoic acid (PFHxA)	ug/kg	5.0	2.0	0.32	7015576
Perfluoroheptanoic acid (PFHpA)	ug/kg	0.65 J	2.0	0.34	7015576
Perfluorooctanoic acid (PFOA)	ug/kg	2.5	2.0	0.40	7015576
Perfluorononanoic acid (PFNA)	ug/kg	0.54 U	2.0	0.54	7015576
Perfluorodecanoic acid (PFDA)	ug/kg	1.7 J	2.0	0.48	7015576
Perfluoroundecanoic acid (PFUnA)	ug/kg	0.62 J	2.0	0.50	7015576
Perfluorododecanoic acid (PFDoA)	ug/kg	0.90 J	2.0	0.38	7015576
Perfluorotridecanoic acid (PFTRDA)	ug/kg	0.44 U	2.0	0.44	7015576
Perfluorobutanesulfonic acid (PFBS)	ug/kg	0.61 J	2.0	0.34	7015576
Perfluoropentanesulfonic acid PFPes	ug/kg	1.0 J	2.0	0.52	7015576
Perfluorohexanesulfonic acid(PFHxS)	ug/kg	1.3 J	2.0	0.60	7015576
Perfluorooctanesulfonic acid (PFOS)	ug/kg	2.1	2.0	0.54	7015576
Perfluorononanesulfonic acid (PFNS)	ug/kg	0.48 U	2.0	0.48	7015576
Perfluorodecanesulfonic acid (PFDS)	ug/kg	0.54 U	2.0	0.54	7015576
Surrogate Recovery (%)					
13C2-Perfluorodecanoic acid	%	59	N/A	N/A	7015576
13C2-Perfluorododecanoic acid	%	52	N/A	N/A	7015576
13C2-Perfluorohexanoic acid	%	77	N/A	N/A	7015576
13C3-Perfluorobutanesulfonic acid	%	75	N/A	N/A	7015576
13C4-Perfluorobutanoic acid	%	45 (1)	N/A	N/A	7015576
13C4-Perfluoroheptanoic acid	%	82	N/A	N/A	7015576
13C4-Perfluorooctanesulfonic acid	%	69	N/A	N/A	7015576
13C4-Perfluorooctanoic acid	%	66	N/A	N/A	7015576
13C5-Perfluorononanoic acid	%	55	N/A	N/A	7015576
13C5-Perfluoropentanoic acid	%	59	N/A	N/A	7015576
18O2-Perfluorohexanesulfonic acid	%	92	N/A	N/A	7015576

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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TEST SUMMARY

BV Labs ID: NXR171
Sample ID: 20J0406-01
Matrix: Solid

Collected: 2020/10/14
Shipped:
Received: 2020/10/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	7009965	N/A	2020/10/20	Prgya Panchal
PFAS in soil by SPE/LCMS	LCMS	7015576	2020/10/22	2020/10/23	Patrick Yu Peng Li

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GENERAL COMMENTS

Sample NXR171 [20J0406-01] : Per- and polyfluoroalkyl substances (PFAS): Detection limits were adjusted for high moisture content.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
7009965	CPS	RPD - Sample/Sample Dup	Moisture	2020/10/20	0		%	20
7015576	YPL	Matrix Spike	13C2-Perfluorodecanoic acid	2020/10/23		93	%	50 - 150
			13C2-Perfluorododecanoic acid	2020/10/23		89	%	50 - 150
			13C2-Perfluorohexanoic acid	2020/10/23		91	%	50 - 150
			13C3-Perfluorobutanesulfonic acid	2020/10/23		88	%	50 - 150
			13C4-Perfluorobutanoic acid	2020/10/23		96	%	50 - 150
			13C4-Perfluoroheptanoic acid	2020/10/23		94	%	50 - 150
			13C4-Perfluorooctanesulfonic acid	2020/10/23		87	%	50 - 150
			13C4-Perfluorooctanoic acid	2020/10/23		94	%	50 - 150
			13C5-Perfluorononanoic acid	2020/10/23		93	%	50 - 150
			13C5-Perfluoropentanoic acid	2020/10/23		90	%	50 - 150
			18O2-Perfluorohexanesulfonic acid	2020/10/23		92	%	50 - 150
			Perfluorobutanoic acid (PFBA)	2020/10/23		86	%	70 - 130
			Perfluoropentanoic acid (PFPeA)	2020/10/23		89	%	70 - 130
			Perfluorohexanoic acid (PFHxA)	2020/10/23		96	%	70 - 130
			Perfluoroheptanoic acid (PFHpA)	2020/10/23		96	%	70 - 130
			Perfluorooctanoic acid (PFOA)	2020/10/23		88	%	70 - 130
			Perfluorononanoic acid (PFNA)	2020/10/23		97	%	70 - 130
			Perfluorodecanoic acid (PFDA)	2020/10/23		97	%	70 - 130
			Perfluoroundecanoic acid (PFUnA)	2020/10/23		96	%	70 - 130
			Perfluorododecanoic acid (PFDoA)	2020/10/23		97	%	70 - 130
			Perfluorotridecanoic acid (PFTRDA)	2020/10/23		100	%	70 - 130
			Perfluorobutanesulfonic acid (PFBS)	2020/10/23		99	%	70 - 130
			Perfluoropentanesulfonic acid PFPes	2020/10/23		97	%	70 - 130
			Perfluorohexanesulfonic acid(PFHxS)	2020/10/23		97	%	70 - 130
			Perfluorooctanesulfonic acid (PFOS)	2020/10/23		31 (1)	%	70 - 130
			Perfluorononanesulfonic acid (PFNS)	2020/10/23		98	%	70 - 130
			Perfluorodecanesulfonic acid (PFDS)	2020/10/23		86	%	70 - 130
7015576	YPL	Spiked Blank	13C2-Perfluorodecanoic acid	2020/10/23		92	%	50 - 150
			13C2-Perfluorododecanoic acid	2020/10/23		80	%	50 - 150
			13C2-Perfluorohexanoic acid	2020/10/23		94	%	50 - 150
			13C3-Perfluorobutanesulfonic acid	2020/10/23		88	%	50 - 150
			13C4-Perfluorobutanoic acid	2020/10/23		99	%	50 - 150
			13C4-Perfluoroheptanoic acid	2020/10/23		94	%	50 - 150
			13C4-Perfluorooctanesulfonic acid	2020/10/23		90	%	50 - 150
			13C4-Perfluorooctanoic acid	2020/10/23		93	%	50 - 150
			13C5-Perfluorononanoic acid	2020/10/23		93	%	50 - 150
			13C5-Perfluoropentanoic acid	2020/10/23		91	%	50 - 150
			18O2-Perfluorohexanesulfonic acid	2020/10/23		96	%	50 - 150
			Perfluorobutanoic acid (PFBA)	2020/10/23		95	%	70 - 130
			Perfluoropentanoic acid (PFPeA)	2020/10/23		99	%	70 - 130
			Perfluorohexanoic acid (PFHxA)	2020/10/23		99	%	70 - 130
			Perfluoroheptanoic acid (PFHpA)	2020/10/23		100	%	70 - 130
			Perfluorooctanoic acid (PFOA)	2020/10/23		96	%	70 - 130
			Perfluorononanoic acid (PFNA)	2020/10/23		100	%	70 - 130
			Perfluorodecanoic acid (PFDA)	2020/10/23		98	%	70 - 130
			Perfluoroundecanoic acid (PFUnA)	2020/10/23		96	%	70 - 130
			Perfluorododecanoic acid (PFDoA)	2020/10/23		100	%	70 - 130
			Perfluorotridecanoic acid (PFTRDA)	2020/10/23		94	%	70 - 130
			Perfluorobutanesulfonic acid (PFBS)	2020/10/23		104	%	70 - 130
			Perfluoropentanesulfonic acid PFPes	2020/10/23		100	%	70 - 130
			Perfluorohexanesulfonic acid(PFHxS)	2020/10/23		96	%	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Perfluorooctanesulfonic acid (PFOS)	2020/10/23		104	%	70 - 130
			Perfluorononanesulfonic acid (PFNS)	2020/10/23		94	%	70 - 130
			Perfluorodecanesulfonic acid (PFDS)	2020/10/23		81	%	70 - 130
7015576	YPL	Method Blank	13C2-Perfluorodecanoic acid	2020/10/23		90	%	50 - 150
			13C2-Perfluorododecanoic acid	2020/10/23		86	%	50 - 150
			13C2-Perfluorohexanoic acid	2020/10/23		94	%	50 - 150
			13C3-Perfluorobutanesulfonic acid	2020/10/23		88	%	50 - 150
			13C4-Perfluorobutanoic acid	2020/10/23		99	%	50 - 150
			13C4-Perfluoroheptanoic acid	2020/10/23		93	%	50 - 150
			13C4-Perfluorooctanesulfonic acid	2020/10/23		88	%	50 - 150
			13C4-Perfluorooctanoic acid	2020/10/23		93	%	50 - 150
			13C5-Perfluorononanoic acid	2020/10/23		93	%	50 - 150
			13C5-Perfluoropentanoic acid	2020/10/23		91	%	50 - 150
			18O2-Perfluorohexanesulfonic acid	2020/10/23		92	%	50 - 150
			Perfluorobutanoic acid (PFBA)	2020/10/23	0.24 U, MDL=0.24		ug/kg	
			Perfluoropentanoic acid (PFPeA)	2020/10/23	0.23 U, MDL=0.23		ug/kg	
			Perfluorohexanoic acid (PFHxA)	2020/10/23	0.16 U, MDL=0.16		ug/kg	
			Perfluoroheptanoic acid (PFHpA)	2020/10/23	0.17 U, MDL=0.17		ug/kg	
			Perfluorooctanoic acid (PFOA)	2020/10/23	0.20 U, MDL=0.20		ug/kg	
			Perfluorononanoic acid (PFNA)	2020/10/23	0.27 U, MDL=0.27		ug/kg	
			Perfluorodecanoic acid (PFDA)	2020/10/23	0.24 U, MDL=0.24		ug/kg	
			Perfluoroundecanoic acid (PFUnA)	2020/10/23	0.25 U, MDL=0.25		ug/kg	
			Perfluorododecanoic acid (PFDoA)	2020/10/23	0.19 U, MDL=0.19		ug/kg	
			Perfluorotridecanoic acid (PFTRDA)	2020/10/23	0.22 U, MDL=0.22		ug/kg	
			Perfluorobutanesulfonic acid (PFBS)	2020/10/23	0.17 U, MDL=0.17		ug/kg	
			Perfluoropentanesulfonic acid PFPes	2020/10/23	0.26 U, MDL=0.26		ug/kg	
			Perfluorohexanesulfonic acid(PFHxS)	2020/10/23	0.30 U, MDL=0.30		ug/kg	
			Perfluorooctanesulfonic acid (PFOS)	2020/10/23	0.27 U, MDL=0.27		ug/kg	
			Perfluorononanesulfonic acid (PFNS)	2020/10/23	0.24 U, MDL=0.24		ug/kg	
			Perfluorodecanesulfonic acid (PFDS)	2020/10/23	0.27 U, MDL=0.27		ug/kg	
7015576	YPL	RPD - Sample/Sample Dup	Perfluorobutanoic acid (PFBA)	2020/10/23	2.6		%	30
			Perfluoropentanoic acid (PFPeA)	2020/10/23	13		%	30
			Perfluorohexanoic acid (PFHxA)	2020/10/23	4.7		%	30
			Perfluoroheptanoic acid (PFHpA)	2020/10/23	8.1		%	30
			Perfluorooctanoic acid (PFOA)	2020/10/23	12		%	30
			Perfluorononanoic acid (PFNA)	2020/10/23	7.9		%	30
			Perfluorodecanoic acid (PFDA)	2020/10/23	NC		%	30

