



COMMONWEALTH of VIRGINIA

Molly Joseph Ward
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800
www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

April 17, 2017

Mr. Charles P. Boepple
Executive Director
Upper Occoquan Service Authority
14631 Compton Road
Centreville, VA 20121-2506

Location: Fairfax County
Registration No.: 71770

Dear Mr. Boepple:

Attached is a minor amendment to your new source review permit dated May 31, 2013 (as amended December 27, 2013), to modify and operate a water reclamation facility in accordance with the provisions of the Commonwealth of Virginia State Air Pollution Control Board's (Board) Regulations for the Control and Abatement of Air Pollution (Regulations). This amended permit supersedes your permit document dated December 27, 2013.

The Department of Environmental Quality (DEQ) deemed the application complete on November 4, 2016 and has determined that the application meets the requirements of 9 VAC 5-80-1280 A for a minor amendment to a new source review permit.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and/or civil charges. Please read all permit conditions carefully.

This permit approval to modify and operate the facility shall not relieve Upper Occoquan Service Authority (UOSA) of the responsibility to comply with all other local, state, and federal permit regulations.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code (VAC) 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within thirty days after this case decision notice was mailed or delivered to you. Please consult the relevant regulations for additional requirements for such requests.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, Director
Department of Environmental Quality
P. O. Box 1105
Richmond, VA 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact Ms. Sevgi Rudd at (703) 583-3806 or via email at sevgi.rudd@deq.virginia.gov.

Sincerely,



James B. LaFratta
Regional Air Permit Manager

TAF/JBL/SCR/71770mNSR (4-17-2017)

Attachment: Permit

cc: Thomas Appleman, UOSA (electronic file submission)
Regional Air Compliance Manager (electronic file submission)



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STATIONARY SOURCE PERMIT TO MODIFY AND OPERATE

This permit includes designated equipment subject to National Emission Standards for Hazardous Air Pollutants (NESHAP).

This amended permit supersedes your permit dated December 27, 2013.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Upper Occoquan Service Authority (UOSA)
14631 Compton Road
Centreville, VA 20121
Registration No.: 71770
Plant ID No.: 059-00415

is authorized to modify and operate

a waste water treatment plant

located at

14631 Compton Road
Centreville, VA 20121

in accordance with the Conditions of this permit.

Approved on: May 31, 2013
Amended on: December 27, 2013
Amended on: April 17, 2017

Thomas A. Faha
Regional Director

Permit consists of 22 pages. (w/o the two appendices)
Permit Conditions 1 to 34.

Appendix A – Emissions Calculations (2 pages)
Appendix B – Source Testing Report Format (1 page)

INTRODUCTION

This permit approval is based on the permit applications dated May 5, 2006 (as amended May 25, 2006, June 16, 2006, May 25, 2007), June 19, 2009, December 12, 2011, December 19, 2011, February 27, 2012, October 17, 2012, May 7, 2013, December 9, 2013, and October 25, 2016 and supplemental information dated July 30, 2007, August 3, 2007, October 3, 2007, October 9, 2007, October 30, 2007, October 31, 2007, November 2, 2007, January 15, 2008, January 16, 2008, March 6, 2008, March 31, 2008, April 3, 2008, April 18, 2008, April 23, 2008, November 24, 2008, December 17, 2008, January 21, 2009, February 10, 2009, February 18, 2009, March 12, 2009, July 30, 2009, April 5, 2012, May 21, 2012. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-10-20 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

Equipment List – Equipment at the facility consists of the following:

Table 1.A Equipment to be Constructed				
Reference No.	Equipment Description	Rated Capacity	Control Technologies	Federal Requirements
DRY2	One Andritz Model DDS40 natural gas-fired direct rotary sludge dryer	13.7 MMBtu/hr	Fixed throat venturi Scrubber (SCB2) and Regenerative Thermal Oxidizer (RTO2)	40 CFR 61, Subpart E

Table 1.B Equipment already constructed but to be modified				
Reference No.	Equipment Description	Rated Capacity	Control Technologies	Federal Requirements
GEN1	One Alco 18-251 diesel engine driven generator set, 1977	2.5 MW	Diesel oxidation catalyst (DOC1)	N/A
GEN2 GEN3	Two Caterpillar 3608 Diesel engine driven generators sets, 2004	2.5 MW (each unit)	Diesel oxidation catalyst (DOC2, DOC3)	N/A

Table 1.C Equipment permitted prior to the date of this permit				
Reference No.	Equipment Description	Rated Capacity	Control Technologies	Original Permit Date
GAC1	One natural gas-fired Nichols-Herreshoff Multiple Hearth Carbon Regeneration Furnace.	9.1 MMBtu/hr (12,000 lbs/day of carbon)	Impingement Scrubber	1976
GAC2	One natural gas-fired Multiple Hearth Carbon Regeneration Furnace	9.1 MMBtu/hr (12,000 lbs/day of carbon)	Advanced Venturi Scrubber	2009
DRY1	One Berlie-Falco natural gas-fired rotary sludge dryer system	10.8 MMBtu/hr	Berlie-Falco Baghouse	2004
LMSILO1 LMSILO2 LMSILO3	Three Lime silos	3,500 cf (each unit)	Eastern Control Systems Model 18C-10 baghouse (LBH1)	1977
LMSILO4 LMSILO5 LMSILO6	Three Lime silos	3,800 cf (each unit)	Griffin Model 72-JS baghouse (LBH2-4)	2003/2004
LMSILO7	Lime silo	1,200 cf	DCE Unimaster Model UMA 250H-G5 baghouse(LBH5)	2003/2004
SPSILO1 SPSILO2 SPSILO3 SPSILO4	Four Sludge pellet silos	10,900 cf (each unit)	AAF Millennium Pulse Model No. Jet192-3602 baghouse (SPBH1)	2003/2004
DGBLR1 DGBLR2	Two Cleaver Brooks CB-200-125 Natural Gas / Digester Gas Boilers	5.23 MMBtu/hr (each unit)	Flare (FL1)	3/3/1976

