

THRASHER

August 30, 2016



Ms. Bev McKeone, NSR Permitting Supervisor
WVDEP, Division of Air Quality
601 57th Street, SE
Charleston, West Virginia 25304

Re: 45CSR13 Permit Application
Piney Creek Wastewater Treatment Plant

Dear Ms. McKeone:

The Thrasher Group, Inc. (Thrasher) has prepared the Attached Rule 13 Application on behalf of the Beckley Sanitary Board for their Piney Creek Wastewater Treatment Plant located at 700 Piney Creek Road, Beckley, Raleigh County, West Virginia. If you have any questions or require additional information, please do not hesitate to contact me. I look forward to working with you throughout the review of this application.

Best Regards,

Beckley Sanitary Board

A handwritten signature in blue ink that reads "Jeremiah Johnson".

Jeremiah Johnson
Beckley Sanitary Board Manager

Enclosure: Permit Application

A yellow rectangular sticky note with handwritten text in black ink. The text reads: "Beckley Sanitary Board", "Beckley; Piney Creek", "081-20165", "R13-3341", and "Joe Kessler".

Beckley Sanitary Board
Beckley; Piney Creek
081-20165
R13-3341
Joe Kessler

APPLICATION FOR RULE 13 GENERAL PERMIT

PINEY CREEK WASTEWATER TREATMENT PLANT

700 Piney Creek Road
Beckley, Raleigh County, West Virginia

Submitted to:
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street
Charleston, West Virginia 25304

Prepared for:
Beckley Sanitary Board
301 South Heber Street
Beckley, West Virginia 25801

Prepared by:
The Thrasher Group, Inc.
600 White Oaks Boulevard
Bridgeport, West Virginia 26330

August 2016

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General Permit Registration Application Fee



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

**APPLICATION FOR NSR PERMIT
AND
TITLE V PERMIT REVISION
(OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOWN):

- CONSTRUCTION MODIFICATION RELOCATION
 CLASS I ADMINISTRATIVE UPDATE TEMPORARY
 CLASS II ADMINISTRATIVE UPDATE AFTER-THE-FACT

PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF ANY):

- ADMINISTRATIVE AMENDMENT MINOR MODIFICATION
 SIGNIFICANT MODIFICATION

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant (as registered with the WV Secretary of State's Office):

Beckley Sanitary Board

2. Federal Employer ID No. (FEIN):

55 - 6000144

3. Name of facility (if different from above):

Piney Creek Wastewater Treatment Plant

4. The applicant is the:

- OWNER OPERATOR BOTH

5A. Applicant's mailing address:

**Attention: Jeremiah Johnson
301 South Heber Street
Beckley, West Virginia 25801**

5B. Facility's present physical address:

**Attention: Jeremiah Johnson
700 Piney Creek Road
Beckley, West Virginia 25801**

6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? YES NO

- If YES, provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A**.
- If NO, provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A**.

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: **City of Beckley**

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site*? YES NO

- If YES, please explain: **The applicant owns, operates, and maintains the site.**
- If NO, you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated or temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): **Wastewater Treatment Plant (Flare)**

10. North American Industry Classification System (NAICS) code for the facility:

221320

11A. DAQ Plant ID No. (for existing facilities only):

-

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):

Not Applicable

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits**, please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

-From Interstate 64, take Exit 124 Beckley/Eisenhower Drive

-Turn left on Route 19 (S Eisenhower Drive) and drive approximately 0.81 miles

-Turn left on Piney Creek Road and drive approximately 1.22 miles.

12.B. New site address (if applicable):

Not Applicable

12C. Nearest city or town:

Beckley

12D. County:

Raleigh

12.E. UTM Northing (KM): **486469.71**

12F. UTM Easting (KM): **4180329.42**

12G. UTM Zone: **17S**

13. Briefly describe the proposed change(s) at the facility:

The permit application covers the modification of a wastewater treatment plant. The existing equipment is being replaced because it has reached the end of its useful life. New source of emission consists of a waste gas burner (flare).

14A. Provide the date of anticipated installation or change: **05/01/2017**

- If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / / **Not Applicable**

14B. Date of anticipated Start-Up if a permit is granted:

05/01/2017

14C. Provide a **Schedule** of the planned **Installation of/Change to** and **Start-Up** of each of the units proposed in this permit Application as **Attachment C** (if more than one unit is involved). **See Attachment C**

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:

Flare (Waste Gas Burner) Hours Per Day **24** Days Per Week **7** Weeks Per Year **52**

16. Is demolition or physical renovation at an existing facility involved? **YES** **NO**

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III. **This facility is not subject to 112(r) (methane used as fuel).**

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (*if known*). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (*if known*). Provide this information as **Attachment D**. **See Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to **Plot Plan Guidance**).

- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F**.

23. Provide a **Process Description** as **Attachment G**.

- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.