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Perfluoroundecanoic acid (PFUnA)	2020/10/23	NC		%	30
			Perfluorododecanoic acid (PFDoA)	2020/10/23	NC		%	30
			Perfluorotridecanoic acid (PFTRDA)	2020/10/23	NC		%	30
			Perfluorobutanesulfonic acid (PFBS)	2020/10/23	NC		%	30
			Perfluoropentanesulfonic acid PFPes	2020/10/23	NC		%	30
			Perfluorohexanesulfonic acid(PFHxS)	2020/10/23	8.5		%	30
			Perfluorooctanesulfonic acid (PFOS)	2020/10/23	NC		%	30
			Perfluorononanesulfonic acid (PFNS)	2020/10/23	NC		%	30
			Perfluorodecanesulfonic acid (PFDS)	2020/10/23	NC		%	30

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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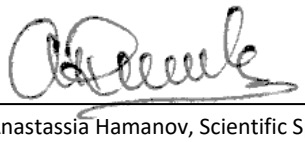
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Anastassia Hamanov, Scientific Specialist

Colm McNamara, Senior Analyst, Liquid Chromatography

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

ESS Laboratory — MAXXAM / BV — CHAIN OF CUSTODY

Division of Thielsch Engineering, Inc.

185 Frances Avenue,Cranston RI 02910-2211
Tel. (401)461-7181 Fax (401)461-4486
www.esslaboratory.com

ESS Lab # 20J0406

Turn Time __X__Standard Other_____

Regulatory State: MA **RI** CT NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
MA-MCP Navy USACE CT DEP Other_____

Reporting Limits - _____

Electonic Deliverables Excel Access PDF

Co. Name	Project #	Project Name
ESS Laboratory		20J0406

Contact Person	Proj. Location
Shawn Morrell / Heather Masse	

Address	City , State	Zip	PO #
			B03062

Tel. ext 3083 — Email: Smorrell@thielsch.com; Hmasse@thielsch.com

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	Analysis: PFAS 537 - see comments
	10/14/20	0800	G	SD	20J0406-01					X

16-Oct-20 13:00
Lori Dufour
C0R4004
ASR ENV-1311

International Solid Sample
Heat Treat Required
High Risk material
Controlled Storage and Disposal

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present _____Yes _____No
Seals Intact ____ Yes _____No NA:____
Cooler Temperature: 5.9/4.2/4.4

Internal Use Only
[ ] Pickup
[ ] Technician____

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Sampled by :

Comments: **PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUnA, PFDoA, PFTrDA, PFBS, PFPeS, PFHxS, PFOS, PFNS, PFDS**

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
			2020/10/16 13:00
Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

collected in accordance with MADEP CAM VIIA

Report Method Blank & Laboratory Control Sample Results

Ship To: 299 Cayuga Rd
Cheektowaga, NY 14225

2020/10/16

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 20J0406

Turn Time: 5 Days
Regulatory State:
Is this project for any of the following?: ○ CT RCP ○ MA MCP ○ RGP
Reporting Limits:
Electonic Deliverables: ☐ Data Checker ☐ Excel ☐ Other (Please Specify →)

Company Name	Project #	Project Name
Bristol WPCF		PFAS Compost

Contact Person	Address
Glenn Conway	2 Plant Ave

City	State	Zip Code	PO #
Bristol	RI	02809	

Telephone Number	FAX Number	Email Address
401-253-8877	401-253-2910	gconway@bristolri.gov

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PFAS
1	10-14-20	0900	Grab	Soil	P-1 PFAS Compost	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial — O
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
Number of Containers per Sample:

Laboratory Use Only

Cooler Present: — ○ Drop Off
Seals Intact: — ○ Pickup
Cooler Temperature: 5.1 Tc °C

Sampled by :

Comments: PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFNA, PFDA ,PFUnA, PFDoA, PFTrDA, PFBS, PFPeS, PFHxS ,PFOS, PFNS, PFDS

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
10.14.20 0910	10/14/20 0910	10/14/20 1005	10/14/20 10:05
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

ATTACHMENT 3
Aggresource annual Report

AGRESOURCE

ROOTED IN SUCCESS

February 19, 2021

Jennifer Wood
Waste Water Management Program
MA DEP
One Winter Street
Boston MA 02108

RE: 2020 Annual report For Bristol RI Compost

Per the requirements of the AOS issued to Agresource Inc. for the Bristol RI compost facility I am enclosing the report on the distribution of Type I Biosolids Compost in Massachusetts as well as temperature data during the period from January 1, 2020 through December 31, 2020.

Compost is tested quarterly in accordance with the sampling and Analysis plan and copies of the test reports kept on file.

If you have any questions please feel free to contact me.

Sincerely,

David Harding

David Harding, President
Agresource Inc.

cc: Jose DaSilva, Superintendent, Bristol WPCF

110 Boxford Rd., Rowley, MA 01969 • 978-388-5110 • www.agresourceinc.com • info@agresourceinc.com

Bristol, RI

Compost distributed January 1, 2020 through December 31, 2020

QUANTITY	YD/TONS	CUSTOMER	DROP LOCATION
20	yards	G Bourne Knowles, Fairhaven	267 Huttleston Ave Farihaven, MA
20	yards	Granite Liks GC, Quincy	100 Quarry Hill Drive Quincy, MA
300	yards	Greener Horizon, Plymouth	35 Muirfield Rd. Plymouth, MA
60	yards	Ian Brown, Walpole	274 South St. Walpole, MA
340	yards	Kenny's Garden Center, Fairhaven	325 Huttleston Avenue Fairhaven, MA
110	yards	Kevin Norton, Holliston	11 Ashland St. Holliston, MA
240	yards	Maffei, Mashpee	28 Nicolettas Way Mashpee, MA
20	yards	Miller Landscape, Catumet	12 Millenium Dr. Catumet, MA
60	yards	Nature Works, Walpole	1660 Main St. Walpole, MA
60	yards	Paragon Landscape, Hanover	62 Industrial Way Hanover, MA
120	yards	Podzka Landscape, Medway	15 West St. Medway, MA
60	yards	Town of Upton, Upton	100 Pleasant St. Upton, MA

1410

Temperature Tracking Program

Bay Number: 1

		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				62	60	63	69	68		72	70	71		66	67	67	65		62
2				66	54	60	68	63	67		64	64	66		64	62	65	65	
3				49	53	58	64	62	69		70	62	58		63	56	66	59	
4				60	59	63	67	71	72	72		73	72	67		70	69	70	68
5																			
6				62	60	64	70	68	71	72	72		70	68	70		69	72	70
7				52	57	62	68	67	70	73	72		70	70	72		68	70	67
8				44	54	59	67	64	72	72	74	71		71	71	71		68	68
9				50	56	60	69	68	70	72	73	73	71		70	72	72		68
10					62	65	70	68	73	72	73	72	72	70		72	72	68	
11				50		68	66	69	72	73	73	71	70	70	71		70	68	68
12																			
13					56		70	67	68	70	70	67	66	66	68	68		69	68
14					64		71	72	72	70	72	72	68	67	69	68		65	63
15				69		60		70	66	69	70	68	68	62	62	63	65		60
16				56	59		69		72	73	72	70	70	71	72	70	72	68	
17				48	57		66		71	74	75	71	72	72	72	72	72	70	
18					60	62		65		73	71	72	72	72	73	70	73	70	68
19																			
20					68	66	70	70		72	72	71	71	70	70	69	72	70	70
21				57		68	71	70	72		72	70	69	71	71	72	72	69	67
22				60	59		67	66		73		72	69	70	70	71	68	65	66
23				45	60		68	65	72	72		66	67	68	68	70	70	66	67
24				51	58	63		69	72	73	73		70	70	72	73	70	68	68
25					57	65	70		73	72		72		71	71	72	70	69	67
26																			
27						70	68	71		72	74	73	73		72	70	72	68	68
28						67	70	69		72	70	73	73		69	70	70	67	67
29				51			69	68	69		71	69	68	65		69	70	68	68
30				55	60	66		70	72	72		72	70	66	70		67	68	68
31					65	68	71		67	68	70		72	64		65		66	60