Reference No.	Equipment Description	Rated Capacity	State Regulations
DGR1	One cold cleaner degreaser, USFilter remote reservoir, Model TV-35	27 gallons	9 VAC 5-40-6820
PAINT	Painting Operations	N/A	9 VAC 5-40-7120
WRP	Water reclamation processes	N/A	9 VAC 5-40-290

Reference No.	Equipment Description	Rated Capacity	Exemption Citation	Exemption Date
FL1	One Flare Industries – enclosed digester gas flare, Model # FEF-18 (2001)	17.7 MMBtu/hr	9 VAC 5-80-1105 B.1a.(4)	4/7/09
OS-PP-10-E	One Cummins diesel engine driven pressure washer (1977)	230 HP	9 VAC 5-40-880 E	4/7/09
OS-PP-26-E	One Cummins SC8.3-305 diesel engine driven pressure washer (2008)	305 HP (40 CFR 60 Subpart IIII)	9 VAC 5-80-1105 D	4/7/09
PP-1	One Godwin Dri-Prime 6" diesel engine driven portable pump (2008)	80 HP (40 CFR 60 Subpart IIII)	9 VAC 5-80-1105 D	4/7/09
PP-2	One Godwin Dri-Prime 4" diesel engine driven portable pump (2008)	35.9 HP (40 CFR 60 Subpart IIII)	9 VAC 5-80-1105 D	4/7/09
PP-3	One Gorman-Rupp 6" diesel engine portable pump	65.7 HP	9 VAC 5-80-1105 D	4/7/09
PP-4	One Godwin 6" diesel engine portable pmu	80.4 HP	9 VAC 5-80-1105 D	4/7/09
SB1	One diesel engine driven soda blaster (2006)	80 HP (40 CFR 60 Subpart IIII)	9 VAC 5-80-1105 D	4/7/09
BLR1-BLR7	Seven natural gas fired boilers (2000)	< 3 MMBtu/hr each	9 VAC 5-80-1105 B.1	4/7/09
AH1-AH46	Forty-six natural gas fired heating units (2001-2008)	< 2 MMBtu/hr each	9 VAC 5-80-1105 B.1	4/7/09
WH1-WH5	Five natural gas fired water heaters (2001-2004)	< 1 MMBtu/hr each	9 VAC 5-80-1105 B.1	4/7/09

Table 1.E Equipment Exempt from Permitting (continued)				
Reference No.	Equipment Description	Rated Capacity	Exemption Citation	Exemption Date
EXEC 1	One #2 fuel oil fired heater	< 1 MMBtu/hr each	9 VAC 5-80-1105 B.1	4/7/09
Q-UST-39/1 - 39/2	Two underground diesel fuel storage tanks (1977)	20,000 gallons each	9 VAC 5-80-1105 B.4	4/7/09
S-UST-50/1	One underground gasoline storage tank (1977)	6,000 gallons	9 VAC 5-80-1105 B.8	4/7/09
S-UST-50/2	One underground gasoline storage tank (1977)	1,000 gallons	9 VAC 5-80-1105 B.8	4/7/09
S-UST-50/3	One underground diesel fuel storage tank (1977)	6,000 gallons	9 VAC 5-80-1105 B.4	4/7/09
64-AST-1	One above ground diesel fuel storage tank (1995)	1,000 gallons	9 VAC 5-80-1105 B.4	4/7/09
EXE-AST-2	One above ground #2 fuel oil storage tank (1995)	550 gallons	9 VAC 5-80-1105 B.4	4/7/09
S-AST-3	One waste oil shop tank	500 gallons	9 VAC 5-80-1105 B.4	4/7/09
Q-AST-4	One above ground #2 fuel oil storage tank	500 gallons	9 VAC 5-80-1105 B.4	4/7/09
Q-M-030 Q-M-031 Q-M-032	Three above ground #2 fuel oil storage tank	400 gallons each	9 VAC 5-80-1105 B.4	4/7/09
CENT	Four Centrifuges	N/A	9 VAC 5-80-1105 D	4/7/09
SLDGTK	Four Sludge Blend Tanks	N/A	9 VAC 5-80-1105 D	4/7/09
O/W	One Oil/water Separator	N/A	9 VAC 5-80-1105 D	4/7/09
DAF	Dissolved air flotation process	N/A	9 VAC 5-80-1105 D	4/7/09
CHPICE	One GE Jenbacher ICE Engine type J 316 GS-C82 Cogeneration Unit, natural gas and digester-gas fired	7.8 MMBtu/hr 848 kW	9 VAC 5-80-1105 D	1/30/12
MOEGEN1	One Kohler Portable Diesel Generator	270 kW 422 bhp	9 VAC 5-80-1105 B.2.b	June 13, 2012

Specifications included in the above tables are for informational purposes only and do not form enforceable terms or conditions of the permit unless the specifications are needed to form the basis of other conditions in the permit.