- For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

<input type="checkbox"/> Bulk Liquid Transfer Operations	<input type="checkbox"/> Haul Road Emissions	<input type="checkbox"/> Quarry
<input type="checkbox"/> Chemical Processes	<input type="checkbox"/> Hot Mix Asphalt Plant	<input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities
<input type="checkbox"/> Concrete Batch Plant	<input type="checkbox"/> Incinerator	<input type="checkbox"/> Storage Tanks
<input type="checkbox"/> Grey Iron and Steel Foundry	<input type="checkbox"/> Indirect Heat Exchanger	
<input type="checkbox"/> General Emission Unit, specify		

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

<input type="checkbox"/> Absorption Systems	<input type="checkbox"/> Baghouse	<input checked="" type="checkbox"/> Flare
<input type="checkbox"/> Adsorption Systems	<input type="checkbox"/> Condenser	<input type="checkbox"/> Mechanical Collector
<input type="checkbox"/> Afterburner	<input type="checkbox"/> Electrostatic Precipitator	<input type="checkbox"/> Wet Collecting System

Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.

➤ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and **Example Legal Advertisement** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

YES NO

➤ If YES, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's **"Precautionary Notice – Claims of Confidentiality"** guidance found in the **General Instructions** as **Attachment Q**.

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

<input type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R**. **Not Applicable**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

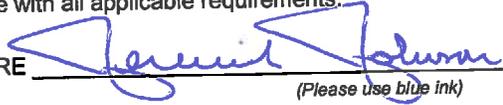
35A. Certification of Information. To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned **Responsible Official** / **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE  (Please use blue ink) DATE: 9-13-16 (Please use blue ink)

35B. Printed name of signee: Jeremiah Johnson		35C. Title: Beckley Sanitary Board Manager
35D. E-mail: jjohnson@beckleysanitaryboard.org	36E. Phone: 304-256-1760	36F. FAX: 304-256-1793
36A. Printed name of contact person (if different from above): Julie Barry		36B. Title: Senior Scientist
36C. E-mail: jbarry@thrashereng.com	36D. Phone: 304-848-7839	36E. FAX: 304-624-7831

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- | | |
|--|--|
| <input type="checkbox"/> Attachment A: Business Certificate | <input type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet |
| <input checked="" type="checkbox"/> Attachment B: Map(s) | <input type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s) |
| <input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule | <input checked="" type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s) |
| <input checked="" type="checkbox"/> Attachment D: Regulatory Discussion | <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations |
| <input checked="" type="checkbox"/> Attachment E: Plot Plan | <input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans |
| <input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s) | <input checked="" type="checkbox"/> Attachment P: Public Notice |
| <input checked="" type="checkbox"/> Attachment G: Process Description | <input type="checkbox"/> Attachment Q: Business Confidential Claims |
| <input type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) | <input type="checkbox"/> Attachment R: Authority Forms |
| <input checked="" type="checkbox"/> Attachment I: Emission Units Table | <input type="checkbox"/> Attachment S: Title V Permit Revision Information |
| <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Application Fee |

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
 - NSR permit writer should notify Title V permit writer of draft permit,
- For Title V Minor Modifications:
 - Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
 - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Significant Modifications processed in parallel with NSR Permit revision:
 - NSR permit writer should notify a Title V permit writer of draft permit,
 - Public notice should reference both 45CSR13 and Title V permits,
 - EPA has 45 day review period of a draft permit.