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

JANUARY-2020-BAY-1-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: JANUARY-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1							
2	7			7.5		2	
3	8.1			8.5			
4						2	
5							
6	8.9			9		2	
7	8			8.6			
8	7.45			8		2	
9	4.6			5		2	
10	10.9			11.5		2	
11	3.5			4		2	
12							
13	6.85			7.5		2	
14	7.1			8			
15	3.3			3.5		2	
16	8			8.6		2	
17	7.4			8.3			
18	3.4			3.5		2	
19							
20	3.8			4			
21	9.6			10.4		2	
22	8.7			9		2	
23	4.25			4.5			
24	8.6			9		2	
25						2	
26							
27	7.8			8		2	
28	8.9			9.5			
29	7.6			7.7		2	
30	7.8			8.5		2	
31	7.25			7.5		2	
Totals:	168.8		0	179.6		38	

Temperature Tracking Program									Bay Number:				1						
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				62	67	66	70	71	72	70			72	68			62	60	58
2					64	67	69	71	73	74	76			67	65			58	58
3																			
4				63		70	74	74	75	73	73	74			63	62			57
5				61	67		70	73	74	72	72	74	71			62	60		
6				48	68	66		73	70	71	73	73	66	62			58	56	
7				52	63	65	68		72	70	72	72	74	70	66			59	57
8					59	60	64	66		74	73	74	70	67	65	62			56
9				53		63	69	72	72		74	73	70	68	67	64	64		
10																			
11				64	70		64	61	66	67		61	70	69	67	67	66	58	62
12				60		65		62	70	72	70		68	69	68	68	67	61	59
13				62	70		64		66	67	67	65		68	67	68	68	60	60
14				58	65		68		69	69	66	68		67	67	68	68	65	63
15				58	64	65		67		67	68	71	70		65	65	62	60	61
16				54	59	64		67		68	71	71	72		68	64	61	58	60
17																			
18					60	59			68		72	70	71	68		66	60	57	58
19						67	70	68		70		69	72	72	70		68	64	61
20				58			67	70	72		73		72	70	68	68		64	60
21				55	65			71	73	74		72		69	67	68	68		61
22				57	66			69	73	75		73		70	67	68	65		59
23					64	62			69	70	70		70		68	71	67	64	
24																			
25						67	68			72	68	66		71		72	68	62	60
26						63	62			67	66	65		62		68	66	60	60
27				55			60	64			64	63	63		60		62	59	57
28				60	65			68	67			66	67	67		66		67	67
29				65	67			64	65			64	64	65		67		69	66
30					68	66			66	67			68	67	68		69		67
31																			
Color Key			Monday		Green		Friday		Blue										
			Tuesday		Yellow		Saturday		Purple										
			Wednesday				Sunday												
			Thursday		Orange														

JANUARY-2021-BAY-1-TRACKING SHEET

Temperature Tracking Program									Bay Number:				3						
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				66	67	67	66	66	68	70	73		72	67		74	72	70	62
2					67	65	68	69	72	73	74	74		70	68		71	68	66
3																			
4				68		66	68	68	70	70	72	74	72		71	74		70	62
5				63	63		69	70	70	71	73	75	73	70		72	73		64
6				62	62	67		68	68	68	71	71	70	63	66		71	65	
7				52	68	65	68		71	71	74	76	74	70	72	74		72	64
8					62	64	67	70		72	74	75	73	68	70	73	72		63
9				55		66	69	71	70		73	75	73	70	71	72	73	67	
10																			
11				60	60		66	65	70	68		64	67	62	69	66	66	64	62
12				56	63	65		70	72	72	73		72	68	68	67	69	66	64
13				56	62	66	68		71	70	67	65		65	67	66	67	65	65
14				50	59	66	72		70	69	69	66		66	68	67	68	66	65
15				60	63	62	60	68		70	71	70	69		63	65	61	59	62
16					60	61	65	67	62		69	70	71	73		66	63	61	59
17																			
18					58	62	60	66	66		68	73	70	71		64	64	60	59
19				63		70	69	67	66	68		68	66	65	68		68	67	62
20				64	65		70	69	72	72	72		68	67	71	72		68	65
21				60	64	66		71	72	72	73	70		68	72	74	72		61
22				55	63	64		70	72	72	72	71		66	70	73	73		60
23					65	65	65		68	68	70	70	68		72	72	73	70	
24																			
25				68		69	68	66		72	73	70	66	68		69	70	68	62
26				66	64		67	70	70		70	68	68	67	66		64	65	64
27				55	64	64		65	67	67		66	64	64	64	63		62	62
28				61	62	65	68		68	70	70		70	71	69	69	67		66
29				60	60	66	67		68	69	68		69	69	67	68	68		66
30					63	66	69	68		67	70	70		67	68	68	68	66	
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

JANUARY-2021-BAY-3-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: JANUARY-2021

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1							
2	3.5		3.6			2	
3							
4	7.8		7.7			2	
5	8.4		8.1			2	
6	8.3		8.2			2	
7	6.3		6.5			2	
8	7		7.3			2	
9	3.1		3.3			2	
10							
11	7.25		7.4			2	
12	8.1		8.4			2	
13	6.75		6.9			2	
14	3.75		3.9				
15	4.3		4.4			2	
16	3.3		3.5			1	
17							
18	3.25		3.4			1	
19	7.5		7.3			2	
20	7.5		7.4			2	
21	7		7.4			2	
22	4		4.1				
23	3.9		4			2	
24							
25	8.2		8.1			2	
26	3.7		3.9			1	
27	8		8.2			2	
28	7.7		7.5			2	
29	3.9		3.7				
30	3.5		3.6			2	
31							
Totals:	146		147.8	0		41	

Temperature Tracking Program									Bay Number:				1						
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				45		62	71	72		72	73	73		69	70	67	68		64
2																			
3				46	47		69	67	69		71	62	67		68	68	67	69	
4				48	48		68	70	73		72	72	68		71	70	69	67	
5				45	47	64		70	72	72		70	70	68		69	68	66	65
6				46	49	60	71		72	73	72		70	69	70		67	68	66
7					52	58	67	65		74	75	73		72	72	74		68	70
8				40		60	68	70	72		73	73	73		70	72	70		67
9																			
10					37		67	69	71	72		72	72	71		70	70	68	
11				40	51	57		70	72	73	73		73	70	71		70	69	65
12				35	40	55		69	73	72	73		70	70	70		67	65	62
13				41	53	58	65		72	73	73	73		72	70	72		70	67
14				38	50	59	67	68		73	73	72	72		70	73	70		67
15				43	48	62	68	69		72	73	71	72		68	69	70		65
16																			
17				40	45	60	65	66	71		64	64	62	60		67	66	66	
18				40	47	58	66	70	70	72		73	70	68	67		68	66	64
19				34	41	62	68	68	73	75	75		70	71		72		68	65
20				37	49	58	68	70	71	73	73	73		70	70	68	70		65
21				41	47	58	67	72	74	74	73	72		70	69	70	68		62
22					51	56	64	68	72	72	73	73	72		70	67	70	67	
23																			
24				39		66	70	70	71	71	72	71	71	69		70	71	68	69
25				38	46		68	70	72	73	73	74	72	68	71		67	64	63
26				30	42	63		70	70	71	71	72	70	68	70	72		66	69
27				36	46	60		70	72	72	70	73	71	70	68	71		68	67
28				39	40	58	66		71	71	73	72	70	68	69	70	70		65
29					43	60	68	70		73	73	71	72	70	67	68		67	
30																			
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

FEBRUARY-2020-BAY-1-TRACKING SHEET

Temperature Tracking Program									Bay Number:			3							
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				54		67	72			70	71	73		70	71		70		67
2																			
3				66	68		72	72	66		69	71	67		72	70	71	70	
4				62	65		72	72	70		71	71	72		70	70	69	67	
5				65	69	70		71	69	73		72	73	66		71	68	68	63
6				63	67	68	72		70	70	71		73	69	70		70	67	65
7					62	64	70	70		70	70	74		72	74	72		71	68
8				58		67	70	72	71		72	72	73		72	72	70		65
9																			
10				67	64		71	73	70	70		73	74	69		71	71	71	
11				49	61	68		72	72	70	71		74	70	73		70	68	66
12				43	60	66		69	67	67	70		75	67	74		70	65	65
13				46	62	67	69		70	68	71	73		70	72	73		67	67
14				52	63	67	70	70		70	72	74	74		72	74	73		69
15				50	60	68	72	70		71	73	73	71		68	72	70		64
16																			
17				42	64	66	68	70	73		66	69	70	74		72	71	66	
18				45	65	65	69	68	70	70		70	72	70	67		70	68	67
19				56	64	63	68	65	64	69	70		75	70	73	71		67	65
20				51	66	68	68	71	73	72	72	74		73	70	72	70		63
21				53	65	67	70	72	70	70	72	73		71	70	73	72		66
22					62	67	70	70	73	72	70	72	74		69	71	71	67	
23																			
24				59		68	71	71	68	68	71	73	74	74		76	71	70	64
25				60	66		70	68	67	72	70	72	73	73	73		70	69	65
26				58	60	65		67	67	76	72	73	70	69	76	76		69	68
27				56	68	67	69		72	71	72	72	73	70	73	74	70		66
28				50	63	65	68		68	70	70	72	73	70	76	75	71		65
29					61	68	68	70		70	71	73	72	68	72	73	70	68	
30																			
31																			
Color Key			Monday		Green		Friday		Blue										
			Tuesday		Yellow		Saturday		Purple										
			Wednesday				Sunday												
			Thursday		Orange														

