**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

APR 10 2014

Mr. Patrick Mahoney
President
Energy Answers, LLC
79 North Pearl Street
Albany, New York 12207

Re: Final Permit-Prevention of Significant Deterioration (PSD) of Air Quality
Energy Answers Arecibo Puerto Rico Renewable Energy Project

Dear Mr. Mahoney:

The U.S. Environmental Protection Agency (EPA), Region 2 is hereby issuing and providing you with notice of its final permit decision on the Energy Answers Arecibo Puerto Rico Renewable Energy Project, which the EPA initially issued to Energy Answers Arecibo, LLC (Energy Answers) on June 11, 2013, under 40 CFR 124.15.

On March 25, 2014, the EPA's Environmental Appeals Board (the Board) denied review on all grounds contained in each of the five petitions for review of the Energy Answers PSD permit, with the exception of one issue regarding the regulation of biogenic $CO_2$ emissions. *In re: Energy Answers Arecibo, LLC*, PSD Appeal Nos. 13-05 – 13-09, Slip op. at 95 (EAB March 25, 2014), 16 E.A.D.___ With regard to the biogenic $CO_2$ emissions, the Board granted Region 2's request for a voluntary remand "for the limited purpose of incorporating the regulation of biogenic $CO_2$ emissions" as proposed in the draft revised permit provided to the Board, the petitioners, and Energy Answers by Region 2 on December 6, 2013. The Board indicated that Region 2 need not reopen the permit proceedings for public comment.

The enclosed final permit decision incorporates the changes contained in the December 6, 2013 draft revised permit. The revised permit conditions are found in Enclosure I. Today's PSD permit supersedes the previous permit issued on June 11, 2013.We note that today's action does not alter Enclosure II-General Project Description which was included with the June 11, 2013 PSD permit, except for one minor edit.

Thus, in accordance with 40 CFR 124.19, this letter serves as the final permit decision by EPA Region 2 for the Energy Answers PSD permit. All conditions of the PSD permit, found in Enclosure I, are final and effective as of the date of this letter.

Public notice of this final agency action will be published in the Federal Register pursuant to 40 C.F.R. § 124.19. This determination is final Agency Action under the Clean Air Act (the Act). Under Section 307 (b) (1) of the Act, judicial review of this final action is available only by filing of a petition for review in the United States Court of Appeals for the appropriate circuit within 60 days from the date on which this final permit decision is published in the Federal Register. Under Section 307 (b) (2) of the Act, this final permit decision shall not be subject to later judicial review in civil or criminal proceedings for enforcement.

If you have any questions regarding this letter, please call Mr. Steven C. Riva, Chief, Permitting Section, Air Programs Branch, at (212) 637-4074.

Sincerely,

John Filippelli, Director
Clean Air and Sustainability Division

Enclosure I: Final PSD Permit-Permit Conditions
Enclosure II: General Project Description

cc: Chairwoman Laura Velez, Puerto Rico Environmental Quality Board
Jose Font, EPA Region 2, Caribbean Environmental Protection Division

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## I. Permit Expiration

This PSD Permit shall become invalid if construction:

A. has not commenced (as defined in 40 CFR Part 52.21(b) (9)) within 18 months of the effective date of this permit;

B. is discontinued for a period of 18 months or more; or

C. is not completed within a reasonable time.

## II. Notification of Commencement of Construction and Startup

The Regional Administrator (RA) of the United States Environmental Protection Agency ( EPA), Region 2 Office shall be notified in writing of the anticipated date of initial startup (as defined in 40 CFR Part 60.2) of each facility of the source not more than sixty (60) days nor less than thirty (30) days prior to such date. The RA shall be notified in writing of the actual date of both the commencement of construction and startup within fifteen (15) days after such date

## III. Plant Operations

All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this PSD Permit, shall at all times be maintained in good working order, and be operated as efficiently as possible to minimize air pollutant emissions. Energy Answers Arecibo, LLC (the Permittee) shall demonstrate initial and continuous compliance with the operating, emission and other limits according to the performance testing and compliance assurance and all other requirements of this permit.

## IV. Right to Entry

Pursuant to Section 114 of the Clean Air Act (Act), 42 U.S.C. §7414, the EPA Administrator and/or his/her authorized representatives have the right to enter and inspect for all purposes authorized under Section 114 of the Act. The Permittee acknowledges that the Regional Administrator and/or his/her authorized representatives, upon the presentation of credentials shall be permitted:

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A. to enter at any time upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this PSD Permit;

B. at reasonable times to access and to copy any records required to be kept under the terms and conditions of this PSD Permit;

C. to inspect any equipment, operation, or method required in this PSD Permit; and

D. to sample emissions from the source relevant to this permit

## V. Transfer of Ownership

In the event of any changes in control or ownership of facilities to be constructed, this PSD Permit shall be binding on all subsequent owners and operators. The Permittee shall notify the succeeding owner and operator of the existence of this PSD Permit and its conditions by letter, a copy of which shall be forwarded to the RA.

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## VI. Emission Units List and Annual Facility Emission Limits

### A. Emission Units List

The table below summarizes the emission units that are subject to this permit; all emission units, except for the Gen and Fire, are assumed to operate 8,760 hours per year.

| Emission Unit Id. No. | Description |
|---|---|
| **Municipal Waste Combustors Units** | |
| Boiler 1 and Boiler 2 | Two identical municipal waste combustor units |
| **Ash Handling System** | |
| Trans 1<br>Trans 2<br>Ash<br>Silo 4 | Bottom Ash Handling and Conveying System<br>Bottom Ash Storage and Conveying System<br>Bottom Ash Processing Activities<br>Fly Ash Conveying, Storage Silo, Conditioning, and Loading System |
| **Storage Silos** | |
| Silo 1<br>Silo 2 | Carbon Handling System and Storage Silo<br>Lime Handling System and Storage Silo |
| **Emergency Equipment** | |
| Gen<br>Fire | Emergency Diesel Generator<br>Emergency Diesel Fire Pump |
| **Storage Tanks** | |
| Tank 1<br>Tank 2 through Tank 4 | Ammonia Storage Tank<br>Distillate Fuel Oil No.2 Storage Tanks |
| | |
| Cool 1 through Cool 4 | "Four - Cell" Cooling Tower |
| | Fugitive Particulate Emission Sources* |

* There is no Emission Unit Id. No. assigned to fugitive particulate emission sources.