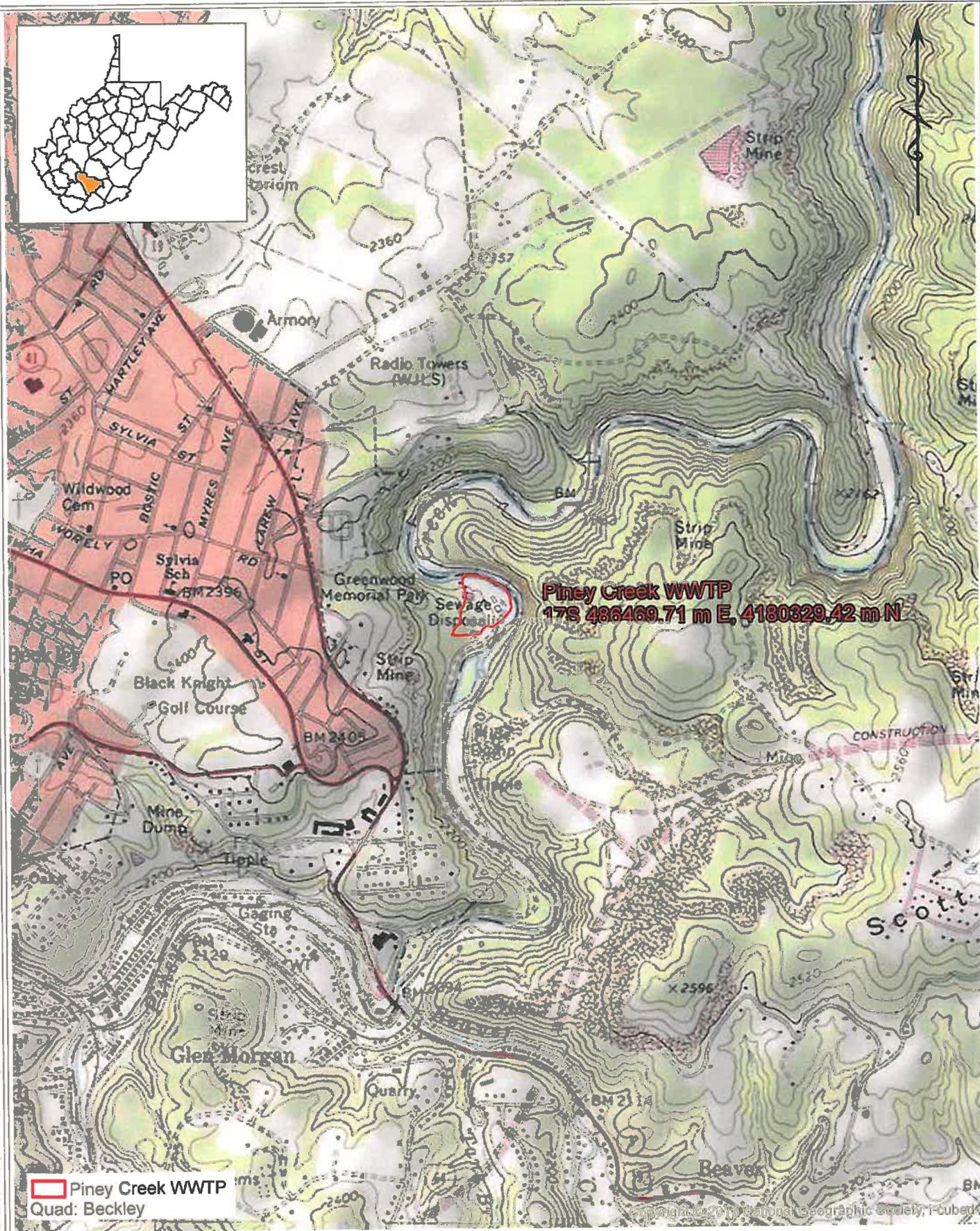
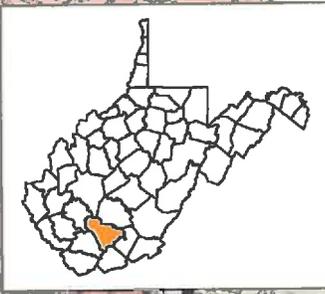
All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

ATTACHMENT A – Current Business Certificate

Current Business Certificate

The Beckley Sanitary Board qualifies for an Exempt Status; therefore, a current business certificate is not included in this package.

ATTACHMENT B – Maps



Piney Creek WWTP
17S 486469.71 m E, 4180329.42 m N

 Piney Creek WWTP
Quad: Beckley

**City of Beckley
Sanitary Board**

Figure 1: Site Location - Topo
Piney Creek WWTP
Raleigh County - West Virginia

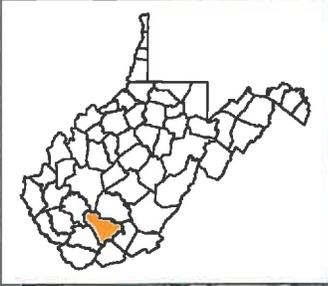
THRASHER

1 inch = 1,500 feet

6/22/2016

Document Path: R:\Common\Jufie Barry\Active Projects\1020-428 Piney Creek WWTP - Air Permit\GIS\WXD\Figs_SitetocTopo_PineyCreekWWTP.mxd
By: MWilliams

Copyright © 2010 National Geographic Society, i-Cubed



Piney Creek WWTP
17S 486469.71 m E, 4180329.42 m N

 Piney Creek WWTP
Quad: Beckley

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**City of Beckley
Sanitary Board**

Figure 2: Site Location - Aerial
Piney Creek WWTP
Raleigh County - West Virginia



1 inch = 1,000 feet

6/22/2016

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By: MWWilliams

Directions from I-64 to



Interstate 64
Beckley, WV 25801

- ↑ Head southwest on I-64 W
16 ft
- ↘ Take exit 124 toward US-19/Beckley/Eisenhower Drive
0.4 mi
- ↑ Continue onto Joe L Smith Dr
0.7 mi
- ↙ Turn left at Brookshire Ln
240 ft
- ↙ Turn left onto US-19 S/S Eisenhower Dr
0.8 mi
- ↘ Slight left onto Piney Creek Rd

1.2 mi

 **Slight left to stay on Piney Creek Rd**

220 ft

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

ATTACHMENT C – Installation and Start Up Schedule

Installation and Start Up

The Beckley Sanitary Board is preparing the Piney Creek Wastewater Treatment Plant flare for an anticipated startup date of May 1, 2017.

ATTACHMENT D – Regulatory Discussion

APPLICABLE REGULATIONS

This facility and the proposed process (if known) are believed to be applicable to the following rules and regulations. Applicability and proposed demonstration of compliance (if known) are discussed below.