FEBRUARY-2020-BAY-3-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: FEBRUARY-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1	3.4			3.5		2	
2							
3	8.5			9		2	
4	8			8.5			
5	4			4		2	
6	8			8.3		2	
7	8.7			9		2	
8	3.75			3.7		2	
9							
10	8			8.1		2	
11	8.1			8.2		2	
12	8.2			8.5			
13	7.3			7.5		2	
14	7.4			7.3		2	
15							
16							
17	3			3		2	
18	7.5			7.5		2	
19	8.1			8		2	
20	8.7			8.9		2	
21	3.8			4			
22						2	
23							
24	8.4			8.2		2	
25	9			8.5		2	
26	9.5			9.5		2	
27	7.3			7.3		1	
28	7.7			8		1	
29						2	
30							
31							
Totals:	156.35		0	158.5		40	

Temperature Tracking Program									Bay Number:				3						
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1																			
2				62		66	70	72	68		72	73		70	75	73	68		60
3				60	64		69	70	70	68		72	72		73	73	70	67	
4				50	58	65		67	67	69	71		72	70		75	71	69	63
5				54	59	63	67		72	70	72	73		70	72		70	68	65
6					56	64	66	68		68	71	74	73		73	72		70	64
7				53		65	68	71	70		72	73	72	72		74	72		66
8																			
9					65		68	68	68	70		74	73	74	76		74	72	70
10				56		67		69	72	73	72		73	70	73	74		68	67
11				53	62		65		65	67	70	73		67	74	75	70		65
12				57	64	68		70		72	71	73	73		73	74	72	68	
13				56	66	68	70	71		68	70	73	73		74	76	73	70	
14					67	69	70	72	70		72	74	73	73		75	72	68	67
15																			
16				68		65	69	67	66	69		72	67	67	75		63	70	63
17				60	68		71	70	70	72	73		73	73	75	74		69	67
18				56	65	67		70	72	72	73	75		72	74	74	72		68
19				60	66	69	70		68	69	72	73	74		73	72	70	68	
20					63	68	69	66		69	71	73	75	68		73	70	69	66
21				60		69	71	70	73		72	75	75	70	72		70	67	65
22																			
23				62	68		69	69	72	72		74	76	70	74	72		66	60
24				58	67	69		70	72	73	73		75	72	73	73	70		64
25				59	66	67	70		70	71	71	76		68	74	76	70	69	
26				63	69	70	73	71		72	70	74	75		72	73	70	68	63
27					67	70	69	68	72		74	76	74	70		74	74	72	68
28				62		71	70	70	73	73		75	73	72	70		73	70	70
29																			
30				68	69		71	70	71	71	73		75	69	78	77		73	70
31				64	66	68		69	72	73	74	74		70	73	75	74		70

Color Key			
	Monday	Green	Friday	Blue
	Tuesday	Yellow	Saturday	Purple
	Wednesday		Sunday	
	Thursday	Orange		

MARCH-2020-BAY-3-TRACKING SHEET

Temperature Tracking Program								Bay Number:	1									
		Zone A			Zone B			Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1																			
2						62	67	68	71		72	68		67	68	68	69		64
3				34			68	71	73	72		72	70		71	72	70	68	66
4				32	45			70	72	73	73		71	71		70	68	67	68
5				32	42	68			72	72	74	73		72	70	72	71	69	67
6					35	57	67			72	75	73	73		72	73	72	68	66
7				33		57	68	71			72	73	74	72		70	70		65
8																			
9					57		69	70	72			74	72	72	73		75	72	
10				38		65		70	70	73			74	73	72	70		67	66
11				42	63		67		66	66	68			62	66	68	62		60
12				40	56	67		70		73	73	74			72	73	70	68	
13				30	40	61		64		73	73	72			71	71	70	66	
14					49	60	68		70		73	74	73			70	67	66	68
15																			
16				37		64	70	68		73		72	69	65			68	62	65
17				47	57		67	68	70		74		72	72	70			67	66
18				58	69	64		68	72	74		73		72	72	70			70
19				54	58	62	68		73		75		73		72	68	70		
20					63	63	70	72		75	73	70		66		66	64	62	
21				47		66	71	72	74		74	72	70		68		71	67	65
22																			
23					56		72	70	73	73		71	72	71		71		66	68
24				50		68		73	73	74	73		72	70	68		70		67
25				48	60		66		73	75	75	71		70	70	70		65	
26				47	58	62		72		73	74	73	72		69	68	70		68
27					62	65	69	70	73		76	74	73	73		72	72	68	
28				55		67	70	70	72	73		75	74	72	72		70	67	69
29																			
30					69		72	71	72		74		72	70	71	71		72	72
31				67		68		72	72	73		74		73	70	72	71		70
Color Key		Monday			Green			Friday			Blue								
		Tuesday			Yellow			Saturday			Purple								
		Wednesday						Sunday											
		Thursday			Orange														

MARCH-2020-BAY-1-TRACKING SHEET

Temperature Tracking Program								Bay Number:			1							
		Zone A			Zone B			Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				70	73	66	69		69	73	70	69	69		69	70	68	65	
2				69	67	70	72		71	72	70	72	72		73	75	74	69	
3				49	65	69	71	71		72	71	73	71	71		74	74	66	70
4					69	70	72	71	73		72	72	72	70	71		70	67	68
5																			
6				66		69	71	71	72	73		71	71	71	71	73		65	70
7				68		70	72	70	72	73		71	70	70	72	73		68	69
8				70	68		72	72	73	73	74		71	70	71	74	72		66
9				67	72	68		70	73	72	73	71		70	70	73	72	70	
10				68	71	68		72	73	73	72	72		70	72	73	72	70	
11					70	68	72		72	72	74	72	72		71	72	73	70	68
12																			
13				70		68	70	71		72	73	66	70	67		68	65	60	60
14				69		67	72	72		73	74	70	71	70		68	70	67	65
15				70	70		66	70	70		74	72	72	70	68		70	67	66
16				68	71	70		73	72	74		75	73	71	70	70		69	67
17					68	64	69		74	76	76		74	70	68	70	70		66
18				67		66	68	70		75	74	74		71	69	70	72	67	
19																			
20				68		68	68	68		74	75	68		70	72	73	74	72	
21				66	68		69	68	70		70	70	68		70	70	71	67	65
22				67	67	66		68	67	71		69	67	66		70	70	63	67
23				64	68	68	69		70	72	71		68	68	70		70	68	66
24				62	65	68	68		70	70	68		63	60	63		68	63	63
25					68	67	70	70		73	72	70		66	68	70		67	65
26																			
27				67		67	71	68	67		71	71	72		70	69	67		69
28				68	70		72	69	70	72		75	72	70		68	69	67	
29				59	70	65		68	70	71	71		68	67	67		70	69	69
30				62	69	66	72		70	73	74	74		68	70	72		68	67
31																			

Color Key			
	Monday	Green	Friday	Blue
	Tuesday	Yellow	Saturday	Purple
	Wednesday		Sunday	
	Thursday	Orange		

APRIL-2020-BAY-1-TRACKING SHEET

Temperature Tracking Program									Bay Number:				3						
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				60	68		68		70	71	72	75	73		72	68	68	64	
2				63	68	68		70		71	72	74		74		76	72	73	70
3				52	67	68		71		71	73	77		73		76	71	74	66
4					69	71	70		72		73	75	75		76		72	73	70
5																			
6				68		70	70	69		70		73	74	72		74		73	69
7				67	68		70	70	72	70	73		74	71	75		72		70
8				63	68		70	71	73	70	74		77	72	76		70		66
9				70	70	68		70	70	72		73		70	75	73		72	
10				69	70	70		72	72	73		75		73	74	74		69	
11				67	69	68	70		72	73	74		76		73	74	72	70	68
12																			
13				71	68	69	69	68		70	70	71	69	65		71	67	65	61
14				65	68	67	70	70		73	73	75	75	74		73	73	68	66
15				71	72	73	73	69	70		73	73	72	68	74		71	68	66
16				68	70	72	73	70	70	73		73	73	70	73	72		69	67
17					70	70	72	70	72	72	73		73	70	73	72	70		63
18				67		70	73	71	71	72	72	74		69	72	73	73	68	
19																			
20				66	70		70	70	72	72	73	76	73		76	75	74	73	69
21				68	67		70	71	68	70	72	72	70		72	73	73	69	65
22				69	68	68		69	69	71	72	70	71	71		71	65	68	63
23				62	68	70	71		70	68	71	72	72	70	73		67	67	64
24				60	67	69	69		70	64	69	73	70	66	72		62	65	60
25					69	70	71	70		72	72	70	71	68	69	67		65	62
26																			
27				69		66	70	68	63		71	72	72	67	73	71	68		62
28				68	68		72	70	72	73		74	75	72	71	71	70	67	
29				60	68	68		69	70	70	72		71	70	72	70	67	66	65
30				65	69	70	71		70	72	72	74		72	72	73	71	70	67
31																			

Color Key			
	Monday	Green	Friday	Blue
	Tuesday	Yellow	Saturday	Purple
	Wednesday		Sunday	
	Thursday	Orange		

APRIL-2020-BAY-3-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: APRIL-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1	7.45			7.45		2	
2	6.85			6.8		2	
3	4			4			
4	4			4.1		2	
5							
6	7.3			7.9		2	
7	3.5			3.65		1	
8	7.5			7.85		1	
9	5.9			6		2	
10							
11	2.8			3		2	
12							
13	6.3			6.8		2	
14	8			8.5			
15	7.8			8		2	
16	7.7			7.8		2	
17	4.2			4.5		2	
18	3.4			3.5		2	
19							
20	4.1			4.25		1	
21	8.6			9		1	
22	7.9			8.2		2	
23	3.7			4		2	
24	3.8			4			
25	3.6			3.8		2	
26							
27	8.6			8.5		2	
28	6.8			7		2	
29	7			6.9		2	
30	7.1			7.3		2	
31							
Totals:	147.9		0	152.8		40	