PROCESS REQUIREMENTS

1. Emission Controls

- a. **Enclosed Flare (FL1)** - Digester gas generated by the anaerobic digesters, in excess of that needed by the digester gas boilers (DGBLR1 and DGBLR2) shall be combusted in the enclosed flare (FL1). The flare shall be operated per manufacturer's recommendations. (9 VAC 5-80-820, 9 VAC 5-80-850)
- b. **Carbon Regeneration Furnace (GAC1)** - Volatile organic compound (VOC) emissions from the carbon regeneration furnace (GAC1) shall be controlled by a furnace afterburner. Within thirty minutes of the introduction of spent granular activated carbon, the afterburner temperature shall not be less than 900 °F while carbon is fed. (9 VAC 5-80-820, 9 VAC 5-80-850)
- c. **Carbon Regeneration Furnace (GAC1)** - Particulate matter (PM) emissions from the carbon regeneration furnace (GAC1) shall be controlled by an impingement scrubber with a design efficiency of 99.5%. The pressure differential across the scrubber shall not exceed 10 inches of water column (inch wc). The scrubber shall be operated per manufacturer's instructions when the furnace is operating. (9 VAC 5-80-820, 9 VAC 5-80-850)
- d. **Carbon Regeneration Furnace (GAC2)** - Volatile organic compound (VOC) emissions from the carbon regeneration furnace (GAC2) shall be controlled by a furnace afterburner. The afterburner temperature shall be set at not less than 1,325 °F. Within thirty minutes of the introduction of spent granular activated carbon, and while carbon is fed, the afterburner temperature shall not be less than 1,325 °F, calculated as a rolling 3-hour average. (9 VAC 5-80-1180 and 9 VAC 5-50-260)
- e. **Carbon Regeneration Furnace (GAC2)** - Particulate matter (PM) emissions from the carbon regeneration furnace (GAC2) shall be controlled by advanced venturi scrubber with a design efficiency of 99.5%. The pressure differential across the scrubber shall be within the manufacturer's recommended limits. The scrubber shall be operated per manufacturer's instructions when the furnace is operating. (9 VAC 5-80-1180 and 9 VAC 5-50-260)
- f. **Lime and Sludge Pellet Silos** - Particulate matter (PM) emissions from the lime silos (LMSILO1 through LMSILO7) and the sludge pellet silos (SPSILO1 through SPSILO4) shall be controlled by fabric filter baghouses. (9 VAC 5-80-820, 9 VAC 5-80-850)
- g. **Digester Gas Boilers (DGBLR1 and DGBLER2)** - Sulfur dioxide (SO₂) from the digester gas boilers shall be controlled by passing the digester gas through the H₂S purifiers prior to use as fuel. (9 VAC 5-80-820, 9 VAC 5-80-850)
- h. **Rotary Sludge Dryer (DRY2)** - Particulate matter (PM) emissions from the Andritz rotary sludge dryer (DRY2) shall be controlled by a fixed throat venturi scrubber (SCB2) with a design efficiency of ninety-five (95) percent. The venturi scrubber shall be provided with adequate access for inspection and shall be in operation when the sludge dryer is operating. (9 VAC 5-80-1180 and 9 VAC 5-50-260)

- i. **Rotary Sludge Dryer (DRY2)** - Nitrogen Oxides (as NO₂) emissions from the Andritz rotary sludge dryer (DRY2) shall be controlled by good operating practices and performing appropriate maintenance in accordance with the manufacturer's recommendations. (9 VAC 5-80-1180 and 9 VAC 5-50-260)
- j. **Rotary Sludge Dryer (DRY2)** - Carbon monoxide (CO) and Volatile Organic Compounds (VOCs) from the Andritz rotary sludge dryer (DRY2) shall be controlled by a regenerative thermal oxidizer (RTO2) with a design efficiency of ninety (90) percent for CO emissions and ninety-eight (98) percent for VOC emissions. The RTO shall be provided with adequate access for inspection and shall be in operation when the sludge dryer is operating. (9 VAC 5-80-1180 and 9 VAC 5-50-260)
- k. **All Diesel Engines except GEN1 through GEN3** - When firing on diesel fuel oil, the sulfur dioxide (SO₂) emissions from all diesel fuel fired equipment listed in Table 1-E shall be controlled by the use of a low sulfur diesel fuel with a sulfur content not to exceed 0.05% by weight. (9 VAC 5-80-1180 and 9 VAC 5-50-260)
- l. **Diesel Engine Gen-Sets (GEN1 through Gen3)** - When firing on diesel fuel oil, the sulfur dioxide (SO₂) emissions from engine gen-sets (GEN1 through GEN3) shall be controlled by the use of ultra low sulfur diesel fuel with a sulfur content not to exceed 0.0015% by weight. (9 VAC 5-80-1180 and 9 VAC 5-50-260)

(9 VAC 5-80-1180, 9 VAC 5-80-820, 9 VAC 5-80-850, 9 VAC 5-50-260, and 9 VAC 5-50-140)

- 2. **Fugitive Dust and Fugitive Emission Controls** - Fugitive dust and fugitive emission controls shall include the following, or equivalent, as approved by DEQ:
 - a. Use of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, grading of roads, clearing of land, or other like activities.
 - b. Application of water, or suitable chemicals on materials stockpiles, and other surfaces which may create airborne dust.
 - c. Installation and use of hoods, fans and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods shall be employed during sandblasting or other similar operations.
 - d. Open equipment for conveying or transporting materials likely to create objectionable air pollution when airborne shall be covered, or treated in an equally effective manner at all times when in motion.
 - e. Reasonable precautions shall be taken to prevent deposition of dirt on public roads and subsequent dust emissions.

(9 VAC 5-50-90 and 9 VAC 5-80-850)

- 3. **VOC Work Practice Standards** - At all times, the disposal of volatile organic compounds shall be accomplished by taking measures, to the extent practicable, consistent with good air pollution control practices for minimizing emissions. Volatile organic compounds shall

not be intentionally spilled, discarded in sewers which are not connected to a treatment plant, or stored in open containers, or handled in any other manner that would result in evaporation beyond that consistent with air pollution practices for minimizing emissions. (9 VAC 5-50-20 F and 9 VAC 5-80-850)

4. **Monitoring** - Equipment at the facility consists of the following;
- a. Engine gen-sets (GEN1 through GEN3) shall be equipped with a non-resettable hour meter. A monthly log shall be maintained of each engine's operating hours.
 - b. The kilowatt output for each engine gen-set (GEN1 through GEN3) operated for peak shaving purposes as described in Condition 6.b shall be monitored and recorded at least once every fifteen minutes during each peak shaving event.
 - c. Digester gas consumption shall be recorded by the Distributed Control System (DCS). In the event of a failure of the DCS, digester gas consumption may be determined from the digester gas data sheets as recorded by operations staff. A log shall be maintained on a monthly basis of the amount of digester gas consumed by each equipment type.
 - d. The afterburners of the carbon regeneration furnaces (GAC1 and GAC2) shall each be equipped with a temperature measuring device to monitor and indicate afterburner temperature as required in Conditions 1.b and 1.d. The afterburner of the carbon regeneration furnace (GAC2) shall also be equipped with a device to record the afterburner temperature at a minimum frequency of once every fifteen minutes.
 - e. After the digester gas passes through the purifiers, H₂S levels shall be monitored and recorded, on a quarterly basis, at a minimum.
 - f. The advanced venturi scrubber employed on the carbon regeneration furnace (GAC2) shall be equipped with a device to continuously measure and record differential pressure drop at a minimum frequency of once every fifteen minutes.
 - g. The venturi scrubber used to control emissions from the rotary sludge dryer (DRY2) shall be equipped with a device to continuously measure and record differential pressure drop at a minimum frequency of once every fifteen minutes.
 - h. The RTO used to control emissions from the rotary sludge dryer (DRY2) shall be equipped with a device to continuously measure and record chamber temperature at a minimum frequency of once every fifteen minutes.

Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the emissions unit is operating. (9 VAC 5-80-1180 and 9 VAC 5-80-890)

OPERATING LIMITATIONS

5. Operating Scenarios

- a. Emergency / Critical Power Generation:
- i. Emergency: The engine gen-sets (GEN1 through GEN3) may be operated in situations where immediate action on the part of the facility is needed due to a failure or loss of electrical power service resulting from the failure of the primary power provider and the failure or loss of power service is beyond the reasonable control of the facility. Operation under these circumstances shall be allowed for the period of time the primary electrical power provider service is unavailable. Once primary electrical power service is available, the engine gen-sets may be operated in accordance with Critical Power Generation, as defined below.
 - ii. ISO-Declared Emergency: The engine gen-sets (GEN1 through GEN3) may be operated for participation in an Independent System Operator's (ISO) Emergency Load Response Program (ELRP) during times of an ISO-declared emergency, as defined in the ISO's emergency operations manual. Operations under this scenario shall not exceed sixty hours per generator each calendar year.
 - iii. Critical Power Generation: The engine gen-sets (GEN1 through GEN3) may be operated in situations where immediate action on the part of the facility is needed due to a loss or anticipated loss of acceptable electrical power service from the primary power provider and the loss or anticipated loss of power service is beyond the reasonable control of the facility. Operation under these circumstances shall be allowed until such time as acceptable power provider service is restored or the loss of acceptable power provider service is no longer reasonably anticipated.
- b. Alternate Power Generation:
- i. The engine gen-sets (GEN1 through GEN3) may be operated voluntarily for the purposes of periodic maintenance, testing, operational training, and peak-shaving.
 - ii. An engine gen-set installed subsequent to the issuance of this permit shall be equipped with a selective catalytic reduction system (SCR), or other DEQ approved NOx control system, if it is operated voluntarily for the purposes of peak-shaving, demand response, or as part of an interruptible power supply arrangement with a power provider, other market participant, or system operator. Equipment added subsequent to the issuance of this permit may require an amendment to the permit.

Total annual emissions for any twelve month period, calculated as the sum of all emissions from operations under scenarios 5.a. and 5.b. shall not exceed the limits stated in Condition 11. (9 VAC 5-80-850)

6. Load Optimization

- a. **Emergency Use:** When the permittee is required to operate the engine gen-sets, (GEN1 through GEN3), the permittee shall be allowed to bring all engine gen-sets on-line to provide for facility power demands. One engine gen-set shall be allowed to operate as an idling back up.
- b. **Peak-Shaving Use:**
 - i. During the time period of June 1 through August 31, no more than two engine gen-sets shall be operated concurrently for peak shaving purposes. An additional engine may be operated if:
 - a) At least one engine is equipped with a DEQ approved selective catalytic reduction system or other DEQ approved NOx emissions control system; or
 - b) The total facility electrical power demand exceeds the total maximum capacity of two engine gen-sets, and a monthly log is maintained of the total facility electrical demand per peak shaving event. The facility's electrical power demand shall be determined by recording the kilowatt output of each engine gen-set at a minimum frequency of at least once every fifteen minutes during each peak shaving event.
 - ii. Engine gen-sets (GEN1 through GEN3) may be operated concurrently for peak shaving purposes from September 1 through May 31.

(9 VAC 5-170-160 and 9 VAC 5-80-850)

7. **Operation of Fuel Burning Equipment** - Fuel burning equipment shall be operated and maintained in accordance with manufacturer recommendations. In addition, the permittee may only change those settings that are allowed by the manufacturer and do not degrade the air emissions. (9 VAC 5-80-850 and 9 VAC 5-80-1180)
8. **Fuel** - The approved fuels for the fuel burning equipment listed in Table 1.E are listed below. A change in the fuel type may require a permit to modify and operate.
 - a. The approved fuel for the equipment listed in Table 1.E is diesel fuel oil and shall meet the specifications below:

DIESEL FUEL OIL:

 - i. Does not exceed American Society for Testing and Materials (ASTM) specification, D975, for grade low sulfur No. 2-D or No. 2-D S500, or
 - ii. Has a sulfur content not to exceed 0.05% by weight (500 ppm), and either a minimum cetane number of forty or a maximum aromatic content of thirty-five percent by volume.

- b. The approved fuel for the engine-generator sets (GEN1 through GEN3) is diesel fuel oil and shall meet the specifications below:

DIESEL FUEL OIL:

- i. Does not exceed American Society for Testing and Materials (ASTM) specification, D975, for grade ultra-low sulfur No. 2-D or No. 2-D S15, or
 - ii. Has a sulfur content not to exceed 0.0015% by weight (15 ppm), and either a minimum cetane number of forty or a maximum aromatic content of thirty-five percent by volume.
- c. The approved fuel for the digester gas boilers (DGBLR1 and DGBLR2) is digester gas and natural gas.
- d. The approved fuel for the carbon regeneration furnaces (GAC1 and GAC2) is natural gas.
- e. The approved fuel for the rotary sludge dryer (DRY1 and DRY2) is natural gas.

(9 VAC 5-80-850 and 9 VAC 5-80-1180)

9. **Fuel Certification** - The permittee shall obtain a certification from the fuel supplier with each shipment of diesel fuel oil for use in equipment. Each fuel supplier certification shall include the following:
- a. The name of the fuel supplier;
 - b. The date on which the diesel fuel oil was received;
 - c. The quantity of the diesel fuel oil delivered in the shipment;
 - d. A statement that the fuel oil complies with the American Society for Testing and Materials specifications as described in Condition 8, and;
 - e. The sulfur content of the diesel fuel.

Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by DEQ may be used to determine compliance with the fuel specifications stipulated in Condition 8. (9 VAC 5-80-850)

10. **Requirements by Reference** - Except where this permit is more restrictive than the applicable requirement, the rotary sludge dryer (DRY2) shall be operated in compliance with the requirements of 40 CFR 61, Subpart E. (9 VAC 5-80-1180)

EMISSION LIMITS

11. Emission Limits

- a. **Engine Gen-Sets** - Emissions from the operation of the engine gen-sets (Ref. Nos. GEN1 through GEN3) shall not exceed the limits specified below:

i.

Pollutant	NOx lbs/hr
GEN1, GEN2, GEN3	111.6 each

ii.

Pollutant	NOx tpy
GEN1, GEN2, and GEN3 (combined)	51.0

- b. **Carbon Regeneration Furnace** - Emissions from the operation of the Carbon Regeneration Furnace (GAC2), shall not exceed the limits specified below:

Ref. No.	NOx* lbs/hr	CO lbs/hr	VOC* lbs/hr	PM10 lbs/hr	SO2 lbs/hr
GAC2	3.33	0.65	0.19	0.19	0.74

*After the initial performance demonstration testing of the carbon regeneration furnace (GAC2) the facility has the option of using a lower NOx (as NO₂) and/or VOC emission rate by requesting a permit modification to incorporate the new lower rate into Appendix A: Condition 13 Emission Factor Table. The lower rate shall be determined using the average stack test value x 120%, but shall in no case exceed the short term rate specified above.

- c. **Sludge Dryer** - Emissions from the operation of the sludge dryer (DRY2) shall not exceed the limits specified below:

Ref. No.	NOx lbs/hr	CO lbs/hr	PM 10 lbs/hr
DRY2	2.60	3.95	0.59

(9 VAC 5-80-850 and 9 VAC 5-80-1180)

- 12. Facility Wide Emissions Limits** - Total emissions from the facility shall not exceed the limits specified below:

Facility Wide	NOx	SO ₂	CO	VOC	PM10
tpy	99.4	20.0	85.4	24.4	18.0

Compliance with these emission limits may be determined as stated in Condition 13.
 (9 VAC 5-80-850 and 9 VAC 5-80-1180)

13. Annual Emissions Calculations

- a. Compliance with the annual emission limits specified in Condition 12 shall be demonstrated using the calculation methodology provided in Appendix A to this permit, or equivalent method approved in advance by the Regional Air Compliance Manager of the DEQ's Northern Regional Office (NRO).
- b. The total annual emissions for all pollutants shall be calculated monthly as the sum of each consecutive twelve-month period. Refer to Condition 20 for record keeping requirements.

(9 VAC 5-80-1180 and 9 VAC 5-80-850)

14. Visible Emission Limits

- a. **GAC2** - Visible emissions from the carbon regeneration furnace shall not exceed five percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed ten percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.
- b. **DRY2** - Visible emissions from the sludge dryer shall not exceed five percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed ten percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.
- c. **Fuel burning equipment** - Visible emissions from the fuel burning equipment referenced in Table 1.C, and Table 1.E (except GAC2) shall not exceed twenty percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed thirty percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.
- d. **Silos** - Equipment at the facility consists of the following; Visible emissions from the silos (LMSILO1 through LMSILO 6 and SPSILO1 through SPSILO4) shall not exceed twenty percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed thirty percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.

(9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-80-850, and 9 VAC 5-50-80)

INITIAL COMPLIANCE DETERMINATION

15. Stack Test

- a. Test Verification Meeting: The permittee shall arrange to meet with the Regional Air Compliance Manager of the DEQ's NRO (at the address referenced in Condition 22) to discuss the stack testing requirements of subpart b below. The meeting(s) shall take place prior to the submittal of the final stack test protocol, and is required in order for a protocol to be accepted.
- b. The facility shall demonstrate that the rotary sludge dryer (DRY 2) complies with the mercury emission limits in 40 CFR 61, Subpart E. As an alternative means for demonstrating compliance with 40 CFR §61.52(b), the permittee may use EPA Reference Method 105 - Determination of Mercury in Wastewater Treatment Plant Sewage Sludges (40 CFR 61, Appendix B) and the procedures specified in 40 CFR §61.54, and/or other method(s) as approved by EPA.
 - i. The sludge sampling required by 40 CFR 61.54 shall be conducted within 90 days after start-up of the rotary sludge dryer (DRY2).
 - ii. The details of the tests are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 22. The permittee shall submit two copies of the test protocol, one paper and one on removable electronic media, to the Regional Air Compliance Manager and one paper copy to the Regional Air Permit Manager of the DEQ's NRO at least 30 days prior to testing to ensure adequate time for DEQ approval. If the test protocol is received by the DEQ with less than 30 days for review and acceptance, DEQ approval may not be issued in a timely manner to allow for testing to take place according to the permittee's schedule.
 - iii. A total of three composite samples shall be obtained within a 24-hour operating period. When the 24-hour operating period is not continuous, the total sampling period shall not exceed 72 hours after the first grab sample is obtained. Samples shall not be exposed to any condition that may result in mercury contamination or loss.
 - iv. All sludge samples shall be analyzed for mercury content within 30 days after the sludge sample is collected. Samples taken shall be analyzed in accordance with 1VAC30-45, Certification for Noncommercial Environmental Laboratories, or 1VAC30-46, Accreditation for commercial Environmental Laboratories. Two copies, one paper and one on removable electronic media of the results shall be reported to the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 22 and postmarked within 15 calendar days following the date the analyses are completed.

- v. Should conditions occur which would require rescheduling the testing, the permittee shall notify the Regional Air Compliance Manager of the DEQ's NRO (at the address listed in Condition 22), in writing, no less than seven days prior to the scheduled test date, or as soon as the rescheduling is deemed necessary. In any case the emissions testing shall be rescheduled within thirty days, or as approved by DEQ.