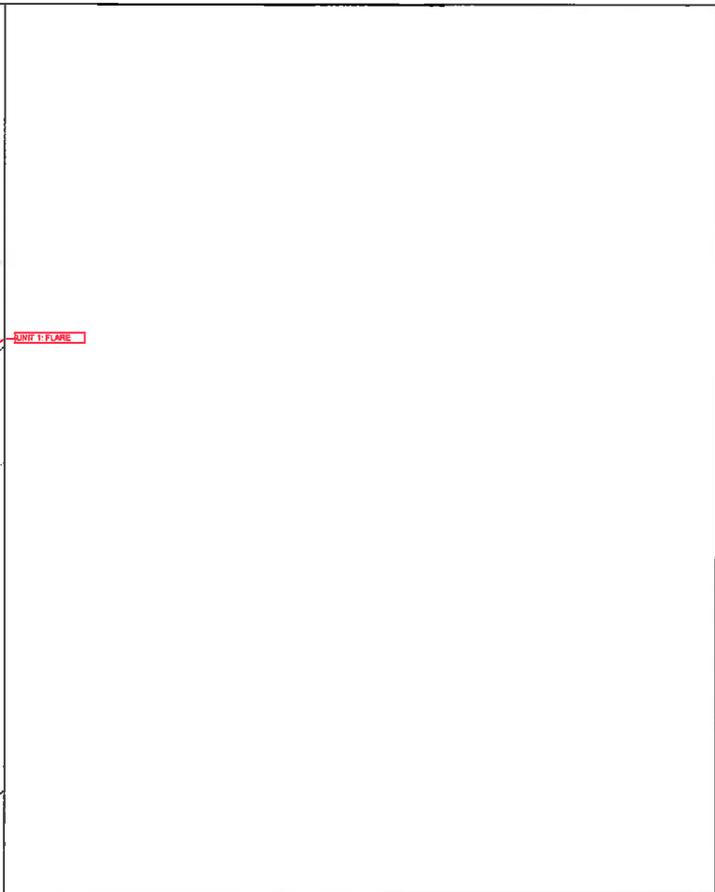
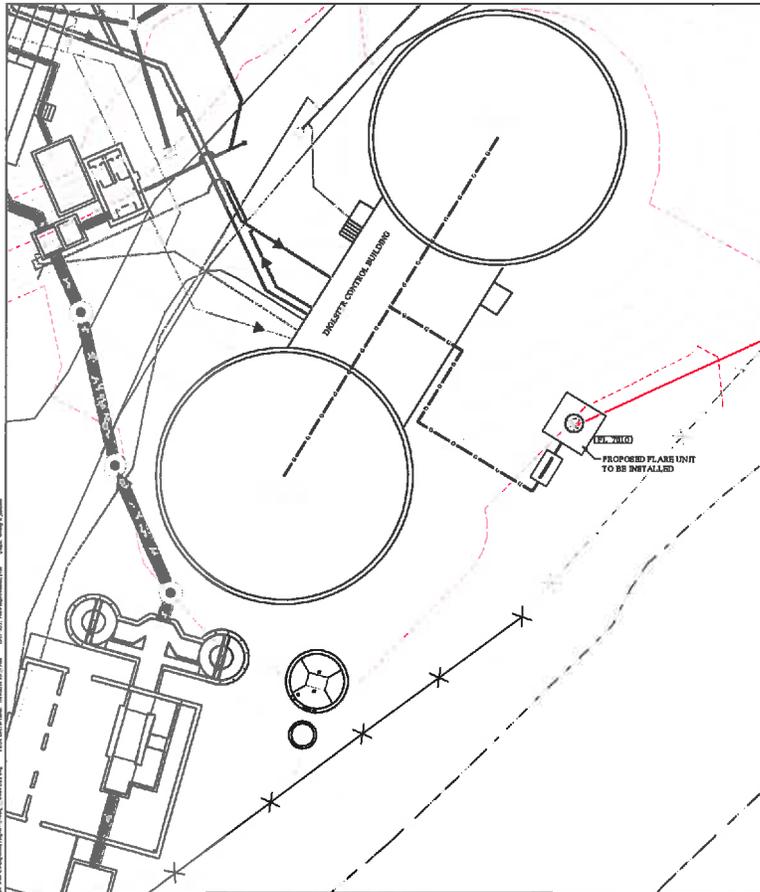
All Emission Units:

- 45 CSR 4 The facility shall not cause, suffer, allow, or permit discharge of air pollutants which cause or contribute to objectionable odor at any location occupied by the public.
- 45 CSR 13 This rule requires the facility to obtain a permit or revise a permit and to operate within the limits of the permit and in accordance with the permit application.
- 45 CSR 16 All new units must follow all applicable NSPS rules.
- 45 CSR 34 The facility is an area source of Hazardous Air Pollutants and component units must follow all applicable NESHAP rules.

Pollution Control Device (Waste Gas Burner):

- 40 CFR 60 The waste gas burner to be installed is subject to part 18 of 40 CFR 60. The waste gas burner is defined as a general control device and fits the criteria stated within this subsection. As defined, this regulation is thus applicable and necessary to ensure that standards of performance for new stationary sources are followed.
- 40 CFR 63 The waste gas burner to be installed is subject to part 11 of 40 CFR 63. The waste gas burner is defined as a general control device and fits the criteria stated within the subject. As defined, this regulation is thus applicable and necessary to ensure that national emission standards for hazardous air pollutants for source categories are followed.
- 45 CSR 2 Any fuel burning units having a heat input fewer than 10 MMBtu/hr will be exempt from most of the applicable requirements of this rule except the visible emission standard of 2-3.1.
- 45 CSR 10 Any fuel burning units having a heat input under 10 MMBtu/hr will be exempt from most of the applicable requirements of this rule except the sulfur content of the fuel in 10-5. The sulfur content of the process gas is about 0.26 grains per 100 feet³ which is much lower than the 50 grains per feet³ limit.