Temperature Tracking Program								Bay Number:				1						
		Zone A			Zone B			Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				60	67	68	72		73	74	73	70		70	71	72		70	70
2					68	68	70	69		73	72	72	70		68	70	70		69
3																			
4				66		70	72	72	74		74	74	68	70		74	73	70	
5				68	70		71	70	72	74		73	72	70	68		70	67	68
6				56	69	63		69	75	75	75		69	67	68	69		65	64
7				60	68	70		70	73	74	74		73	71	70	72		68	66
8				64	70	69	69		73	73	75	73		69	72	74	73		70
9					68	70	71	71		74	74	72	71		73	73	72	70	
10																			
11				68		67	70	68	69		72	71	69	69		72	72	70	69
12				60	68		70	70	72	73		72	73	71	70		71	70	68
13				64	74		68	68	73	74		72	72	70	70		70	65	64
14				62	67	67		72	73	74	74		73	72	70	70		70	67
15				63	69	67	72		74	74	71	72		70	70	72	72		70
16				60	66	65	70	70		75	73	72	70		70	72	70	67	
17																			
18				66	70	70	71	70		71	72	70	68		68	68	70	68	
19				62	68	65	69	70	72		72	71	70	67		70	70	67	67
20				67	70	62	68	68	71	73		70	70	68	70		70	64	60
21				63	69	68	70	72	73	73	73		73	72	70	72		66	68
22					67	65	68	70	72	74	76	74		72	73	73	72		68
23				60		68	70	72	72	73	70	72	73		72	71	68	68	
24																			
25				63		68	70	70	72	73	72	70	70		72	72	74	70	
26				67	70		70	71	70	72	73	73	70	67		70	72	68	66
27				72	71	66		68	68	72	72	69	68	69	68		69	67	68
28				68	70	68	70		70	72	73	74	71	70	72	70		66	67
29					73	66	68	69		71	73	73	70	68	69	69	67		62
30				67		65	69	70	70		74	73	71	70	70	68	67	69	
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

MAY-2020-BAY-1-TRACKING SHEET

Temperature Tracking Program									Bay Number:				3						
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				56	67	70	70		72	73	76	77		71	73	74	73	70	68
2					67	68	72	70		72	73	74	74		70	70	69	67	66
3																			
4				67		72	72	70	72		74	74	72	73		72	70	70	68
5				68	69		70	72	72	70		73	70	70	72		72	70	67
6				66	67	67		68	70	71	72		71	69		70		65	63
7				65	69	70		70	70	70	73		73	70	76	73		68	66
8				66	68	68	70		68	70	73	73		66	74	74	69		64
9					67	70	72	71		70	72	73	73		73	75		70	
10																			
11				68		71	69	68	71		73	73	72	67		70	68	66	65
12				67	68		71	70	72	73		74	74	72	72		69	67	66
13				60	64		69	70	70	71		75	75	70	72		65	61	60
14				63	67	69		71	72	72	73		74	72	73	73		66	63
15				56	66	71	70		70	74	74	75		71	74	73	71		66
16				60	65	68	67	70		73	73	74	74		73	74	70	68	
17																			
18				66	69	70	72	69	68		72	74	76	74		75	73	70	69
19				67	68	68	70	70	70		73	72	74	73		74	72	68	65
20				62	66	68	70	69	69	69		72	70	70	70		65	64	63
21				65	70	68	72	70	70	72	73		72	70	72	72		66	62
22					66	68	70	72	72	73	70	74		70	72	71	68		62
23				64		68	70	70	70	73	75	74	72		73	70	70	67	
24																			
25				68	68		72	71	72	72	74	76	74	72		74	74	72	70
26				67	68		68	70	70	70	72	74	74	72		73	72	70	67
27				66	66	65		68	71	71	73	73	72	69	70		72	70	70
28				68	67	66	68		72	72	76	72	74	78	73	71		70	68
29					69	66	67	69		70	74	76	74	68	70	71	70		60
30				65		68	67	70	70		74	74	72	68	68	72	70	69	
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

MAY-2020-BAY-3-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: MAY-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1	4			4			
2	3.9			4		2	
3							
4	7.9			8.1		2	
5	8			7.9		2	
6	7.3			7.7		2	
7	7.7			7.9		2	
8	3.7			4			
9	3.2			3.35		2	
10							
11	7			7.4		2	
12	8.7			9.1		2	
13	4.2			4.3			
14	7.3			7.7		2	
15	7.5			7.6		2	
16	3.4			3.5		2	
17							
18	7			7.2		1	
19	8			8.1		1	
20	4.2			4.3		2	
21	8.2			8.8		2	
22	4.2			4.2		2	
23	1.8			2		2	
24							
25	3.4			3.5		1	
26	7.8			8		1	
27	8.9			9.3		2	
28	7.7			7.8		2	
29	7.6			8		2	
30	3.3			3.5		2	
31							
Totals:	155.9		0	161.25		42	

Temperature Tracking Program								Bay Number:			1							
		Zone A			Zone B			Zone C					Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1					70		68	71	70	72		68	70	70	72	73	73	68	68
2				65	66			70	72	74	75		70	70	73	72	71	71	67
3				62	67	68			74	75	75	68		71	72	72	72	68	66
4				63	68	65	67	70		74	76	71	72		74	73	70	70	66
5				65	70	64	68	68		73	74	72	71		72	73	72	70	68
6					68	65	70	72	73		70	69	72	72		73	72	70	67
7																			
8				66		68	68	68	72	74		72	72	70	73		74	70	68
9				65	70		66	70	73	72	72		74	71	72	73		70	71
10				68	71	60		65	72	72	72	73		73	73	72	72		70
11				64	69	68		67	73	74	74	73		72	74	73	72		70
12				70	71	67	68		66	70	70	70	70		70	72	74	70	
13					72	68	69	66		72	73	73	74	72		73	75	71	70
14																			
15				70		61	62	68	67		70	70	68	68	67		70	68	66
16				68	70		70	72	70	70		73	73	70	73	73		70	67
17				68	70		69	71	71	72		73	72	71	71	71		67	67
18				67	70	69		70	72	72	73		72	71	71	70	70		67
19				70	73	66	70		71	73	74	73		70	71	71	70	67	
20				69	71	68	70	71		72	73	73	73		72	70	68	69	67
21																			
22				68	70	67	69	72	72		73	73	72	70		70	72	68	66
23				70	72	70	68	71	73	73		72	72	74	72		73	70	70
24				49	70	62	65	69	72	75	75		73	73	72	72		67	68
25				58	66	64	69	70	72	72	74		74	72	72	70		66	68
26				60	69	65	67	67	73	70	72	71		70	70	71	70		66
27					68	67	69	70	72	74	75	75	72		70	72	70	66	
28																			
29				68		66	70	70	72	74	75	76	72	70		74	74	72	70
30				57	68		69	70	70	72	73	73	74	73	72		71	68	65
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

JUNE-2020-BAY-1-TRACKING SHEET

Temperature Tracking Program								Bay Number:					3						
		Zone A			Zone B			Zone C					Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				67	68		72	70	70	70		75	74	74	77	75	74	72	68
2				60		68		70	72	73	73		75	72	76	74	73	70	69
3				57	66		68		71	72	76	74		70	74	76	72	70	68
4				66	68	66	70	72		73	74	78	76		74	74	73	70	67
5				60	66	66	68	68		73	75	78	75		73	74	74	72	70
6					67	68	70	70	72		76	76	74	75		73	72	70	67
7																			
8				70		68	68	68	70	72		75	72	73	75		74	72	70
9				60	66		70	68	70	70	74		75	73	74	74		70	66
10				63	68	63		66	68	70	73	74		70	74	76	72		68
11				68	68	65		68	70	73	76	74		72	73	74	73		67
12				70	69	70	72		68	71	74	76	75		74	73	70	68	
13					68	66	70	71		72	76	75	74	72		73	71	70	67
14																			
15				67		69	70	68	70		72	72	72	70	73		70	69	70
16				68	70		69	68	71	72		73	74	71	73	73		70	67
17				63	67	62		68	70	71	73		74	70	72	74	72		65
18				70	68	69		70	72	72	74		73	74	73	72	70		65
19				70	70	68	70		70	70	73	75		73	73	72	71	72	
20				68	70	67	71	70		72	73	74	73		72	72	70	70	68
21																			
22				66	67	68	70	69	74		72	74	74	72		73	72	67	66
23				68	70	70	72	70	69	73		76	74	70	73		73	70	68
24				56	61	65	70	71	71	73	74		71	71	72	73		71	69
25				60	67	68	70	72	73	73	73		73	70	71	73		70	68
26				61	64	60	71	70	71	70	72	75		70	72	73	72		64
27					66	64	69	72	72	73	73	74	72		72	72	73	70	
28																			
29				60		66	70	70	72	74	75	76	72	70		74	74	72	70
30				55	60		67	68	68	70	72	74	74	70	72		70	70	67
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

JUNE-2020-BAY-3-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: JUNE-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1	8.5			8.9		2	
2	7.9			8.2		2	
3	7.7			7.9		2	
4	7.9			8.2		2	
5	3.8			3.9			
6	3.5			3.7		2	
7							
8	8			8.2		2	
9	7.3			7.8		2	
10	7.2			7.6		2	
11	4			4.2			
12	3.9			4		2	
13	3.5			3.6		2	
14							
15	7.9			8.3		2	
16	7			7.4		2	
17	3.3			3.4		1	
18	7			7.4		1	
19	7			7.3		2	
20	3.6			3.7		2	
21							
22	8.7			9.1		2	
23	6.9			7.1		2	
24	8.2			8.6		2	
25	3.7			3.8			
26	6.1			6.5		2	
27	3.5			3.7		2	
28							
29	7.7			8		2	
30	7.6			7.9		2	
31							
Totals:	161.4		0	168.4		44	