(9 VAC 5-50-30, 9 VAC 5-80-1200, and 9 VAC 5-80-850)

CONTINUING COMPLIANCE DETERMINATION

16. **Stack Tests** - Upon request by the DEQ, the permittee shall conduct additional performance testing to demonstrate compliance with the emission limits contained in this permit. The details of the tests shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 22. (9 VAC 5-80-1200 and 9 VAC 5-50-30 G)
17. **Visible Emissions Evaluation** - Upon request by the DEQ, the permittee shall conduct additional visible emission evaluations to demonstrate compliance with the visible emission limits contained in this permit. The details of the VEE shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 22. (9 VAC 5-80-1200 and 9 VAC 5-50-30 G)
18. **Testing/Monitoring Ports** - The facility shall be modified to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Sampling ports shall be provided when requested by the DEQ at the appropriate locations and safe sampling platforms and access shall be provided. (9 VAC 5-80-1180, 9 VAC 5-50-30 F, and 9 VAC 5 80-880)
19. **Continued Sludge Sampling** - If mercury emissions exceed 1.6 kg (3.5 lb) per 24-hour period, demonstrated either by initial stack sampling according to 40 CFR§61.53 or initial sludge sampling according to Condition 15.b, the facility shall monitor mercury emissions at intervals of at least once per year by use of EPA Reference Method 105 (40 CFR 61, Appendix B) or the procedures specified in 40 CFR §61.53 (d)(2) and (4) and/or other method(s) as approved by EPA. The results of the monitoring shall be reported and retained in accordance with 40 CFR §61.53(d) (5) and (6) or 40 CFR §61.54 (f) and (g), as applicable. (9 VAC 5-80-1180)

RECORDS

20. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 22. These records shall include, but are not limited to:
 - a. Annual hours of operation of each engine gen-set (GEN1, GEN2, and GEN3) per Condition 4.a, calculated monthly as the sum of each consecutive twelve-month period.
 - b. A monthly log of the total facility electrical demand for peak shaving purposes during the time period of June 1 through August 31.

- c. The annual digester gas consumption by the flare (FL1) calculated monthly as the sum of each consecutive twelve-month period.
- d. The annual digester gas and natural gas consumption by both digester boilers (DGBLR1 and DGBLR2) calculated monthly as the sum of each consecutive twelve-month period.
- e. The annual natural gas consumption and the annual digester gas consumption of the cogeneration unit (CHPICE1) calculated monthly as the sum of each consecutive twelve-month period.
- f. The combined annual natural gas consumption by all fuel burning equipment fuel burning equipment referenced in Table 1.C, and Table 1.E, excluding the carbon regeneration furnaces (GAC1 and GAC2), the digester gas boilers (DGBLR1 and DGBLR2), the cogeneration unit (CHPICE1) and the rotary drum dryers (DRY1 and DRY2) calculated monthly as the sum of each consecutive twelve-month period.
- g. Annual natural gas consumption by the carbon regeneration furnace (GAC1) calculated monthly as the sum of each consecutive twelve-month period.
- h. Annual natural gas consumption by the carbon regeneration furnace (GAC2) calculated monthly as the sum of each consecutive twelve-month period.
- i. Annual natural gas consumption of the rotary drum dryer (DRY1) calculated monthly as the sum of each consecutive twelve-month period.
- j. Annual natural gas consumption of the rotary drum dryer (DRY2) calculated monthly as the sum of each consecutive twelve-month period.
- k. The combined annual hours of operation and associated horsepower rating for each pressure washer, portable pump, wood chipper, and soda blaster, calculated monthly as the sum of each consecutive twelve-month period.
- l. The annual fuel oil consumption by the heating unit (EXEC1) calculated monthly as the sum of each consecutive twelve-month period.
- m. Records of quarterly test data of digester gas H₂S concentration levels.
- n. A log of pressure drop readings from the advanced venturi scrubber for the carbon regeneration furnace (GAC2) as required in Condition 4.f.
- o. Records of pressure drop readings from the venturi scrubber and RTO chamber temperatures associated with the rotary sludge dryer (DRY2) as required in Condition 4.g and 4.h.
- p. A log of the afterburner temperature for the carbon regeneration furnaces (GAC1 and GAC2) as required in Condition 4.d. The log for the carbon regeneration furnace (GAC2) shall also include the temperature as a 3-hour rolling average to show compliance with permit Condition 1.d.
- q. All fuel supplier certifications.

- r. Material Safety Data Sheets (MSDS), Certified Product Data Sheets (CPDS), or other vendor information as approved by DEQ showing VOC content for each coating and cleaning solution used.
- s. Annual throughput, in gallons, of each coating applied at the facility. Annual throughputs shall be calculated monthly as the sum of each consecutive twelve-month period.
- t. Monthly emissions calculations for all pollutants using the calculation methodology provided in Appendix A to this permit, or equivalent method approved in advance by the Regional Air Compliance Manager of the DEQ's NRO to verify compliance with the facility wide emissions limits in Condition 12.
- u. Operator training in accordance with Condition 27.
- v. A copy of the maintenance schedule and records of scheduled and unscheduled maintenance in accordance with Condition 27.
- w. Records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. The records shall be maintained in a form suitable for inspection and maintained for five years following the date of the occurrence.
- x. Records of the manufacturer's written instructions or procedures developed by the owner or operator that are approved equipment manufacturers and the air pollution control devices manufacturers.
- y. Records of changes in settings that are permitted by the manufacturer of the equipment and the air pollution control devices listed in this permit.
- z. All VEE and emission stack test reports.
- aa. Records of sludge sampling, charging rate and other data needed to determine mercury content of sludge, as required in Conditions 15.b and 19.

Compliance for the consecutive twelve-month period for record keeping referenced in this permit Condition shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding eleven months. These records shall be available for inspection by the DEQ and shall be current for the most recent five years, unless otherwise noted. (9 VAC 5-80-900, 9 VAC 5-80-1180, and 9 VAC 5-50-50)

NOTIFICATIONS

21. Initial Notifications - The permittee shall furnish written notification to the Regional Air Compliance Manager of the DEQ's NRO (at the address referenced in Condition 22) of:

- a. The actual date on which construction of the rotary sludge dryer (DRY2) commenced within 30 days after such date.
- b. The anticipated start-up date of the rotary sludge dryer (DRY2) postmarked not more than 60 days nor less than 30 days prior to such date.
- c. The actual start-up date of the rotary sludge dryer (DRY2) within 15 days after such date.
- d. The anticipated date of sludge tests of the rotary sludge dryer (DRY2) postmarked at least 30 days prior to such date.