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## B. Annual Facility Emission Limits

The table below summarizes the annual facility emission limits for the air pollutants that are subject to this PSD permit:

| Pollutant | Annual Emissions (tons per year) |
|---|---|
| Nitrogen Oxides ($NO_x$) | 352 |
| Carbon Monoxide (CO) | 357 |
| Ozone* (as Volatile organic compounds or VOC) | 52.4 |
| Sulfur Dioxide ($SO_2$) | 260 |
| Municipal waste combustor acid gases (measured as $SO_2$ and Hydrogen Chloride or HCL)<br>$SO_2$<br>Hydrogen Chloride | <br><br>260<br>124 |
| Particulate matter (PM) | 51.7 |
| $PM_{10}$ | 104 |
| $PM_{2.5}$ | 90 |
| Municipal waste combustor metals (measured as particulate matter) | 51.7 |
| Municipal waste combustor organics (measured as dioxins[1] and furans[1]) | 4.07E-05 |
| Sulfuric Acid Mist | 16.6 |
| Fluorides (measured as hydrogen fluoride) | 10.8 |
| Ammonia ($NH_3$)** | 29.5 |
| $CO_2$ equivalent ( includes biogenic + non-biogenic $CO_2$) | 924,750 |
| Fugitive Particulate Emissions<br>PM<br>$PM_{10}$<br>$PM_{2.5}$ | <br>7.06<br>1.41<br>0.35 |

***** Ozone is regulated by its precursors VOC and $NO_x$. (40 CFR Part 52.21(b) (50) (i) (a))

****** $NH_3$ is not a PSD pollutant; $NH_3$ emissions at the facility primarily result from the $NH_3$ emissions known as $NH_3$"slip" resulting from the Regenerative Selective Catalytic Reduction units-Selective Catalytic Reduction modules that uses ammonia solution as reagent while reducing $NO_x$; only a small portion of the $NH_3$ emissions will result from the ammonia storage tank (Tank 1).

**1** Based on the definition of municipal waste combustors organics at 40 CFR 52.21 (b) (23(i) the, "dioxins" shall mean total tetra-through octa-chlorinated dibenzo-p-dioxin, and "furans" shall mean total -tetra-through-octa- chlorinated dibenzofurans.

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## VII. Operating Requirements/Work Practices and Stack Parameters

### A. Municipal Waste Combustors Units

1. The Permittee shall install two identical municipal waste combustors units (Boiler 1 and Boiler 2). Each municipal waste combustor unit shall consist of a spreader- stoker boiler.

2. Each municipal waste combustor unit shall be equipped with three auxiliary fuel oil fired burners that should be used only: (1) during warmup, and shutdown periods; and (2) to maintain the units' combustion chamber temperature during potentially short-term interruptions of the refuse-derived fuel (RDF) or waste-derived fuel (WDF) supply. See section VIII. A.1.a and A.3.d of this permit for the definitions of RDF and WDF.

3. The maximum combined heat input of the three auxiliary fuel oil burners shall not exceed 400 MMBTU/hr.

4. Operating Loads

   For the purposes of this permit, the following operating loads are defined for each municipal waste combustor unit (Boiler 1 and Boiler 2):

   a. Normal operation load shall be defined as the municipal waste combustor unit operating at or above 400 million British Thermal Units per hour (MMBTU/hr) heat input rate, while burning RDF or WDF.

   b. Warmup shall be defined as the period beginning with the initial firing of the municipal waste combustor unit's auxiliary fuel oil burners and ending at the time when RDF or WDF are introduced in the municipal combustor unit, and the firing of the fuel oil to the auxiliary fuel oil burners is ceased.

   c. Shutdown shall be defined as the period of time beginning with the cessation of feeding the RDF or WDF, and starting firing of the

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municipal waste combustor unit's auxiliary fuel oil burners and ending when the municipal waste combustor grates are clear.

5. Heat Input and Steam Production Rate Limitations

   a. Except for warmup and shutdown, for each 1-hour period, each municipal waste combustor unit (Boiler 1 and Boiler 2), shall only operate between the following two heat input rate limits:

      i. 400 MMBtu/hr; Compliance with this heat input rate limit shall be demonstrated by multiplying the design steam ratio or the actual steam ratio (expressed as MMBTU/lb of steam) by the measured steam production rate (lb of steam /hr) at 830 degrees Fahrenheit ($^0$F) and 850.3 pounds per square inch gauge (psig); and

      ii. 550 MMBtu/hr; Compliance with this heat input rate limit shall be demonstrated by multiplying the design steam ratio or the actual steam ratio (expressed as MMBTU/ lb of steam) by the measured steam production rate ( lb of steam /hr) at 830$^0$F and 850.3 psig.

   b. Except for warmup and shutdown, each municipal waste combustor unit shall not exceed 500 MMBtu/hr, based on a 12-month rolling average. See section XIII. E. of this permit for a detailed explanation on determination of the heat input rate based on 12-month rolling average limit.

   c. For the purposes of this permit the design steam ratio (MMBTU/lb of steam) specified in 5.a.i and 5.a.ii above shall be defined as the ratio of each combustor's design heat input rate (MMBTU/hr) to its design steam production rate output (lb of steam/hr). The design steam ratio used for demonstrating compliance with the heat input rate limits specified in this permit shall be 0.001379 MMBtu/lb of steam or 1.379E-03 MMBtu/lb of steam.

   d. The steam ratio(MMBTU/lb of steam) of each combustor shall be measured quarterly, to determine the actual steam ratio (MMBTU/lb of steam) of each combustor, as follows:

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i. Actual heat input rate (MMBtu/hr) shall be determined as the product of the actual (weighted) amount of waste (tons per hr of RDF and WDF) charged to each municipal waste combustor, and the actual heating value (i.e., heat content) of the waste expressed as MMBtu/ton of RDF and WDF;

ii. Heating value (MMBtu/ton) of RDF and WDF shall be determined by the procedures contained in the American Society of Mechanical Engineers (ASME) Performance Test Code 34-2007 "Waste Combustors with Energy Recovery", or the most current ASME version, or other procedures upon EPA's approval.

iii. Actual steam production rate (lb of steam/hr) shall be supplied by the steam monitoring device;

iv. Actual MMBtu/lb of steam ratio shall be calculated by dividing the actual heat input rate (MMBtu/hr) by the actual steam production rate (lb of steam/hr).

e. The results of each combustor quarterly steam ratio measurements must be submitted to EPA within 15 days after completion of the measurements.

f. If, during a quarterly measurement it is determined that the actual steam ratio (MMBtu/lb of steam) is greater than the design steam ratio of 1.379E-03 (MMBtu/lb of steam), the Permittee, for the next quarter compliance demonstration with the heat input rate limits, may use the actual steam ratio.

g. The Permittee shall calculate and record, on an hourly basis, for each municipal waste combustor unit, the actual heat input (MMBtu/hr) during normal operation. The actual heat input shall be calculated based steam production rate (lb of steam/hr) supplied by the steam monitoring device and the design steam ratio or the actual steam ratio.

h. The Permittee shall submit a written report of the heat input rates recordings, including the data and calculations used to derive them, to

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EPA for every calendar quarter. All quarterly reports shall be postmarked by the 30th day following the end of each quarter.

6. During normal operation, the temperature of the municipal waste combustors units' combustion chamber shall be maintained at or above $1800^0$F.