ATTACHMENT E – Plot Plan



DATE: 11/10/2010 10:52 AM PROJECT: Beckley Sanitary Board Co-Digestion Project...
 USER: j...
 LAYER: 101-020-142B

THIS DRAWING IS THE PROPERTY OF THRASHER ENGINEERING, INC. AND IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. ANY REUSE OR MODIFICATION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF THRASHER ENGINEERING, INC. IS STRICTLY PROHIBITED.

NO.	BY	DATE	DESCRIPTION

NO.	DATE	DESCRIPTION

SCALE	DATE
DRAWN	CHECKED
DESIGNED	DATE
PROJECT NO.	

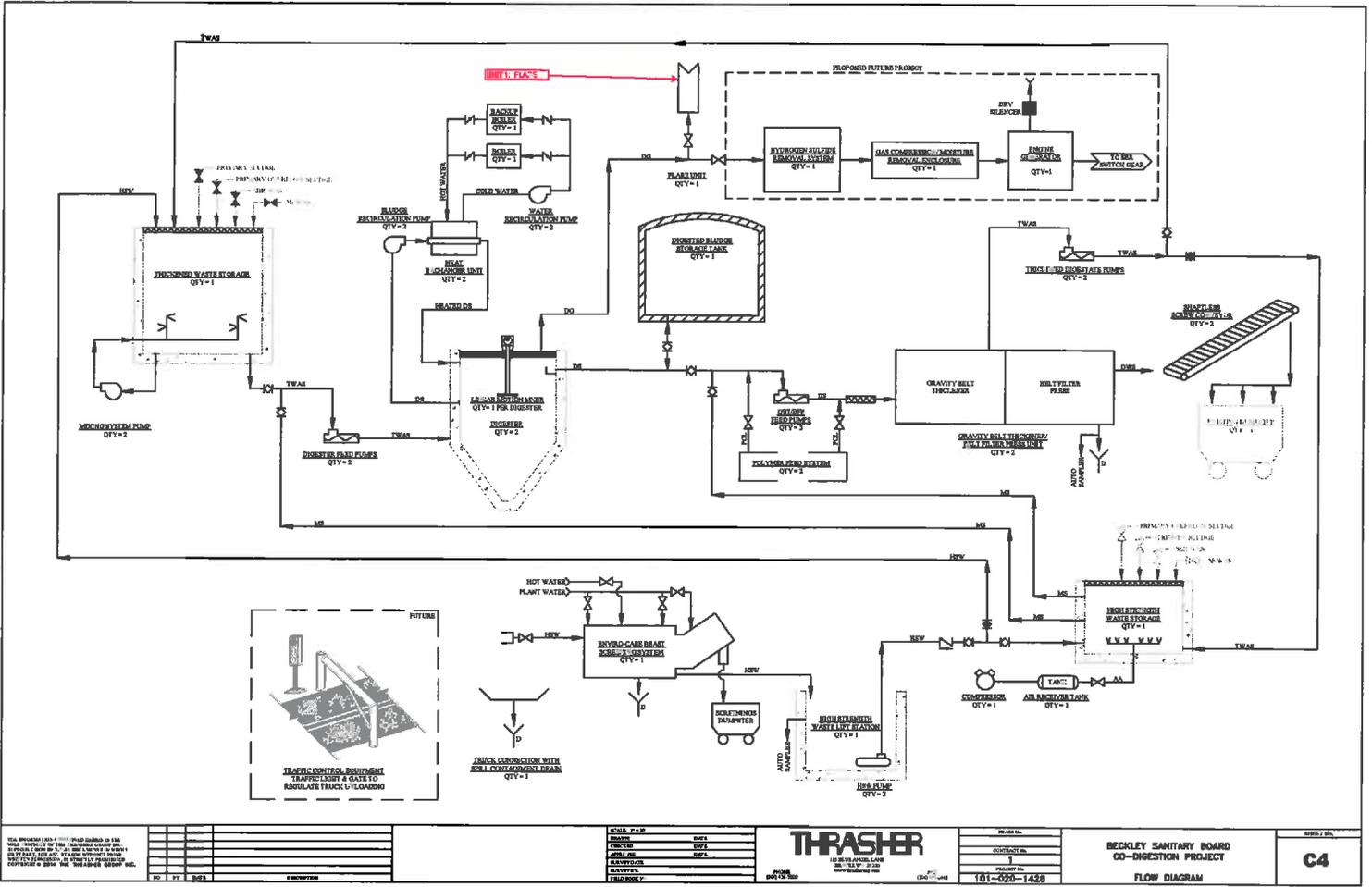
THRASHER
 ENGINEERING, INC.
 1000 WEST 10TH AVENUE
 DENVER, CO 80202
 www.thrasher.com

PROJECT NO.	