Temperature Tracking Program								Bay Number:	1									
		Zone A			Zone B			Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				63	62	68		61	69	73	74	73	73	72	71	70		67	68
2				56	63	67		66	70	72	72	73	73	72	70	70		66	65
3				51	59	62			61	66	68	68	67	67	66	66	67		64
4				57	64	63			67	70	73	72	72	70	72	72	66		67
5																			
6					70	67	70	69		71	71	70	70	70	72	74	74	70	
7				68		65	67	70	72		72	73	72	70	70	73	72	69	67
8				56	66		64	67	73	73		72	72	72	73	72	70	68	66
9				60	68	66		69	72	72	73		70	71	72	72	70	69	67
10				65	67	63		62	66	70	75		70	70	71	72	73	68	66
11					69	69	69		66	68	70	72		70	72	73	75	71	71
12																			
13				65		66	68	68		70	70	70	69		70	72	70	68	67
14				67		68	65	63		70	71	71	70		70	72	72	67	65
15				62	68		63	65	66		70	68	69	69		71	70	66	66
16				64	67		65	65	68		70	70	70	70		69	70	67	65
17				65	66	63		64	67	67		69	68	68	68		69	64	68
18					67	65	68		71	70	70		70	68	70	71		66	67
19																			
20				66		64	64	64		66	69	68		68	68	69	69		66
21				62	66		67	67	70		72	73	70		68	70	70	68	
22				58	67		65	67	72		74	72	70		70	70	68	64	
23				66	68	66		69	68	73		72	70	70		68	67	65	66
24				62	65	62		64	68	68		70	70	69		67	67	66	66
25				60	66	64	68		70	72	72		73	70	72		68	70	66
26																			
27				64	68	66	69	70		73	74	74		72	72	75		70	67
28				63	66	62	66	69	70		73	73	74		70	68	72		67
29				56	64	57	63	66	70	72		72	71	71		69	68	68	
30				57	66	62	64	68	71	73	73		74	72	70		70	68	66
31					69	60	63	66	72	73	72	73		71	71	70		65	64

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

JULY-2020-BAY-1-TRACKING SHEET

Temperature Tracking Program

Bay Number: 3

		Zone A			Zone B			Zone C					Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				53	59	60		66	68	72	73	73	74	68	71	72		71	69
2				67	60	65		68	70	73	76	74	72	68	70	72		70	68
3				54	58	62	68		69	70	72	73	73	66	69	71	70		69
4				54	61	64	66		70	70	71	73	74	72	70	72	71		67
5																			
6					68	70	70	67		70	72	74	76	70	74	76	74	74	
7				60		70	68	68	71		72	73	73	70	73	74	72	72	68
8				62	66		67	68	70	70		72	72	68	70	72	73	70	65
9				66	67	71		66	70	71	72		73	70	72	72	73	70	69
10				58	64	67		64	67	70	71		72	68	69	72	72	71	70
11					72	63	67		70	70	70	71		69	71	71	71	68	68
12																			
13				70		66	67	66		70	72	72	76		72	71	72	70	68
14				65		67	69	68		70	70	72	70		73	72	72	70	67
15				63	62		65	66	66		70	72	70	70		72	72	71	69
16				68	70		68	68	69		70	72	73	72		70	71	70	68
17				61	64	65		65	66	67		68	69	68	71		69	70	69
18					67	66	68		70	72	72		72	70	72			70	68
19																			
20				60		65	65	65		67	66	68		69	71	71	69		69
21				64	66		67	69	70		72	70	70		72	72	70	68	
22				60	65		67	68	72		74	74	73		68	72	72	71	
23				63	67	66		68	70	72		74	73	70		70	68	68	70
24				60	60	63		65	69	73		74	73	67		71	71	70	69
25				67	68	66	68		71	72	74		73	72	70		73	70	67
26																			
27				70	68	66	69			70	74	76		70	73	76		72	68
28				68	67	64	68	68	71		75	75	72		70	74	73		70
29				58	65	65	67	69	70	74		70	69	68		71	70	68	
30				64	67	68	68	70	70	72	73		72	70	68		73	70	67
31					62	65	70	69	70	71	72	73		67	69	73		73	71

Color Key				
	Monday	Green	Friday	Blue
	Tuesday	Yellow	Saturday	Purple
	Wednesday		Sunday	
	Thursday	Orange		

JULY-2020-BAY-3-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: JULY-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1	6.5			6.72		2	
2	6.2			7.2			
3	3.5			4		2	
4							
5							
6	8.25			8.6		2	
7	7.7			8.1		2	
8	7.3			7.5		2	
9	3.9			4		2	
10	3.6			3.8			
11	3			3.1		2	
12							
13	7.2			7.5		2	
14	6.7			6.1			
15	3.8			4		2	
16	3.5			3.7			
17	3.3			3.4		2	
18	3.5			3.8		2	
19							
20	7			7.5		2	
21	7.2			7.6		2	
22	3.8			4			
23	6.8			7.1		2	
24	4.3			4.5			
25	3.3			3.5		2	
26							
27	8			8.6		2	
28	8.1			8.4		2	
29	8.3			8.6		2	
30	7.5			8.2		2	
31	7.2			7.5		2	
Totals:	149.45		0	157.02		40	

Temperature Tracking Program								Bay Number:	1									
		Zone A			Zone B			Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				64		64	66	68	72	72	72	73			71	70	69		66
2																			
3					70		68	68	69	70	70	72	73			74	73	68	
4				60		65		68	70	72	72	73	74	72			70	68	66
5				56		62		67	71	72	73	73	72	71			69	67	66
6				57	61		60		70	72	73	72	72	70	70			66	66
7				61	64	62		66		73	74	73	72	72	70	70			65
8				60	63	60	61		68		73	73	72	70	72	71	70		
9																			
10					69	60	61	60	68	70		68	67	68	69	71	70	68	
11				64		60	65	66	71		73		73	73	72	70	69	68	66
12				65	67		66	67	70	70		73		72	70	70	68	68	65
13				60	64		67	68	71	70		72		72		70	67	68	66
14				62	66	64		63	68	65	70		69		70	71	70	65	66
15					65	63	66	65	68	67	72	72		68		70	70	67	68
16																			
17						67	67	68		72	74	74	73		72		74	70	67
18						65	66	69		72	72	73	72		70		73	70	68
19				56			64	68	71		72	71	70	69		70		68	66
20				60			67	67	70		73	73	72	70		73		70	67
21				58	64			67	70	71		70	70	68	68		70		64
22					65	64			72	72	73		74	71	72	70		68	
23																			
24						66	66			71	70	70		72	73	73	74		68
25				63			68	68			70	73	72		73	73	72	68	
26				55	64			65	71			72	72	70		68	67	64	64
27				60	66			66	68			72	72	70		71	70	67	65
28				66	68	60			66	66			71	70	70		70	64	66
29					67	60	65			70	71			73	72	70		66	65
30																			
31						64	64	64			72	68			71	70	70		65

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

AUGUST-2020-BAY-1-TRACKING SHEET

Temperature Tracking Program									Bay Number:				3						
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				65		68	68	68	70	72	72	73			68	73	72		68
2																			
3				69	69		68	68	70	72	74	75	72			76	76	74	
4				58		63		68	71	73	73	74	73	70			75	72	70
5				56		64		66	69	71	72	70	68	68			70	69	68
6				58	64		69		71	73	73	72	71	69	72			68	67
7				57	62	65		68		72	72	72	70	68	68	70			68
8				55	60	66	67	69	71		72	70	69	69	68	70	70		
9																			
10				68	64	62	65	65	68	70		73	71	66	70	73	73	72	70
11				66	66	64	65	67	70	72	73		69	68	70	71	70	70	70
12				60	64	62	66	68	71	70	72	70		67	68	70	70	68	66
13				64	67	68	68	70	70	72	72	72		69	70	70	68	67	67
14				65	65	63	63	64	66	69	70	73	74		71	71	69	68	67
15					66	65	68	66	71	71	72	72	73	70		72	71	67	68
16																			
17				70		68	71	69	70	70	74	76	73	70	73		75	72	70
18				69		69	70	70	74	72	72	74	73	72	72		72	71	68
19				63	64		67	68	68	71	72	73	70	70	74	74		70	70
20				68	68		69	70	72	73	73	75	74	72	73	74		70	67
21				64	65	68		66	68	70	72	74	72	70	72	74	73		66
22					69	68	70		70	72	73	73	74	72	75	74	72	72	
23																			
24				68		68	68	68		70	74	75	74	70	72	76	75	73	70
25				60	64		67	67	70		72	72	73	70	72	74	74	72	69
26				58	60	60		68	70	70		72	70	66	68	70	70	70	70
27				65	66	67		68	71	72		74	73	70	72	73	73	70	68
28				66	65	65	64		67	71	72		71	68	71	72	71	71	68
29					65	67	65	66		70	70	73		71	72	72	73	70	67
30																			
31				68		66	67	64	68		71	70	71		68	72	71	73	65

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

AUGUST-2020-BAY-3-TRACKIN SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: AUGUST-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1	3.7			4		2	
2							
3	7.8			8.1		2	
4	7.3			7.6		2	
5	3.5			3.7			
6	7.1			7.4		2	
7	5.7			6.05		2	
8	2.4			2.6		2	
9							
10	3.4			3.65		2	
11	6.9			7.2		2	
12	6.9			7.1		2	
13	3.4			3.5			
14	7.6			8.1		2	
15	2.8			3		2	
16							
17	7.4			7.9		2	
18	3			3			
19	3.4			3.7		2	
20	7.8			8.3			
21	4.3			4.5		2	
22	3.7			3.9		2	
23							
24	7.5			7.8		2	
25	7.2			7.45		2	
26	7.1			7.6		2	
27	7.2			7.5			
28	4.8			5.1		2	
29	3.2			3.4		2	
30							
31	6.8			7.3		2	
Totals:	141.9		0	149.45		42	