7. Warmup and Shutdown

   a. The total number of warmup/shutdown events for the two municipal combustors units, combined, shall be limited to 32 events during any consecutive 12-month period.

   b. The duration of each warmup event shall not exceed 7 hours; and the duration of each shutdown event shall not exceed 6 hours.

   c. The warmup shall occur only between 7:00 AM and 7:00 PM, and the warmup shall not occur simultaneously for the two municipal waste combustors units.

   d. During warmup and shutdown, the Permittee shall:

      i. Minimize the emissions by: 1) operating and maintaining the municipal waste combustors units and associated air pollution control equipment in accordance with good combustion and air pollution control practices, safe operating practices, and protection of the facility; and 2) implementation of operations and maintenance practices comprised of maintaining a high level of operation time, and minimizing the frequency of warmup and shutdown events.

      ii. Operate continuous emission monitoring system (CEMS), continuous opacity monitoring system, and other continuous monitoring systems and devices required by this permit.

      iii. Unless otherwise specified in this permit, comply with all emissions and opacity limits applicable during normal operation.

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e. During each warmup and shutdown event, the Permittee shall record:

i. The time, date, and duration in hours and minutes;

ii. The heat input rate (MMBtu/hr) of each municipal waste combustor unit that shall be determined based on the actual fuel oil consumption and the fuel's heating value (MMBTU/gallon) as specified in this permit.

f. During warmup periods, the Regenerative Selective Catalytic Reduction (RSCR) units, including ammonia injection, shall be operated no later than when the inlet gas temperature to the RSCR unit temperature reaches $290^0$ F.

8. The Permittee shall install, calibrate, maintain, and operate on a continuous basis monitoring systems or devices for the following parameters for each municipal waste combustor unit:

a. Steam flow rate (lb of steam per hour) on an hourly basis.

b. Steam temperature ($^0$ F).

c. Steam pressure (pounds per square inch gauge).

d. Steam turbine's energy output in megawatts hour (MW-hour) on an hourly basis.

e. Combustion chamber temperature ($^0$ F).

f. Stack gas volumetric flow rate to be used in determining mass emission rates.

9. The monitoring systems and devices required at VII.A.8 above shall be installed in accordance with the manufacturers' specifications, and must meet all applicable EPA monitoring performance specifications.

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## B. Ash Handling System

1. The Ash Handling System shall be comprised of the following emission units:

   a. Bottom Ash Handling and Conveying System (Trans 1), that shall consist of bottom ash hoppers, sifting hoppers, and conveyors.

   b. Bottom Ash Storage and Conveying System (Trans 2), that shall consist of bottom ash storage bunkers, and conveyors.

   c. Bottom Ash Processing Activities (Ash), that shall consist of conveyers and equipment used for processing, and separation of ferrous, non-ferrous, and Boiler Aggregate™(defined as a granular material recovered from bottom ash that is used as a substitute for conventional aggregate in construction products) materials from the bottom ash.

   d. Fly Ash Conveying, Storage Silo, Conditioning, and Loading System (Silo 4), which shall consist of conveyors, silo, and conditioning equipment (e.g., pug mill mixer).

2. The following emission units of the Ash Handling System shall be located within enclosed buildings or structures: (1) Trans 1; (2) Trans 2; and (3) Ash.

3. The conveyors and the conveyors' transfer points of the following emission units shall be enclosed, sealed, and kept under negative pressure: Trans 1, Trans 2, Ash, and Silo 4.

4. All fly ash shall be conditioned (i.e., hydrated, via a pug mill mixer) prior to transfer for disposal.

5. At least 6 months prior to the anticipated startup date, the Permittee shall submit a bottom and fly ash characterization study plan to the Puerto Rico Environmental Quality Board (PREQB) for review and approval. The Permittee shall not send any ash or Boiler Aggregate™ for either disposal or beneficial use, without receiving prior approval from the PREQB.

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## C. Storage Silos

1. The Storage Silos shall be comprised of the following emission units:

    a. Carbon Handling System and Storage Silo (Silo 1).

    b. Lime Handling System and Storage Silo (Silo 2).

2. Each emission unit shall consist of a pneumatic truck off-load and handling system, and a storage silo.

3. The carbon and the lime shall be transferred pneumatically from the bulk delivery trucks into the storage silo and from the silo to the municipal waste combustors.

## D. Emergency Equipment

1. The emergency equipment shall include the following emission units: one emergency diesel generator (Gen) and one emergency diesel fire pump (Fire).

2. The Permittee shall install an emergency diesel generator that:

    a. Is a fuel-efficient certified engine.

    b. Is certified by the manufacturer to be at least a model year 2010 or more recent emergency generator.

    c. Is certified by the manufacturer to meet the emission standards required by 40 CFR Part 89, Subpart B Table 1 for non-road compression ignition engines.

    d. Has a nameplate capacity that shall not exceed a maximum power output of 670 brake horsepower (BHP) (500 kilowatts or kW).

3. The Permittee shall install an emergency diesel fire pump that:

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a. Is the most fuel-efficient National Fire Protection Association (NFPA-20) certified pump available.

b. Is certified by the manufacturer to be at least a model year 2010 or more recent.

c. Is certified by the manufacturer to meet the emission standards required by 40 CFR Part 60, Subpart IIII Table 4.

d. Has a nameplate capacity that shall not exceed a maximum power output of 335 BHP (250 kW).

4. The emergency diesel generator (Gen) shall be used only when routine electrical power to the permitted facility is unavoidably interrupted, and for maintenance checks and readiness testing on the generator engine.

5. The emergency diesel fire pump (Fire) shall only be used for fighting fires when no electricity is available at the permitted facility, and for the operation of the engine for maintenance, and readiness testing purposes, including as required for fire safety testing.

6. The maximum operating hours for, the emergency generator and the fire pump shall each be limited to 500 hours per 12-month rolling total, as determined at the end of each calendar month. The annual permitted hours shall include testing, maintenance, and emergency hours.

7. The duration of each maintenance and testing event of the emergency diesel generator and fire pump shall be limited to a maximum of 30 minutes/event (in any hour), and shall occur only between 7:00 AM and 7:00 PM, Monday through Friday.

8. The Permittee shall install and maintain and non-resettable operating hour meter or the equivalent software to accurately indicate the elapsed operating time of the emergency generator and fire pump.

9. The emergency generator and the emergency fire pump shall comply with all applicable provisions of 40 CFR 60 Subpart IIII.

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## E. Storage Tanks

1. Ammonia Storage Tank

   a. The Permittee is authorized to install and operate a 12,000 gallon tank (Tank 1) to store aqueous ammonia solution containing 19% ammonia by volume that is used as reagent for the Regenerative Selective Catalytic Reduction (RSCR) units–Selective Catalytic Reduction (SCR) modules. Compliance with the 19% ammonia by volume requirement of this permit shall be demonstrated by ammonia supplier certification of each ammonia delivery.

   b. The ammonia storage tank shall be aboveground, double walled, unpressurized, and equipped with an emergency relief valve, and a vapor recovery, and return system.

   c. The ammonia storage tank area shall be marked and secured as to protect the tank from accidents that could cause rupture.

   d. Audio, olfactory, and visual checks for ammonia emissions shall be made at least three times per day (i.e., 24 hours period) within the operating area; one check shall be made during night time, regardless of whether the facility is operating during night time.

   e. No later than one hour following detection of a leak, the Permittee shall take the following actions:

      i. Locate and isolate the leak.

      ii. Use a leak collection/containment system to control the leak until repair or replacement can be made.

   f. Within 24 hours following the detection of a leak, the Permittee shall commence repair or replacement of the leaking component as appropriate. The Permittee shall record all of the leak events and the actions taken.