BECKLEY SANITARY BOARD
CO-DIGESTION PROJECT
FLARE IMPROVEMENT PLAN

C620

ATTACHMENT F – Detailed Process Flow Diagram



CHECKED BY: [Name] DATE: [Date]
 DESIGNED BY: [Name] DATE: [Date]
 DRAWING NO.: [Number]
 PROJECT NO.: [Number]
 SHEET NO.: [Number] OF [Total]

NO.	BY	DATE	REVISION

NO.	BY	DATE	REVISION

THRASHER

1800 W. 10th Street
 Denver, Colorado 80202
 Phone: (303) 733-1100
 Fax: (303) 733-1101

BECKLEY SANITARY BOARD
CO-DIGESTION PROJECT
FLOW DIAGRAM

C4

ATTACHMENT G – Process Description

PROCESS DESCRIPTION

The Piney Creek Wastewater Treatment Facility has a design flow of 8 million gallons per day (MGD) and consists of two parallel processes, a 4.5 MGD sequencing batch reactor (SBR) and a 3.5 MGD waste activated sludge process. Solids for both processes go through two – 400,000 gallon anaerobic digesters and are dewatered on belt filter presses before being land applied during the summer and landfilled in the winter. Tertiary treatment of the liquid stream is Ultra Violet (UV) disinfection before final discharge into Piney Creek.

The Beckley Sanitary Board is applying for coverage under 45CSR13, Regulation 13, for the construction and operation of a waste gas burner at the Piney Creek Wastewater Treatment Plant (WWTP). The Piney Creek WWTP site would like to have coverage and benefit from a digester gas safety system that allows for excess biogas to be disposed of safely through a highly reliable flare (Unit 1). This biogas is produced by the two anaerobic digesters mentioned above. The excess gas that it is not used by the boilers is flared to safely release a predominantly methane/carbon dioxide mixture into the atmosphere. The flare switches on when pressure inside the digester piping excess a set threshold via a pressure switch.

ATTACHMENT I – Emission Unit Table

ATTACHMENT J – Emission Points Data Summary Sheet

**Attachment J
EMISSION POINTS DATA SUMMARY SHEET**

Table 1: Emissions Data															
Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ³)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
1E	Vertical Stack	1S	Flare	N	None	NA	NA	PM	0.009	0.375	0.009	0.375	Solid	AP-42	NA
								SO2	0.000	0.003	0.000	0.003	Vapor	AP-42	
								NOx	0.02	0.882	0.02	0.882	Vapor	AP-42	
								CO	0.378	16.54	0.378	16.54	Vapor	AP-42	
								VOC	0.003	0.121	0.003	0.121	Vapor	AP-42	
								HAP	0.000	0.003	0.000	0.003	Vapor	AP-42	

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

¹ Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

² Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (i.e., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

³ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. DO NOT LIST H₂, H₂O, N₂, O₂, and Noble Gases.

⁴ Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁵ Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁶ Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

⁷ Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

**Attachment J
EMISSION POINTS DATA SUMMARY SHEET**

Table 2: Release Parameter Data

Emission Point ID No. <i>(Must match Emission Units Table)</i>	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow ¹ (acfm) <i>at operating conditions</i>	Velocity (fps)	Ground Level <i>(Height above mean sea level)</i>	Stack Height ² <i>(Release height of emissions above ground level)</i>	Northing	Easting
1E	0.50	375	100	11.46 fps	2,032	17.69 feet	4180272	486573

¹ Give at operating conditions. Include inerts.
² Release height of emissions above ground level.

ATTACHMENT M – Air Pollution Control Device Sheet(s)

Attachment M
Air Pollution Control Device Sheet
 (FLARE SYSTEM)

Control Device ID No. (must match Emission Units Table):