Temperature Tracking Program									Bay Number:			1							
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				67			64	68	70			72	68			70	67	66	64
2				70	70			64	69	69			70	70			71	64	65
3				67	69	66		67	70	70			70	71			68	65	65
4				67	69	67			70	70	72			71	71			65	65
5					68	60	64			72	72	73			70	71			66
6																			
7						56	64	66			71	70	70			73	72		
8				68			62	67	70			73	72	72			71	69	
9				62	64			68	68	72			72	72	71			68	67
10				64	66	69			68	70	72			72	72	70			67
11					63	56	63			71	73	73			71	71	67		
12				64		69	66	69			73	73	72			73	71	68	
13																			
14					66		68	66	69			73	73	74			74	70	66
15					64		65	68	70			72	74	74			72	68	67
16				66		65		65	67	66			67	70	69			66	65
17				63	67		66		69	70	72			70	68	71			65
18				65	69		66		70	70	71			66	67	69			66
19					67	64		68		71	70	70			69	70	70		
20																			
21				66			63		66		69	68	65			68	69	66	
22				64	70		64	67	70	70		72	70	67			70	67	64
23				63	72	62		62	69	72	72		70	66	64			62	65
24				60	67	63	66		70	72	73	72		68	70	69			63
25				63	68	64	64		66	70	70	70		71	70	70			65
26					67	66	68	70		69	70	72	72		70	71	70		
27																			
28				67		68	69	70	70		71	71		73		72	70	68	
29				64	67		66	66	67	69		70	72		70		68	68	66
30				60	65		63	63	65	66		66	67		69		69	66	65
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

SEPTEMBER-2020-BAY-1-TRACKING SHEET

Temperature Tracking Program								Bay Number:			3							
		Zone A			Zone B			Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				64			70	68	68	72		73	72			70	72	67	66
2				60	62			70	71	71	73		74	67			72	69	67
3				62	64	67			70	72	74			70	70			68	65
4				62	63	67			71	72	73			70	70			65	65
5					60	65	67	69		72	73	72	73		71	73	73		69
6																			
7				61		64	68	70	71		72	72	72	68		74	73		
8				59	63		69	71	70	73		73	72	70			73	71	70
9				62	62	64		70	72	74	74		70	68	70			72	70
10				60	62	67	68		72	73	72	74		68	70	72	73		68
11					65	65	70	71		73	73	70	65		70	73	73	73	
12				63		68	69	71	72		73	73	72	70		72	73	70	68
13																			
14				61	67		69	70	70	70		74	74	70	73		76	72	68
15				61	66		71	70	73	73		73	70	72	73		74	70	67
16				63	65	65		66	65	69	71		69	68	73	71		71	71
17				62	66	67	70		73	73	72	74		70	70	73	72		67
18				62	63	65	68		71	73	73	71		63	64	72	73		69
19					66	64	67	70		72	73	74	71		69	73	72	70	
20																			
21				66		64	63	65	69		70	71	71	65		72	72	76	70
22				65	63		68	65	70	70		73	70	65	67		72	71	68
23				64	62	65		66	66	70	73		70	63	63	69		69	68
24				65	67	67	66		71	70	72	73		68	66	69	70		67
25				64	65	65	66		69	71	70	70		69	71	70	70		63
26					68	68	69	70		72	73	72	72		70	73	73	71	
27																			
28				68		68	70	70	72		72	73	72	70		76	74	72	67
29				66	68		70	70	70	72		72	72	71	70		73	70	68
30				63	65		66	69	71	72		71	69	66	68		68	66	66
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

SEPTEMBER-2020-BAY-3-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: SEPTEMBER-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1	7.1			7.5		2	
2	6.8			7		2	
3	3.9			3.75		1	
4	7			7.45		1	
5	3.6			3.65		2	
6							
7	3.4			3.65		2	
8	7.6			7.7		2	
9	6.9			7		2	
10	7.9			8		2	
11	7.8			8.1		2	
12	3.4			3.5		2	
13							
14	7.1			7.3	very dry	2	
15	5.5			6			
16	3.4			3.3		2	
17	7.1			6.7		2	
18	3.9			3.5			
19	3.5			3.5		2	
20							
21	7.5			7.1		2	
22	8.3			6		2	
23	8.6			6.4		2	
24	8.2			6		2	
25	4			2.9			
26	3.5			3		2	
27							
28	8.3			6.6		2	
29	8			6.5		2	
30	3.9			3			
31							
Totals:	156.2		0	145.1		42	

Temperature Tracking Program									Bay Number:			1							
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				55	62	62		64	66	70	71		70	69	69	69		65	63
2				63	66	63	66		69	71	72	72		68	70	70	70		65
3				58	63	62	67	66		68	70	70	68		72	72	69	66	
4																			
5				65	68	60	65	64	68		69	70	70	69		69	70	67	65
6				62	65	63	66	67	67		72	71	70	70		72	68	68	67
7				58	64	62	66	67	70	72		72	70	70	68		68	66	63
8				60	66	63	67	66	68	71	72		69	70	72	71		67	65
9				57	64	64	63	65	68	70	72		70	71	71	72		68	66
10					62	60	67	67	70	70	72	73		72	70	70	69		65
11																			
12					70	68	66	62	69	70	71	70		70	68	69	70		63
13				60		64	69	68	70	72	72	72	73		71	70	68	68	
14				58	62		67	68	72	73	72	70	68	68		67	67	66	65
15				56	63		64	67	69	72	73	73	72	70		70	68	66	64
16				57	66	64		68	72	74	74	73	73	73	72		70	67	65
17					64	62	67		70	73	73	73	72	70	67	69		68	66
18																			
19				56		60	63	56		67	66	66	64	64	63	64	67		67
20				62		63	66	67		72	72	70	70	68	66	67	67		65
21				59	66		65	65	70		72	71	69	67	66	66	66	65	
22				60	65	60		68	68	70		72	70	68	65	67	68	66	64
23					62	56	66		70	70	72		71	72	71	71	70	68	66
24				68		60	67	56		67	70	70		69	70	70	71	67	66
25																			
26				64	65		60	63	66		71	70	70		72	71	71	68	67
27				66	66		62	65	67		70	71	70		72	70	71	68	65
28				63	66	55		61	68	67		70	70	70		71	71	69	65
29				65	67	60	63		67	69	69		70	70	72		70	67	67
30				52	62	60	65		70	72	72		72	70	73		72	68	66
31					59	62	66	67		72	72	72		70	72	72		67	66

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

OCTOBER-2020-BAY-1-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: OCTOBER-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1	7			5.3		2	
2	3.8			3		2	
3	3			2.5		2	
4							
5	7.7			5.6		2	
6	3.8			2.25			
7	8			5.2		2	
8	6.8			4.3		2	
9	3.1			2			
10	3.5			2.6		2	
11							
12	3.1			2.4		1	
13	3.75			3.3		1	
14	3.7			7.05		2	
15	7.85			3.4		1	
16	4.4			4.5		1	
17	4			4.1		2	
18							
19	7.7			7.9		2	
20	3.75			3.7		1	
21	7.85			7.45		1	
22	8.3			7.8		2	
23	7.5			7.4		2	
24	3.5			3.5		2	
25							
26	8.1			7.7		2	
27	7.4			7.3		1	
28	3.8			3.9		1	
29	8.3			8.2		2	
30	9			9.2			
31						2	
Totals:	148.7		0	131.55		40	

Temperature Tracking Program														Bay Number:	3					
		Zone A			Zone B				Zone C				Zone D				Zone E			
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	
Month																				
Day 1				60	64	64		67	70	71	70		66	65	68	69		68	67	
2				64	68	67	68		70	72	72	72		68	66	70	70		66	
3				61	66	65	67	68		68	70	72	70		67	71	70	67		
4																				
5				65	67	67	67	67	67		69	72	71	66		72	70	70	68	
6				64	66	66	68	69	68		72	72	70	68		72	72	71	69	
7				62	62	64	70	70	72	72		75	72	65	67		71	68	65	
8				63	65	65	68	69	71	72	72		72	69	68	72		68	67	
9				65	63	64	64	66	66	68	70		72	68	70	73		69	65	
10					65	67	68	68	70	70	72	72		67	68	70	72		67	
11																				
12				66		64	60	60	67	70	71	70	67		68	70	69	65		
13				57		67	68	65	71	70	72	72	73		70	72	72	69		
14				56	64		68	68	70	72	73	72	69	66		70	70	68	66	
15				68	65	67		70	69	71	72	72	70	67	70		71	68	67	
16				60	66	68		69	68	70	70	72	72	68	71		72	70	67	
17					67	67	69		67	71	72	72	73	69	70	72		70	68	
18																				
19				62		63	64	65		69	69	69	68	64	64	69	66		67	
20				60	63		67	69	70		70	73	72	68	66	69	68	66		
21				66	64		68	70	70		73	72	70	66	68	71	70	70		
22				57	62	66		70	71	72		73	71	68	67	70	68	67	65	
23				60	63	63	65		68	68	72		72	66	65	71	70	68	67	
24				57	60	63	58	60		61	68	68		63	65	69	69	69	65	
25																				
26				56	62	65	65	67	65		70	72	70		66	70	68	67	64	
27				59	63	64	66	64	67	70		71	70	66		68	69	68	67	
28				57	64	64	65	65	66	70		72	72	65		71	69	68	68	
29				58	61	65	62	66	66	68	70		71	67	68		69	67	66	
30				60	62	63	65	65	70	72	72		72	70	73		72	68	66	
31				56	59	62	66	67	69	72	72	72		70	72	72		67	66	