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g. The Permittee shall maintain a Plan of the Prevention and Protection Measures for the ammonia storage tank and ammonia distribution system to the RSCR. A copy of the Permittee's Plan shall be kept on site.

2. Distillate Fuel Oil No.2 Storage Tanks.

a. The Permittee is authorized to construct the following distillate fuel oil No.2 aboveground storage tanks:

i. 50,000 gallons (Tank 2), vertical fixed roof tank for the municipal waste combustors warm up, shutdown, and temperature maintenance periods and the RSCR units, with a net throughput that shall not exceed 995,304 gallons per 12-month rolling total.

ii. 2,000 gallons (Tank 3), horizontal fixed roof tank for the emergency generator, with a net throughput that shall not exceed 16, 200 gallons per 12-month rolling total.

iii. 500 gallons (Tank 4), horizontal fixed roof tank for the emergency fire pump, with a net throughput that shall not exceed 8,100 gallons per 12-month rolling total.

b. The storage tanks shall be operated and maintained as indicated by the tanks' manufacturer to prevent and minimize emissions. A copy of the manufacturer's manual for each tank shall be kept onsite.

**F. Cooling Tower System**

1. The Permittee shall install and operate a "four–cell" mechanical draft wet cooling tower system, 56 feet in height, equipped with high efficiency drift eliminators.

2. An identification tag or nameplate shall be displayed on the cooling tower, which identifies the applicable model number, serial number, and manufacturer. The identification tag or nameplate shall be permanently attached to the cooling tower at a conspicuous location.

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3. The maximum total circulating flow water rate shall not exceed 65,150 gallons per minute (gpm).

4. The total dissolved solids (TDS) content of the cooling tower circulating water shall not exceed 16,100 ppm by weight (ppmw).

5. The Permittee shall:

    a. Continuously monitor the flow rate of the circulating water; and

    b. Use, on a monthly basis, EPA Method 160.3, to measure and record the TDS content of the circulating water.

6. The use of chromium-based treatment chemicals in the cooling tower water is prohibited.

7. Prior to the initial operation of the cooling tower, the Permittee shall have the cooling tower vendor's field representative inspect the cooling tower drift eliminator and certify that the installation was performed in a satisfactory manner.

8. The Permittee shall operate and maintain the cooling tower in accordance with the manufacturer's Operations and Maintenance plan. This plan shall be kept onsite and available to EPA personnel on request.

9. At least once per shift, the Permittee shall inspect the cooling tower, as well as the drift eliminator on the cooling tower to ensure that any damage to the drift eliminators or cooling tower is corrected. Such an inspection shall include an inspection of the integrity of the seals between the drift eliminators and the cooling towers.

10. At least once per calendar year, the Permittee shall conduct a complete inspection of the cooling tower and drift eliminator. The inspection shall be conducted using an inspector with recognized expertise in the field of mechanical draft cooling tower drift eliminators.

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## G. Fugitive Particulate Emission Sources

1. The control measures to minimize the fugitive particulate emission from roadways and parking areas, shall include, but not be limited to, the following :

    a. Paving all the facility roads and parking areas. All other areas of the site shall be landscaped, to the maximum extent possible, using grass, shrubs, and trees,

    b. Treating the paved roadways, parking areas, exterior and interior of the buildings and other areas as necessary by sweeping, vacuuming, and /or watering at sufficient treatment frequencies to minimize the fugitive dust emissions to the maximum extent possible.

    c. The Permittee shall perform daily inspections of each of the roadway segments and parking areas to determine the need for implementing the fugitive dust control measures. These inspections shall be performed during representative normal traffic conditions.

2. All delivery vehicles, including but not limited to, municipal solid waste (MSW), supplementary fuels (as defined in this permit), lime, carbon, and fly ash conditioning agent vehicles shall be enclosed or covered.

3. All MSW and supplementary fuels delivery vehicles shall be unloaded exclusively in enclosed buildings.

4. All vehicles leaving the facility that are used for transporting materials likely to become airborne shall be enclosed or covered.

5. All unloading, storage, processing, shredding, and blending activities of the MSW, supplementary fuels, and bottom ash, shall be done in enclosed buildings.

6. In order to prevent the fugitive particulate emissions from the MSW and supplementary fuels unloading, storage, processing, and blending buildings, the Permittee shall maintain these buildings under negative pressure when either one or both boilers are operating. The negative

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pressure shall be maintained by continuously drawing the exhaust air from these buildings into the municipal waste combustors as combustion air. During times when both boilers are shut down, in order to prevent the fugitive emissions from the MSW and supplementary fuels unloading, storage, processing, and buildings, the exhaust air from these buildings shall be vented to dust collectors.

7. The Permittee shall ensure that the doors from all processing buildings (including the municipal waste combustors units' building) remain closed to the maximum extent possible using good engineering design.

8. The Permittee shall perform the following:

    a. Daily checks for any visible fugitive emissions from the processing buildings (including the municipal waste combustors units' building) windows, doors, and roof monitors.

    b. Weekly inspection of all the processing buildings to ensure that:

        i. All access doors that are capable of being closed are closed; and

        ii. For the MSW and supplementary fuels processing buildings, the direction of air at each natural draft opening is inward, as shown by the flow monitoring devices.

9. As required elsewhere in the permit all conveyors shall be fully enclosed, and all fabric filters shall be operational at all times as prescribed by the manufacturers.

10. The particulate emissions resulting from the fly ash conditioning process shall be controlled by a fabric filter, and the conditioned fly ash shall be stored in an enclosed storage space.

11. If visible emissions are observed as a result of any of the above-specified inspections, the Permittee shall take corrective actions as soon as possible, to minimize and eliminate the visible emissions.

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12. Notwithstanding the fugitive particulate emissions control measures specified in this permit, the Permittee may employ additional control measures to prevent fugitive particulate emissions from becoming airborne and causing the discharge of visible emissions of fugitive particulate emissions beyond the property line.

### H. Stack Parameters

1. Each municipal waste combustor unit (Boiler 1 and Boiler 2) shall exhaust to an individual stack that rises to 95.5 m above grade with an inner stack diameter of 2.13 m.

2. Each RSCR unit exhaust shall be vented through the corresponding municipal waste combustor unit's stacks.

3. The emergency generator (Gen) and the firewater pump (Fire) shall each exhaust to an individual stack that rises to 10 m above grade with an inner stack diameter of 0.152 m.