(9 VAC 5-50-50 and 9 VAC 5-80-1180)

22. DEQ Correspondence - DEQ correspondence concerning this permit shall be sent to the following address:

Regional Air Compliance Manager
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193

(9 VAC 5-80-850 and 9 VAC 5-80-1180)

GENERAL CONDITIONS

23. Certification of Documents

- a. The following documents submitted to the Board shall be signed by a responsible official: (i) any emission statement, application, form, report, or compliance certification; (ii) any document required to be signed by any provision of the regulations of the Board; or (iii) any other document containing emissions data or compliance information the owner wishes the Board to consider in the administration of its air quality programs. A responsible official is defined as follows:
 - i. For a business entity, such as a corporation, association or cooperative, a responsible official is either:
 - a) The president, secretary, treasurer, or a vice president of the business entity in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the business entity; or
 - b) A duly authorized representative of such business entity if the representative is responsible for the overall operation of one or more manufacturing, production, or

operating facilities applying for or subject to a permit and either (i) the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars) or (ii) the authority to sign documents has been assigned or delegated to such representative in accordance with procedures of the business entity.

- ii. For a partnership or sole proprietorship, a responsible official is a general partner or the proprietor, respectively.
 - iii. For a municipality, state, federal, or other public agency, a responsible official is either a principal executive officer or ranking elected official. A principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of the principal geographic unit of the agency.
- b. Any person signing a document under subsection a. above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

- c. Subsection b. shall be interpreted to mean that the signer must have some form of direction or supervision over the persons gathering the data and preparing the document (the preparers), although the signer need not personally nor directly supervise these activities. The signer need not be in the same line of authority as the preparers, or do the persons gathering the form need to be employees (e.g., outside contractors can be used). It is sufficient that the signer has authority to assure that the necessary actions are taken to prepare a complete and accurate document.

(9 VAC 5-20-230)

24. **Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:

- a. Knowingly makes material misstatements in the permit application or any amendments to it;
- b. Fails to comply with the conditions of this permit;
- c. Fails to comply with any emission standard applicable to a permitted emissions unit, included in this permit;

- d. Causes emissions from the stationary source which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standard; or
- e. Fails to operate in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect at the time an application for this permit is submitted.

(9 VAC 5-80-1010)

25. **Permit Invalidation** - The portions of this permit that pertain to the construction and operation of the carbon regeneration furnace (GAC2) and rotary sludge dryer (DRY2) shall become invalid, unless an extension is granted by the DEQ, if:

- a. A program of continuous construction is not commenced within the latest of the following:
 - i. Eighteen months from the date of this permit;
 - ii. Nine months from the date that the last permit or other authorization was issued from any other governmental entity;
 - iii. Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or
- b. A program of construction is discontinued for a period of eighteen months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of a phased construction project.

(9 VAC 5-80-1210)

26. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency. (9 VAC 5-170-130)

27. Maintenance/Operating Procedures - At all times, including periods of start-up, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to engine gen-sets (GEN1 through GEN3), the carbon regeneration furnaces (GAC1 and GAC2), the rotary drum dryers (DRY1 and DRY2), and any related air pollution control equipment:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance;
- b. Maintain an inventory of spare parts per manufacturer's recommendation;
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum; and
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request. (9 VAC 5-50-20 E, 9 VAC 5-80-850, and 9 VAC 5-80-1180 D)

28. Record of Malfunctions - The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause of malfunction), corrective action, preventive measures taken and name of person generating the record. (9 VAC 5-20-180 J)

29. Notification for Facility or Control Equipment Malfunction - The permittee shall furnish notification to the Regional Air Compliance Manager, at the address in Condition 22, of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour. Such notification shall be made no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within 14 days of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Regional Air Compliance Manager of the DEQ's NRO. (9 VAC 5-20-180 C)

30. Notification for Control Equipment Maintenance - The permittee shall furnish notification to the Regional Air Compliance Manager, at the address in Condition 22, of the intention to shut down or bypass, or both, air pollution control equipment for necessary scheduled maintenance, which results in excess emissions for more than one hour, at least twenty-four hours prior to the shutdown. The notification shall include, but is not limited to, the following information:

- a. Identification of the air pollution control equipment to be taken out of service, as well as its location, and registration number;
- b. The expected length of time that the air pollution control equipment will be out of service;
- c. The nature and quantity of emissions of air pollutants likely to occur during the shutdown period;
- d. Measures that will be taken to minimize the length of the shutdown or to negate the effect of the outage.

(9 VAC 5-20-180 B)

31. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated. (9 VAC 5-20-180)
32. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Regional Air Compliance Manager of the DEQ's NRO (at the address listed in Condition 22) of the change of ownership within thirty days of the transfer. (9 VAC 5-80-940 and 9 VAC 5-80-1240 B)
33. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies. (9 VAC 5-80-850 and 9 VAC 5-80-1180)

STATE-ONLY ENFORCEABLE REQUIREMENTS

34. **Control of Odorous Emissions** - The facility shall not cause or permit to be discharged into the atmosphere from the facility any emissions which cause an odor beyond the property boundary that is objectionable to individuals of ordinary sensitivity. The wet chemical scrubbers used to control odorous emissions shall be provided with adequate access for inspection. (9 VAC 5-50-140)

Appendix A
Emissions Calculations

Emissions Calculations

Emissions Calculations to Determine Compliance with the facility wide annual emissions in the May 31, 2013 (as amended December 27, 2013 and April 17, 2017), Permit for UOSA, Reg. No.: 71770

Condition 13: Calculation of annual emissions

Each month's emissions shall be calculated using the emission factor for each pollutant, (as specified in the table below) x the monthly throughput (as indicated by the applicable Reference Notation (A – N)).