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

OCTOBER-2020-BAY-3-TRACKING SHEET

Temperature Tracking Program									Bay Number:			1						
		Zone A			Zone B			Zone C					Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1																			
2				59		62	60	60	68		67	67	66		66	70	72		68
3				56	65		67	66	68	71		70	70	66		70	70	66	
4				53	62		62	66	70	72		70	66	68		63	64	62	
5				67	65	62		68	70	68	70		66	69	70		67	65	67
6				57	66	60		67	69	66	62		64	68	68		68	64	65
7				58	64	61	63		70	71	70	66		58	62	66		66	68
8																			
9				62	68	66	65	62		72	74	76	70		60	60	64		66
10				60	66	64	65	68		72	73	73	70		64	65	66		68
11				61	67	65	66	64	68		72	73	70	72		64	64	60	
12				60	65	63	65	66	69		72	72	70	72		67	68	67	
13				58	66	64	64	65	65	70		73	73	70	68		68	66	66
14					65	62	66	66	68	72	73		70	72	68	67		65	65
15																			
16				66		63	65	65	72	70	72	74		70	66	68	69		66
17				67		58	60	58	64	70	70	70		68	66	69	68		64
18				66	61		59	59	68	68	70	69	68		64	68	66	63	
19				57	63		65	63	69	72	73	73	68		62	61	62	62	
20				58	65	62		60	67	71	73	74	72	68		65	67	64	63
21					67	64	67		70	72	73	73	71	68	65		62	61	61
22																			
23				67		63	60	63		70	72	74	73	70	66	67		64	64
24				58	68		65	67	69		73	74	72	70	67	66	64		63
25				57	66		67	66	70		75	74	72	68	65	63	63		60
26				57	63	62		63	70	72		76	73	71	67	67	65	63	
27				57	64	62		64	69	71		74	74	70	67	68	70	66	
28				60	64	61	63		70	72	73		74	72	66	67	67	65	65
29																			
30				64	66	64	67	67		73	73	74		71	65	67	69	66	63
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

NOVEMBER-2020-BAY-1-TRACKING SHEET

Temperature Tracking Program									Bay Number:				3						
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1																			
2				65	67	65	66	67	64	66	70	70	70		68	72	70		66
3				67	63	66	68	68	66	70	72	72	71	70		70	70	66	
4				50	64	64	66	66	66	68	71	72	70	65		70	72	68	
5				68	62	67	69	68	70	72	72	73	71	68	68		70	65	64
6				56	63	66	66	68	72	73	73	72	72	66	68		70	68	66
7				59	63	63	64	64	67	70	73	73	68	66	68	72		70	68
8																			
9				65	65	63	66	65	68	68	70	73	72	66	68	74	74		68
10				57	64	62	65	66	69	71	72	72	72	67	69	72	70		67
11				54	65	66	68	70	72	72	73	72	68	66	68	70	72	70	
12				55	65	67	67	69	71	70	73	72	70	68	68	71	70	70	
13				52	64	66	68	68	70	70	72	70	70	66	67	70	70	69	67
14					62	67	68	69	71	70	72	73	73	68	68	70	72	69	67
15																			
16				64		65	67	67	68	68	72	74	72	65	68	72	70	68	66
17				60		62	60	56	59	62	64	67	71	70	68	69	68	66	66
18				60	65		61	55	58	58	61	66	70	63	63	66	68	67	64
19				58	66		66	67	70	70	72	72	68	64	65	68	69	65	63
20				58	65	62		61	64	68	70	72	69	64	68	72	71	68	64
21					66	66	68		70	71	73	72	72	65	65	68	68	67	68
22																			
23				60		66	67	66		70	72	73	72	68	70	73	72	69	65
24				60	64		68	68	70		74	74	73	70	71	71	70	67	64
25				55	63		69	70	72		74	75	72	66	68	70	69	66	62
26				54	60	65		70	71	74		74	72	66	68	70	70	68	65
27				68	68	67		65	68	68		72	72	66	70	74	72	69	66
28				64	66	65	67		71	73	74		73	69	70	72	72	68	64
29																			
30				67	67	67	68	68		70	72	73		68	72	74	72	70	64
31																			

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

NOVEMBER-2020-BAY-3-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: NOVEMBER-2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1							
2	8.2			8.3		2	
3	4.2			4.35		2	
4	4.7			4.9			
5	3.8			3.9		2	
6	7.5			7.65			
7						2	
8							
9	7.1			7.3		2	
10	3.9			4			
11	3.6			3.9		2	
12	4			4.2			
13	7			7.15		2	
14						2	
15							
16	7.7			7.8		2	
17	4.3			4.2			
18	3.8			3.8		2	
19	7.9			8			
20	8.3			8.5		2	
21						2	
22							
23	7.8			8.1		2	
24	8.5			8.6		2	
25	7.5			7.6			
26						2	
27	4			4.2			
28	3.9			4		2	
29							
30	4			3.9		2	
31							
Totals:	121.7		0	124.35		34	

Temperature Tracking Program									Bay Number:			1							
		Zone A			Zone B				Zone C				Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month			-																
Day 1				61	65	63	68	69		73	73	75		72	67	68	70	67	64
2				68	67	62	65	67			73	75			66	68	68	65	63
3				57	68	65	67	67	70			73	71			63	65	64	62
4				56	61	59	59	61	68			75	72			63	63	61	61
5					62	60	62	63	67	70			73	67			64	63	60
6																			
7				59		62	63	62	68	72	73			68	64			62	62
8				56	63		64	66	70	72	73	75			65	66	68		61
9				58	65	62		65	69	73	75	75	72			60	62	60	
10				54	62	60		69	74	75	75	74	72			64	66	60	
11				50	60	61	63		77	76	75	73	71	66			66	58	61
12					63	61	65	68		75	76	74	72	69	65			60	59
13																			
14				58		62	65	58	67		71	75	74	68	63	64			64
15				57		60	64	67	72		74	74	73	67	64	66			61
16				58	60		67	65	69	72		73	70	67	64	63	63	60	
17				56	63		66	64	68	68		72	70	68	66	65	62	60	
18				60	67	60		60	62	66	65		70	66	64	63	63	60	60
19					64	62	66		67	70	72	72		69	67	64	65	62	60
20																			
21				60		65	67	66		72	74	73	70		66	62	60	60	57
22				58	66		67	64	70		74	76	78	68		63	62	60	62
23				50	66		64	63	69		73	73	71	66		61	61	60	58
24				57	66	66		65	71	72		73	72	67	66		63	61	59
25				59	66	65		68	72	74		76	72	68	65		62	60	60
26				60	64	64	66		78	71	74		71	70	67	63		60	57
27																			
28				65	65	64	67	68		70	69	73		66	63	62	61		56
29				60	66	65	69	68	72		76	74	71		65	63	61	60	
30				58	65	66	70	72	74	76		75	70	66		62	60	59	57
31				61	67	65	68	70	73	75	74		71	67	66		60	58	58

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

DECEMBER-2020-BAY-1-TRACKING SHEET

BRISTOL SLUDGE COMPOSTING FACILITY
MONTHLY SUMMARY

MONTH: DECEMBER -2020

Date	Sludge (Wet Tons)	% Solids Sludge	Dry Tons Sludge	Amendment (Wet Tons)	% Solids Amendment	Bays Turned	% Solids Compost
1	7.7		7.9			2	
2	7.7		7.5			2	
3	8.5		8.4			2	
4	7.8		7.6			1	
5						2	
6							
7	8.6		8.4			2	
8	9.05		8.8			2	
9	8.3		7.9			1	
10	2.8		3			1	
11	4		3.9			1	
12	2.9		3			2	
13							
14	7.9		7.5			2	
15	4.1		3.9			0	
16	7.6		7.4			2	
17	3.6		3.5			0	
18	4		4			2	
19	3.4		3.2			2	
20							
21	8.15		8.1			2	
22	7		6.9			2	
23	7.5		7.6			0	
24	4.2		4.1			2	
25							
26	4.5		4.7			2	
27							
28	8.8		8.9			2	
29	7.3		7.45			2	
30	7.2		7.6			2	
31	7.5		7.5			2	
Totals:	160.1		158.75	0		42	

Temperature Tracking Program									Bay Number:				3						
		Zone A			Zone B			Zone C					Zone D				Zone E		
	Input	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
Month																			
Day 1				65	68	64	65			72	72	74		70	72	72	71	66	65
2				66	67	65	68	70			73	73			70	72	71	67	65
3				65	65	63	64	66	68			74	72			73	72	68	64
4					66	67	67	71	71	72			64	64			69	67	66
5				57		68	67	69	70	70	73	74		65	68	72		68	65
6																			
7					66		66	66	67	70	72	75	72		67	74			65
8				65	64	67		68	70	72	72	74	71	67		73	72	67	
9				62	60	65		68	70	71	73	74	70	66		72	72	69	
10				54	57	63	68		70	73	74	75	74	65	67		71	66	65
11				49	50	62	70		72	73	75	76	73	62	62		70	65	65
12				53	56	65	68	71		73	74	76	72	64	66	70		67	66
13																			
14					60	64	63	63	66		70	71	70	62	63	72	72		68
15					59	64	65	69	72		73	75	73	65	67	73	73		65
16				63		65	65	66	67	70		74	72	67	70	75	74	68	
17				62		67	68	67	67	71		73	72	68	72	73	73	70	
18				60	62		65	65	64	67	70		70	67	70	72	72	70	63
19					63	66		67	67	69	73	72		68	71	73	72	67	65
20																			
21				60		70	74		68	69	72	75	73		72	74	73	70	64
22				56	62		64	67		70	71	73	72	68		72	68	65	62
23				53	58		64	62		67	70	72	71	63		70	66	63	61
24				60	62	64		67	67		70	72	72	70	68		70	64	60
25				63	67	65		66	68		72	73	70	70	74		72	68	62
26				58	67	64	66		70	71		74	72	69	67	70		66	64
27																			
28				62	64	63	64	68		69	71		70	65	66	70	66		66
29				61	65	64	66	67	71		72	73		67	69	73	70	67	
30				56	64	62	70	68	70	70		74	72		70	74	72	68	62
31				63	65	66	67	68	71	73	73		71	69		73	70	69	64

Color Key					
	Monday	Green	Friday	Blue	
	Tuesday	Yellow	Saturday	Purple	
	Wednesday		Sunday		
	Thursday	Orange			

DECEMBER-2020-BAY-3-TRACKING SHEET