## VIII. Fuel Requirements

### A. Municipal Waste Combustors Units

1. Primary Fuel: Refuse-Derived Fuel

   a. The primary fuel for each municipal waste combustor unit shall be the refuse-derived fuel (RDF). The RDF shall consist of shredded municipal solid waste.

   b. The Permittee shall use exclusively municipal solid waste (MSW) that includes items and materials that fit within the definition of municipal solid waste contained in 40 CFR Part 60.51b. With respect to MSW supplied from municipalities, the Permittee shall accept municipal solid waste only from municipalities that: (i) have established a Recycling Plan under 12 L.P.R.A Section 1320b that has been approved by the Puerto Rico Solid Waste Authority ("SWA") or are participating in a municipal consortium with a Recycling Plan approved by the SWA; or (ii) do not have such an SWA-approved

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Recycling Plan, but are covered by an order or other resolution issued by the SWA pursuant to 12 L.P.R.A Chapters 127 or 127A directing such municipality to submit its Recycling Plan to the SWA for its evaluation and approval and the time allotted for the submittal of such Recycling Plan has not expired.

c. The Permittee shall employ the best engineering and work practices to:

i. Remove, to the maximum extent possible, all identifiable wastes from the municipal waste stream that do not qualify as municipal solid waste prior to shredding;

iii. Remove, to the maximum extent possible, the metal component from the municipal waste stream;

iv. Prevent large quantities of easily discernible yard wastes, such as grass clippings, leaves, tree trimmings, bushes and shrubs from being charged to the municipal waste combustors.

d. The total combined RDF consumption rate for the two municipal waste combustors units shall not exceed 2,106 tons per day (TPD) based on 12-month rolling average. See section XIII. E. of this permit for detailed explanation on determination of the 12-month rolling average limit.

e. If any amount of the supplementary fuels is combusted, the RDF consumption rate shall be prorated so that the heat input rates limitations specified by this permit for each municipal waste combustor unit are not exceeded.

2. Supplementary Fuels

The supplementary fuels shall consist of Automotive-Shredder Residue (ASR), Processed Urban Wood Waste (PUWW), and Tire-Derived Fuel (TDF).

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a. Automotive-Shredder Residue

i. For the purposes of this permit ASR shall be defined as shredded interior plastic trim, upholstery fabric and filler, insulation and padding of end-of-life vehicles, which may include only the following materials: pieces of rubber, paper, hard plastic, vinyl glass, and also limited amounts of aluminum and plated metals scrap, rocks, and dirt.

ii. The total combined ASR consumption rate for the two municipal waste combustors units shall not exceed 286 TPD.

iii. The Permittee shall not combust ASR with a content of chlorine and heavy metals [particulate matter (PM) is the surrogate for heavy metals] exceeding the maximum acceptable level (s) determined during the supplementary fuels combustion demonstration period.

b. Processed Urban Wood Waste

i. For the purposes of this permit PUWW shall be defined as separated, inspected and shredded green and dried wood waste materials, which may include only the following materials: sawn lumber, pruned branches, stumps, and whole trees from street and park maintenance, shipping pallets, wood debris separated from construction and demolition and land clearing and grubbing activities.

ii. The total combined PUWW consumption rate for the two municipal waste combustors units shall not exceed 898 TPD.

c. Tire Derived Fuel

i. The TDF shall be defined as shredded material made from scrap tires that are no longer usable for their original intended purpose because of wear, damage, or defect.

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ii. The Permittee shall not combust TDF made from scrap tires that have not been de-wired. For the purposes of this permit, "de-wired" scrap tires means scrap tires with their metal content removed.

iii. The total combined TDF consumption rate for the two municipal waste combustors units shall not exceed 330 TPD.

d. Prior to shredding and combustion of supplementary fuels (including the combustion demonstration period as described in this permit), the Permittee shall employ the best engineering and work practices, to remove, to the maximum extent possible, all identifiable items that do not qualify as ASR, PUWW, and TDF as defined by this permit.

3. Monitoring Requirements for RDF and Supplementary Fuels.

a. The ASR shall be received at the facility only in a shredded form.

b. The MSW and supplementary fuels' handling, processing, shredding, and blending equipment shall be exclusively driven by electric motors.

c. The supplementary fuels shall only be combusted if well blended with RDF.

d. For the purposes of this PSD permit, the blend of RDF and supplementary fuels shall be defined as waste-derived fuel (WDF).

e. Only one supplementary fuel shall be present in the mixture fed to the municipal waste combustor units at any given time. This requirement shall apply at all times, including the supplementary fuel combustion demonstration period.

f. The Permittee shall install scales on the feed conveyors to determine the weight of RDF and WDF charged to each municipal waste combustor unit. Scales shall be capable of: 1) automatically weighing each charge, at minimum recording the time, date, and weight (e.g., lb, or tons per hour and tons per day); and 2) printing hourly and daily totals for each municipal waste combustor unit.

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g. The Permittee shall install scales to monitor the amount of each supplementary fuel (in tons per day) charged to each municipal waste combustor unit.

h. Each delivery from an ASR and PUWW supplier must be accompanied by documentation demonstrating that:

i. The ASR is free of fluids, batteries, air bags, mercury switches, catalytic converters; and

ii. The PUWW is free of paint, stain, coatings, wood preservatives, including but not limited to, formaldehyde, copper, chromium, arsenate, creosote, or pentachlorophenol.

i. Each delivery from an ASR supplier must be accompanied by an analysis report showing the ASR's content of chlorine and heavy metals.

j. The supplier's documentation and analysis report required at (g) and (h), above, shall include a unique identification number, date of delivery, sampling analysis, date the sampling analysis was performed, and analytical methods used. The documentation must be for each delivery of ASR or PUWW accepted for use as a supplementary fuel.

k. The Permittee shall maintain records of all the suppliers' documentations and analysis reports required at (g) and (h) above.

4. Supplementary Fuels Combustion Demonstration Period.

a. Prior to using any of the supplementary fuels (ASR, PUWW and TDF), the Permittee shall conduct a combustion demonstration period to verify the efficiency of the municipal waste combustor units' air pollution control equipment in reducing the air pollutants resulting from the combustion of the supplementary fuels.

b. The Permittee shall submit a Supplementary Fuels-Combustion Demonstration Period Plan to EPA for review and approval at least 90 days prior to the anticipated start-up date of the demonstration period.

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c. During the Combustion Demonstration Period, the Permittee:

i. Shall not discharge or cause the discharge of emissions from the municipal waste combustor units in excess of the emission and opacity limits specified in this permit.

ii. Shall determine the maximum acceptable content of chlorine and heavy metals in ASR for which the hydrogen chloride and heavy metals emission limits specified in this permit are continuously met. Once determined, the ASR's maximum acceptable chlorine and heavy metals content shall be submitted to EPA and, if approved, added as a condition of this permit.

d. The Permittee shall submit a report to EPA containing the Combustion Demonstration Period results.

e. The Permittee shall not combust the amounts of supplementary fuels specified in this permit, unless it demonstrates that the emissions resulting from these fuels are less than or equal to the emission limits contained in this permit.

f. If, during the Combustion Demonstration Period, the Permittee determines that the emission, or opacity limits established in this permit are not feasible while combusting RDF and supplementary fuels, the Permittee shall submit an application to EPA requesting modification of this permit to reduce the supplementary fuels' consumption rates, or other modifications, as appropriate.