$$\text{Example: } \text{NO}_x: [A(111.6) + B(111.6) + C(111.6) + D(49) + E1(588) + E2(295) + F1(108) + F2(221) + F3(136) + F4(195) + \sum(G_1 \times G_2)(0.031) + H(100) + I(30) + J(0.02) + K(0) + L(0) + M(0) + N(0)] / 2000 = \text{NO}_x \text{ tons per month}$$

Emission Factor Table:

Equipment	Ref. Notation	NOx	SO ₂	CO	VOC	PM10	Units
GEN 1	A	111.6	1.15	19	1.8	2.2	Lbs/hr
GEN 2	B	111.6	1.09	4.06	3.9	2.1	Lbs/hr
GEN 3	C	111.6	1.09	4.06	3.9	2.1	Lbs/hr
DGBLR1 DGBLR2	D	49	40.4	41	2.7	3.7	Lbs/mmcf Digester gas
GAC 1	E1	588	163	143	40	42	Lbs/mmcf Natural gas
GAC 2	E2	368	82	72	21	21	Lbs/mmcf Natural gas
CHPICE1	F1	108	0.007	489	36	27	Lbs/mmcf Digester gas
CHPICE1	F2	221	30.6	925.7	158.6	4.3	Lbs/mmcf Natural Gas
DRY 1	F3	136	39	1.8	2.3	7.5	Lbs/mmcf Natural Gas
DRY 2	F4	52.25	15.68	12.05	2	44	Lbs/mmcf Natural Gas
Diesel Fired Engines	G1,G2	0.031	0.002	0.007	0.003	0.002	Lbs/hp-hr
Natural Gas Fired Equip	H	100	0.6	84	5.5	7.6	Lbs/mmcf
FL 1	I	30	40	200	70	N/A	Lbs/mmcf
EXEC 1	J	0.02	0.071	0.005	0.0003	0.001	Lbs/gal
Painting Ops	K	-	-	-	5.5	-	Lbs/gal
DGR 1	L	-	-	-	55	-	Lbs/unit
Silos	M	-	-	-	-	1883	Lbs/month
Water Treatment Process	N	-	-	-	1168	-	Lbs/month

Emissions Calculations to Determine Compliance with the facility wide annual emissions in the May 31, 2013 (as amended December 27, 2013 and April 17, 2017), Permit for UOSA, Reg. No.: 71770

Where,

A	=	the monthly hours of operation of GEN1 .
B	=	the monthly hours of operation of GEN2 .
C	=	the monthly hours of operation of GEN3 .
D	=	the monthly amount (in million cubic feet) of digester gas collectively consumed in DGBLR1 and DGBLR2 at the facility.
E1	=	the monthly amount (in million cubic feet) of natural gas consumed in GAC1 .
E2	=	the monthly amount (in million cubic feet) of natural gas consumed in GAC2 .
F1	=	the monthly amount (in million cubic feet) of digester gas consumed in CHPICE1 .
F2	=	the monthly amount (in million cubic feet) of natural gas consumed in CHPICE1
F3	=	the monthly amount (in million cubic feet) of natural gas consumed in DRY1 .
F4	=	the monthly amount (in million cubic feet) of natural gas consumed in DRY2 .
$\Sigma (G_1 \times G_2)$	=	[Hp pumps x hours of operation] + [Hp pressure washers x hours of operation] + [Hp wood chipper x hours of operation] + [Hp Soda Blaster x hours of operation]
H	=	the monthly amount (in million cubic feet) of natural gas (NG) consumed by the plant in all boilers (including BLR1-BLR7, DGBLR1, DGBLR2), air heaters, and water heaters at the facility. H = total NG consumed by plant – NG used in DRY1 (F2) – NG used in GAC1 (E1) – NG used in FL1 (I) .
I	=	the monthly amount (in million cubic feet) of natural gas and digester gas consumed in FL1 .
J	=	the monthly amount (in gallons) of fuel oil consumed in fuel oil heater, EXEC1 .
K	=	the volume of paint consumed during the month, in gallons.
L	=	the number of degreasing units used during the month.
M	=	Silos, constant PM10 value, 11.3 tpy, based on maximum air flow rate for each baghouse, M = 1.
N	=	Water Treatment Processes, constant VOC value, 7.01 tpy, based on 54 MGD, N = 1.

The total annual emissions for all pollutants shall be calculated monthly as the sum of each consecutive twelve-month period. Compliance for the consecutive twelve-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding eleven months

Appendix B
Source Testing Report Format

SOURCE TESTING REPORT FORMAT

Report Cover

1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Test Dates.
4. Tester; name, address and report date

Certification

1. Signed by team leader/certified observer (include certification date)
2. Signed by responsible company official
3. *Signed by reviewer

Copy of approved test protocol

Summary

1. Reason for testing
2. Test dates
3. Identification of unit tested & the maximum rated capacity
4. *For each emission unit, a table showing:
 - a. Operating rate
 - b. Test Methods
 - c. Pollutants tested
 - d. Test results for each run and the run average
 - e. Pollutant standard or limit
5. Summarized process and control equipment data for each run and the average, as required by the test protocol
6. A statement that test was conducted in accordance with the test protocol or identification & discussion of deviations, including the likely impact on results
7. Any other important information

Source Operation

1. Description of process and control devices
2. Process and control equipment flow diagram
3. Sampling port location and dimensioned cross section. Attached protocol includes: sketch of stack (elevation view) showing sampling port locations, upstream and downstream flow disturbances and their distances from ports; and a sketch of stack (plan view) showing sampling ports, ducts entering the stack and stack diameter or dimensions

Test Results

1. Detailed test results for each run
2. *Sample calculations
3. *Description of collected samples, to include audits when applicable

Appendix

1. *Raw production data
2. *Raw field data
3. *Laboratory reports
4. *Chain of custody records for lab samples
5. *Calibration procedures and results
6. Project participants and titles
7. Observers' names (industry and agency)
8. Related correspondence
9. Standard procedures

* Not applicable to visible emission evaluations