Equipment Information

1. Manufacturer: Varec Model No. 244W	2. Method: <input checked="" type="checkbox"/> Elevated flare <input type="checkbox"/> Ground flare <input type="checkbox"/> Other Describe Candle-stick
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.	
4. Method of system used: <input type="checkbox"/> Steam-assisted <input type="checkbox"/> Air-assisted <input type="checkbox"/> Pressure-assisted <input checked="" type="checkbox"/> Non-assisted	
5. Maximum capacity of flare: <div style="text-align: right;">scf/min</div> <div style="text-align: right;">9,520 scf/hr</div>	6. Dimensions of stack: <div style="text-align: right;">Diameter 0.5 ft.</div> <div style="text-align: right;">Height 10.67 ft.</div>
7. Estimated combustion efficiency: (Waste gas destruction efficiency) Estimated: 90 % Minimum guaranteed: N/A %	8. Fuel used in burners: <input checked="" type="checkbox"/> Natural Gas <input type="checkbox"/> Fuel Oil, Number <input type="checkbox"/> Other, Specify:
9. Number of burners: Rating: N/A BTU/hr	11. Describe method of controlling flame: Thermocouple
10. Will preheat be used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
12. Flare height: 10.67 ft	14. Natural gas flow rate to flare pilot flame per pilot light: standard is 100 @ 10" WC <div style="text-align: right;">scf/min</div> <div style="text-align: right;">scf/hr</div>
13. Flare tip inside diameter: 6.0 inches	
15. Number of pilot lights: 1 natural gas at 10" WC Total 108,150 BTU/hr	16. Will automatic re-ignition be used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
17. If automatic re-ignition will be used, describe the method: A patented pilot ignition system that uses pilot gas and air that are mixed and ignited at the ground level to provide the pilot a true stoichiometric, non-smoking flame. The pilot is not affected by changes in biogas flow rate or BTU content. The ignition creates a flame front that travels through the entire portion of the flame line and exits the flame nozzle at the burner tip. A thermocouple is installed at the flame nozzle; when it reaches its temperature setting, the pilot gas is automatically shut off. The pilot is not affected by changes in biogas flow rate or BTU content.	
18. Is pilot flame equipped with a monitor? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, what type? <input checked="" type="checkbox"/> Thermocouple <input type="checkbox"/> Infra-Red <input type="checkbox"/> Ultra Violet <input type="checkbox"/> Camera with monitoring control room <input type="checkbox"/> Other, Describe:	
19. Hours of unit operation per year: Dependent on the amount of boiler utilization and biogas production.	

Steam Injection

20. Will steam injection be used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Steam pressure N/A PSIG Minimum Expected: Design Maximum:
22. Total Steam flow rate: N/A LB/hr	23. Temperature: N/A °F
24. Velocity N/A ft/sec	25. Number of jet streams N/A
26. Diameter of steam jets: N/A in	27. Design basis for steam injected: N/A LB steam/LB
28. How will steam flow be controlled if steam injection is used? N/A	

Characteristics of the Waste Gas Stream to be Burned

29.	Name	Quantity Grains of H ₂ S/100 ft ³	Quantity (LB/hr, ft ³ /hr, etc)	Source of Material
	Methane	60-65 (%)	3,600-3,900 ft ³ /hr	Digester Gas
	Carbon Dioxide	35-40 (%)	2,100-2,400 ft ³ /hr	Digester Gas
30. Estimate total combustible to flare: 6,048 ACF/hr (Maximum mass flow rate of waste gas) Based on Pipe/Flare siz 100 scfm				
31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.: 6,048 ACF/hr				
32. Give composition of carrier gases: N/A				
33. Temperature of emission stream: 95 °F Heating value of emission stream: 621 BTU/ft ³ Mean molecular weight of emission stream: MW = 27.228 lb/lb-mole			34. Identify and describe all auxiliary fuels to be burned. None. BTU/scf BTU/scf BTU/scf BTU/scf	
35. Temperature of flare gas: 95 °F			36. Flare gas flow rate: 129.1 scf/min	
37. Flare gas heat content: 621 BTU/ft ³			38. Flare gas exit velocity: 657.5 scf/min	
39. Maximum rate during emergency for one major piece of equipment o60r process unit: 129.1 scf/min				
40. Maximum rate during emergency for one major piece of equipment or process unit: 80,167 BTU/min				
41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification): No gas conditioning processes occur for this air pollution control device.				
42. Describe the collection material disposal system: Biogas is produced during the primary processes involving the usage of the anaerobic digesters. As it is produced within the digester, if the pressures exceed a preset standard, gas is sent to the flare and the flare destroys harmful components.				
43. Have you included Flare Control Device in the Emissions Points Data Summary Sheet? Yes				

<p>44. Proposed Monitoring, Recordkeeping, Reporting, and Testing Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.</p>	
<p>MONITORING: The monitoring of emissions is limited to manufacturer recommendations and visual inspection of the flare.</p>	<p>RECORDKEEPING: Recordkeeping is followed by keeping records of maintenance practices described by manufacturer.</p>
<p>REPORTING: Emissions reporting is not proposed.</p>	<p>TESTING: Emissions testing is not proposed.</p>
<p>MONITORING: Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.</p> <p>RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.</p> <p>REPORTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.</p> <p>TESTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.</p>	
<p>45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant. None</p>	
<p>46. Manufacturer's Guaranteed Control Efficiency for each air pollutant. None</p>	
<p>47. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty. The flare is an open-type of candle-stick flare. Please refer to enclosed flare height calculations.</p>	

ATTACHMENT N – Supporting Emissions Calculations

Supporting Emissions Calculations

1. Unit Descriptions

Emission Unit 1S Waste Gas Flare, 9,520 scf/hr burning capacity, New
Varec Model 244 WL, 6"
Scheduled to be installed in 2017.

2. Emission Factors

Typical biogas consists of methane (60% - 65%) and carbon dioxide (35% - 40%) with trace levels of other gases such as hydrogen, carbon monoxide, nitrogen, and hydrogen sulfide. The relative percentages of these constituents depend on the feed material and process management.

With the exception of sulfur dioxide, we will base emission factors for biogas on AP-42 emission factors for Natural Gas combustion (Tables 1.4-1, 1.4-2, and 1.4-3). Per AP-42 instructions, we will adjust the emission factor for the heat content of typical municipal WWTP biogas (621 MMBtu/MMcf). Assume natural gas has a heat content of 1,020 MMBtu/MMcf as described in AP-42. Use the greater of the two to calculate the potential to emit.