5. Ultra Low Sulfur Distillate Fuel oil No.2: Municipal Waste Combustors Units' Auxiliary Burners and RSCR units.

a. The municipal waste combustors units' auxiliary burners shall only burn Ultra Low Sulfur Distillate (ULSD) fuel oil No.2.

b. The RSCR units (as described in this permit at section IX.A.1.d.) shall only combust: (1) ULSD fuel oil No.2 for providing the optimal temperature range necessary for the $NO_x$ reduction; and (2) propane for maintaining the safety pilot flame.

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c. The total combined ULSD fuel oil No.2 consumption for the two municipal waste combustors' auxiliary burners and the two RSCR units shall not exceed 995,304 gallons based on 12-month rolling total.

d. The total combined propane consumption for the two RSCR units shall not exceed 57,740 gallons based on 12-month rolling total.

e. The Permittee shall monitor the quantity of ULSD fuel oil No.2 used by each municipal waste combustor unit's auxiliary fuel oil burners, using a non-resettable totalizing fuel meter.

f. The Permittee shall monitor the quantity of ULSD fuel oil No.2 and propane used by each RSCR unit by using non-resettable totalizing fuel meters.

**B. Emergency Equipment**

1. The emergency generator (Gen) and the emergency fire pump (Fire) shall only combust ULSD fuel oil No.2.

2. The maximum ULSD fuel oil No.2 consumption for the emergency generator (Gen) shall not exceed: 1) 32.4 gallons/hr; and 2) 16,200 gallons based on 12-month rolling total.

3. The maximum ULSD fuel oil No.2 consumption for the emergency fire pump (Fire) shall not exceed: 1) 16.2 gallons/hr; and 2) 8,100 gallons based on 12-month rolling total.

4. The Permittee shall monitor the quantity of ULSD fuel oil No.2 used by each of the following emission units: (1) emergency generator (Gen); and (2) emergency fire pump (Fire).

**C. Sulfur Content of ULSD Fuel Oil No. 2 and Propane**

1. The sulfur content of the ULSD fuel oil No.2 and propane shall not exceed 0.0015 percent (%) [15 parts per million] sulfur by weight. Compliance with this requirement shall be demonstrated by fuel supplier certifications for each distillate fuel oil and propane delivery.

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## IX. Air Pollution Control Equipment

At all times, including periods of warmup, shutdown and malfunction, the Permittee shall use best practices to maintain and operate all the emissions units, including associated air pollution control, for minimizing emissions. Determination by EPA of whether acceptable operating and maintenance procedures are being used will be based on information available to EPA, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the facility.

### A. Municipal Waste Combustors Units

1. The Permittee shall install and continuously operate, and maintain (unless otherwise specified elsewhere in this permit), the following air pollution control equipment on each municipal waste combustor unit (Boiler 1 and Boiler 2):

    a. Turbosorp Circulating Dry Scrubber system that uses lime injection.

    b. Activated Carbon Injection system.

    c. Fabric Filter.

    d. Regenerative Selective Catalytic Reduction unit that shall include:

        i. One Oxidation Catalyst module; and

        ii. One Selective Catalytic Reduction (SCR) module, with ammonia solution injection;

        iii. Three distillate fuel-oil No.2 burners with a maximum combined (three burners) heat input rate of 4.5 MMBTU/hr, and three propane pilot flame burners with a maximum combined (three burners) heat input rate of 0.3 MMBTU/hr.

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## B. Ash Handling System and Storage Silos

1. The Permittee shall install and continuously operate and maintain the following air pollution control equipment:

   a. Two Fabric Filters (one operating, one standby) for each of the following emission units: (1) Bottom Ash Handling and Conveying System (Trans 1); and (2) Bottom Ash Storage and Conveying System (Trans 2). The nameplate capacity of each Fabric Filter shall not exceed a maximum design inlet gas air flow rate of 20,040 dry standard cubic feet per minute (dscfm).

   b. One Fabric Filter with a nameplate capacity that shall not exceed a maximum design inlet gas air flow rate of 59,700 dscfm, for the Bottom Ash Processing Activities (Ash).

   c. One Fabric Filter for each of the following emission units: (1) Fly Ash Conveying, Storage Silo, Conditioning, and Loading System (Silo 4); (2) Carbon Handling System and Storage Silo (Silo 1); and (3) Lime Handling System and Storage Silo (Silo 2). The nameplate capacity of each Fabric Filter shall not exceed a maximum design inlet gas air flow rate of 1,000 dscfm.

## C. Cooling Tower System

1. The Permittee shall install and continuously operate and maintain a drift eliminator designed to limit circulating water flow drift loss to 0.0005 % percent or less.

## D. Monitoring Requirements for the Air Pollution Control Equipment

1. The Permittee shall install, calibrate, operate and maintain on a continuous basis devices for the following parameters of the air pollution control equipment:

   a. Pressure drop (inches of water column), for the Activated Carbon Injection, Turbosorp Circulating Dry Scrubber (Boiler 1, and Boiler 2),

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and Fabric Filters (Boiler 1, Boiler 2, Trans 1, Trans 2, Ash, Silo 1, Silo 2, and Silo 4)

b. Activated carbon mass feed rate (lb/hr) (for each Activated Carbon Injection system), lime flow injection rate (lb/hr) (for each Turbosorp Circulating Dry Scrubber system), and ammonia solution injection rate (gallons/hr) (for each RSCR-SCR module) (Boiler 1 and Boiler 2).

c. Flue gas temperature ($^0$F) at the inlet of each municipal waste combustors unit (Boiler 1 and Boiler 2)'s Fabric Filter. The temperature shall be calculated in 4-hour block arithmetic averages.

d. Flue gas temperature ($^0$F) at the inlet and outlet of each RSCR unit.

e. Flue gas temperature ($^0$F) at the outlet of each Turbosorp Circulating Dry Scrubber system (Boiler 1 and Boiler 2).

f. Bag leak detection system for each Fabric Filter. An audible alarm shall be installed to sound when the pre-set level of emissions is exceeded (Boiler 1, Boiler 2, Trans 1, Trans 2, Ash, Silo 1, Silo 2, and Silo 4).

2. The maximum ammonia injection rate required to achieve the $NO_x$ emissions and ammonia slip limits specified in this permit shall be determined during the $NO_x$ performance test and shall be submitted to EPA and, if approved, become a condition of this permit; once the maximum ammonia injection rate becomes a permit condition, it shall not be exceeded.

3. The acceptable pressure drop (inches of water column) for each air pollution control equipment specified at section IX. D.1.a. above shall be based either on the manufacturer's specifications, or on the pressure drop range established during any required performance test and shall be submitted to EPA and, if approved, become a condition of this permit.

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## X. Air Pollutants Emissions, Opacity, and Visible Emissions Limitations

### A. Municipal Waste Combustors Units

Unless otherwise specified in this permit, the emission limits listed below shall apply at all times to each municipal waste combustor unit (Boiler 1 and Boiler 2), separately.

The municipal waste combustors units' emissions shall also include the emissions from their corresponding RSCR units. The pounds per hour (lb/hr) emission limits reflect maximum values calculated based on 550 MMBtu/hr, whereas the annual emission limits in tons per year (TPY) reflect values calculated based on 500 MMBtu/hr. The TPY emission limits listed below at A-1 through A-13 represent the total combined emissions from normal operation, warmup, and shutdown periods.

1. Nitrogen Oxides.

    a. 45 parts per million by volume, corrected to 7 percent oxygen on dry basis or ppmvd @ 7% $O_2$ (based on 24-hour daily arithmetic average).

    b. 43. 89 lb/hr (1-hour average).

    c. $NO_x$ (ppmvd @ 7% $O_2$ and lb/hr) emissions limits listed at X.A.1.a and b do not apply during warmup periods.

    d. 480 lb/7 hours warmup event; the Permittee shall calculate the actual lb of $NO_x$ for each warmup event based on (CEMS) data; these calculations shall be recorded at the conclusion of each warmup event.

    e. 175.3 TPY (12-month rolling total).

2. Carbon Monoxide.

    a. 75 ppmvd @ 7% $O_2$ (based on 24-hour daily arithmetic average).

    b. 44.53 lb/hr (1-hour average).

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c. CO (ppmvd @ 7% $O_2$ and lb/hr) emissions limits listed at X.A.2.a. and b. do not apply during warmup periods.

d. 228 lb/7 hours warmup event; the Permittee shall calculate the actual lb of CO for each warmup event based on CEMS data; these calculations shall be recorded at the conclusion of each warmup event.

e. 177.8 TPY (12-month rolling total).

3. Volatile Organic Compounds (as propane).

a. 7.0 ppmvd @ 7% $O_2$ (average of three 1-hour test runs).

b. 6.56 lb/hr (1-hour average).

c. 26.1 TPY (12-month rolling total).

4. Sulfur Dioxide.

a. 24 ppmvd @ 7% $O_2$ (based on 24-hour daily geometric average).

b. 32.59 lb/hr (1-hour average).

c. 130.1 TPY (12-month rolling total).

5. Municipal Waste Combustor Acid Gases [measured as $SO_2$ and hydrogen chloride] (MWC acid gases).

a. Sulfur Dioxide

i. 24 ppmvd @ 7% $O_2$ (based on 24-hour daily geometric average).

ii. 32.59 lb/hr (1-hour average).

iii. 130.1 TPY (12-month rolling total).

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b. Hydrogen Chloride

i. 20 ppmvd @ 7% $O_2$ (average of three 1-hour test runs).

ii. 15.48 lb/hr (1-hour average).

iii. 61.8 TPY (12-month rolling total).

6. Particulate Matter (PM)

Particulate Matter emissions shall include only the filterable fraction PM.

a. 10 milligrams per dry standard cubic meter corrected at 7% $O_2$ (mg/dscm @ 7% $O_2$) (average of three 1-hour test runs).

b. 5.10 lb/hr (1-hour average).

c. 20.3 tons/yr (based on 12-month rolling total).

7. Particulate Matter with an aerodynamic diameter equal to or less than 10 micrometers ($PM_{10}$).

$PM_{10}$ emissions shall include both filterable and condensable fractions of PM.

a. 24 mg/dscm @ 7% $O_2$ (average of three 1-hour test runs).

b. 12.23 lb/hr (1-hour average).

c. 48.8 tons/yr (based on 12-month rolling total).

8. Particulate Matter with an aerodynamic diameter equal to or less than 2.5 micrometers ($PM_{2.5}$)

$PM_{2.5}$ emissions shall include both filterable and condensable fractions of PM.

a. 22 mg/dscm @ 7% $O_2$ (average of three 1-hour test runs).

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b. 11.21 lb/hr (1-hour average).

c. 44.8 tons/yr (based on 12-month rolling total).

d. Special $PM_{2.5}$ Emission Limit Provisions.

i. Because condensable $PM_{2.5}$ emissions from municipal waste combustors have not been widely quantified, there is a possibility that the actual condensable portion of $PM_{2.5}$ would cause the above emission limits to be exceeded. In the event that the Permittee cannot meet the 22 mg/dscm @ 7% $O_2$ because of the condensable $PM_{2.5}$, EPA may adjust the $PM_{2.5}$ emissions to a level not to exceed 30 mg/dscm @ 7% $O_2$, 15.28 lb/hr, and 61 TPY based on EPA's review of the stack test results. This change in the permit will be accomplished administratively.

ii. Notwithstanding the stack test results, no $PM_{2.5}$ emission adjustment will take place until the Permittee demonstrates that the actual ammonia slip emissions of equal to or less than 5 ppmvd @ 7% $O_2$ do not provide a reasonable assurance of proper $NO_x$ emissions reduction by the RSCR unit.

9. Municipal Waste Combustor Metals [measured as particulate matter "PM"] (MWC metals).

a. 10 mg/dscm @ 7% $O_2$ (average of three 1-hour test runs).

b. 5.10 lb/hr (1-hour average).

c. 20.3 tons/yr (12-month rolling total).

10. Municipal Waste Combustor Organics (measured as dioxins and furans).

a. 10 nanograms per dry standard cubic meter, corrected to 7 percent oxygen (average of three test runs; minimum 4 hour/test run).

b. 5.10E-06 lb/hr (1-hour average).

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c. 2.036E-05 TPY (12-month rolling total).

11. Sulfuric Acid Mist ($H_2SO_4$).

    a. 1.0 ppmvd @ 7% $O_2$ (average of three 1-hour test runs).

    b. 2.08 lb/hr (1-hour average).

    c. 8.3 TPY (12-month rolling total).

12. Fluorides (measured as hydrogen fluoride: HF).

    a. 3.2 ppmvd @ 7% $O_2$ (average of three 1-hour test runs).

    b. 1.36 lb/hr (1-hour average).

    c. 5.42 TPY (12-month rolling total).

13. Ammonia or $NH_3$ slip.

    a. 10 ppmvd @ 7% $O_2$ (based on 24-hour daily arithmetic average).

    b. 3.60 lb/hr (1-hour average).

    c. 14.4 TPY (based on 12-month rolling total).