Sulfur dioxide emissions from biogas combustion depend on the sulfur content of the fuel. AP-42 does not list emission factors for flares burning biogas or natural gas. We will use emission factors for Municipal Solid Waste Landfills and Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion to approximate potential emission from the flare.

For Potential To Emit calculations, this unit will operate 8,760 hours/year. The manufacturer lists the maximum capacity of the flare as 9,520 cf/hr. The worst case scenario for emissions from the flare would be if all gas produced was routed to the flare. It is industry standard to say that gas production in a municipal WWTP digester that is operating at peak operational capacity is 12-18 cf of biogas produced per pound of volatile solids destroyed.

Gas Production = 185,900 cf/day = 7,746 cf/hr

Biogas Heating Value = 621 Btu/cf

Fuel Input Rate = 4.81 MMBtu/hr

SAFE OPERATING HEIGHT CALCULATIONS

Design Criteria				
Q	129.0972 scfm	Flow Rate - Maximum gas production	185,900 cfd	
T	95 Deg. F	Gas Temperature		
D	6 inches	Flare Diameter		
H	621 Btu/cu. Ft.	Heat Content - Must be based on 60.18 F (3)		
L	17.69 Ft	Burner Tip above Ground Level	Based on Drawing M-375, Atlantic Treatment Plant Expansion Phase 1, Contract C	
	10.66667 Ft	Burner Standard height		
	7.02 Ft	Additional height from ground to base of flare.	6" Flame trap assembly is 36.25" length installed in vertical and approximately	
Gas Exit Velocity				
V	11.46383 ft/s	Part 60.18 C.3.II and C.4.III	Vmax 43.5166 m/s BTU 23.1454 MJ/scm (metric)	142.7709 fps MUST NOT EXCEED THIS VALUE TO MEET PART 60.18, PARA. F(5)
Flame Length				
Lf	11.22189 Feet	6.291739	LOG(Vmax) = (Ht + 28.8)/31.7 equation	
Flame height center under wind conditions				
Yc	0.561096			
Radiation Level @ 6 feet above Ground (assuming average height of an operator is 6 foot)				
K	345.0107	Should be below 1500		
		Change the burner tip stack height above ground level until K value is below 1500 BTU/h-ft2		

60.18 F (3)

(3) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \sum_{i=1}^n C_i H_i$$

where:

$H_T =$ Net heating value of the sample, MJ/scm; where the net enthalpy per mole of ofgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole

$$K = \frac{\text{Constant, } 1.740 \times 10^{-7}}{\left(\frac{1}{\text{ppm}}\right) \left(\frac{\text{g mole}}{\text{scm}}\right) \left(\frac{\text{MJ}}{\text{Kcal}}\right)}$$

where the standard temperature for $\left(\frac{\text{g mole}}{\text{scm}}\right)$ is 20°C;

60.18 C.3.II

(II) Flares shall be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being 7.45 MJ/scm (200Btu/scf) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (f) (3) of this section.

60.18 C.4.III

Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4), less than the velocity, V_{max} , as determined by the method specified in paragraph (f)(5), and less than 122m/sec (400ft/sec) are allowed.

F.4

(4) The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip.

additional 2 feet on either side.

**ATTACHMENT O – Monitoring / Recordkeeping / Reporting /
Testing Plans**

Monitoring, Recordkeeping, Reporting, and Testing Plans

For Unit 1S, Beckley Sanitary Board (BSB) recommends to follow the manufacturer's recommended operation and maintenance instructions to ensure complete combustion of waste gas.

ATTACHMENT P – Public Notice

Attachment P – Affidavit of Publication

At the time that the application was submitted, a Class I Legal Advertisement was placed in The Register-Herald. The Affidavit of Publication will be submitted immediately upon receipt. Below is the content of the Legal Advertisement.

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Beckley Sanitary Board has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit for a Construction Permit under 45 CSR 13 for a flare located at 700 Piney Creek Road, Beckley in Raleigh County, West Virginia. The latitude and longitude coordinates are: 37.770217 N, -81.153437 W.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be:

Potential Emissions	Emissions in tpy (tons per year)
NO _x	0.882
CO	16.54
VOC	0.121
SO ₂	0.013
PM ₁₀	0.375
Total HAPs	0.003

Startup of operation is planned to begin on or about the 1st day of May, 2017. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the ___ day of _____, **2016**

By: Beckley Sanitary Board
Jeremiah Johnson
Beckley Sanitary Board Manager
301 South Heber Street
Beckley, West Virginia 25801

Application Fee

Application Fee

This page is a placeholder for the check payable to the WVDEP – Division of Air Quality for the aforementioned application fee. As required by 45 CFR 22, all permit applications pursuant to 45 CSR 13 shall pay an application fee of \$ 1,000. In addition to this fee, an additional \$ 1,000 is assessed for a New Source Performance Standards (NSPS) requirement review.

The total fee included with this application is \$ 2,000.