14. Greenhouse Gas Emissions.

    a. The $CO_2$ equivalent ($CO_2e$) emission limits shall include combined emissions of $CO_2$, $CH_4$ and $N_2O$, as described in 40 CFR Part 52.21(b)(49)(ii)(a), and shall include biogenic + non-biogenic $CO_2$ emissions.

    b. During normal operation, the $CO_2e$ emissions from each municipal waste combustor unit and the corresponding RSCR unit shall not exceed 0.29 lb $CO_2e$ /lb of steam, based on 30-day rolling average. See section XIII. F of this permit for an explanation on determination of the 30-day rolling average of lb $CO_2e$/lb of steam rate.

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c. During normal operation, the heat rate from the two municipal waste combustor units and the steam turbine generator shall not exceed 13.25 MMBtu/MW-hour (MW-hour or MWh represents the amount of electricity generated by the steam turbine generator) based on 30-day rolling average. See section XIII. F. of this permit for an explanation on determination of the 30-day rolling average of MMBTU/MWh rate.

d. During normal operation, the total combined $CO_2e$ emissions for the two municipal waste combustors and the corresponding RSCR units shall not exceed 919,630 TPY, based on 12-month rolling total.

e. During warmup and shutdown periods, the total combined $CO_2e$ emissions for the two municipal waste combustor units and the corresponding RSCR units shall not exceed 4,921 TPY, based on 12-month rolling total.

**B. Ash Handling System and Storage Silos**

1. The emissions of PM, $PM_{10,}$ and $PM_{2.5}$ from the exhaust of each fabric filter controlling the ash handling system and storage silos' emission units shall not exceed the following limits for each pollutant:

   a. 0.017 mg/dscm and 0.0013 lb/hr, for each of the following emission units: (1) Bottom Ash Handling and Conveying System (Trans 1); and (2) Bottom Ash Storage and Conveying System (Trans 2).

   b. 0.017 mg/dscm and 0.0038 lb/hr, for the Bottom Ash Processing Activities (Ash).

   c. 0.017 mg/dscm and 6.38E-05 lb/hr, for each of the following emission units: (1) Fly Ash Conveying, Storage Silo, Conditioning and Loading System (Silo 4); (2) Activated Carbon Handling System and Storage Silo (Silo1); and (3) Lime Handling System (Silo 2).

2. PM, $PM_{10}$, and $PM_{2.5}$ emissions shall include only filterable PM.

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## C. Emergency Equipment

1. Emergency Generator (Gen).

   a. $NO_x$ emissions shall not exceed 2.85 g/BHP-hr and 4.2 lb/hr.

   b. CO emissions shall not exceed 2.6 g/BHP-hr and 3.86 lb/hr.

   c. VOC emissions shall not exceed 0.15 g/BHP-hr and 0.22 lb/hr.

   d. PM emissions (filterable fraction only) shall not exceed 0.15 g/BHP-hr and 0.22 lb/hr.

   e. $PM_{10}$ (filterable + condensable fraction) shall not exceed 0.15 g/BHP-hr and 0.22 lb/hr.

   f. $PM_{2.5}$ (filterable + condensable fraction) shall not exceed 0.15 g/BHP-hr and 0.22 lb/hr.

   g. $SO_2$ emissions shall not exceed 0.006 lb/hr.

   h. $CO_2e$ emissions shall include combined emissions of $CO_2$, $CH_4$, and $N_2O$, and shall not exceed 183 tons per year (based on 12-month rolling total).

2. Emergency Fire Pump (Fire).

   a. $NO_x$ emissions shall not exceed 2.85 g/BHP-hr and 2.1 lb/hr.

   b. CO emissions shall not exceed 2.6 g/BHP-hr and 1.93 lb/hr.

   c. VOC emissions shall not exceed 0.15 g/BHP-hr and 0.11 lb/hr.

   d. PM emissions (filterable fraction only) shall not exceed 0.15 g/BHP-hr and 0.11 lb/hr.

   e. $PM_{10}$ (filterable + condensable fraction) shall not exceed 0.15 g/BHP-hr and 0.11 lb/hr.

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f. $PM_{2.5}$ (filterable + condensable fraction) shall not exceed 0.15 g/BHP-hr and 0.11 lb/hr.

g. $SO_2$ emissions shall not exceed 0.003 lb/hr.

h. $CO_2e$ emissions shall include combined emissions of $CO_2$, $CH_4$, and $N_2O$, and shall not exceed. 91.3 tons per year (based on 12-month rolling total).

**D. Storage Tanks**

1. The emissions of ammonia and volatile organic compounds generated from the storage and transfer of aqueous ammonia solution and distillate fuel oil No.2 from and to the tanks shall not exceed the following limits:

   a. 0.674 TPY for $NH_3$ emissions (based on 12-month rolling total).

   b. 70.28 lb/yr for VOC emissions (for all distillate fuel oil No.2 storage tanks combined) (based on 12-month rolling total).

**E. Cooling Tower System**

1. PM emissions shall not exceed 2.48 lb/hr (based on 24-hour daily average).

2. $PM_{10}$ emissions shall not exceed 1.30 lb/hr (based on 24-hour daily average).

3. $PM_{2.5}$ emissions shall not exceed 0.005 lb/hr (based on 24-hour daily average).

**F. Fugitive Particulate Emission Sources**

1. The fugitive PM emissions shall not exceed 7.06 tons per year (based on 12-month rolling total).

2. The fugitive $PM_{10}$ emissions shall not exceed 1.41 tons per year (based on 12-month rolling total).

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3. The fugitive dust $PM_{2.5}$ emissions shall not exceed 0.35 tons per year (based on 12-month rolling total).

## G. Opacity

1. Opacity of emissions from the municipal waste combustors units (Boiler 1 and Boiler 2)'stacks shall not exceed 10% (based on 6-minute average).

2. Opacity of emissions from the fabric filters' exhaust of the following emission units shall not exceed 5% (based on 6-minute average): (1) Bottom Ash Handling and Conveying System (Trans 1): (2) Bottom Ash Storage and Conveying System (Trans 2); (3) Bottom Ash Processing Activities (Ash); (4) Fly Ash Conveying, Storage Silo, Conditioning and Loading System (Silo 4); (5) Carbon Handling System and Storage Silo (Silo 1); and (6) Lime Handling System and Storage Silo (Silo 2).

3. Opacity of emissions from the emergency diesel generator (Gen), and the emergency diesel fire's (Fire) stacks shall not exceed 20% except for one period of no more than six (6) minutes in any sixty (60) minute interval when the opacity shall not exceed 27 percent.

## H. Visible Emissions

1. The visible emissions of combustion ash resulting from the conveying systems (including conveyor transfer points) and from buildings and enclosures of ash conveying systems of the Ash Handling System's emission units (Trans 1, Trans 2, Ash, and Silo 4) shall not exceed 5% of the observation period (i.e., 9 minutes per 3-hour period). This limit shall not apply during maintenance and repairs of ash conveying system.

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## XI. Performance Test Requirements

### A. Initial and Subsequent Performance Tests

1. Initial performance tests shall be conducted within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of each emission unit as defined in 40 CFR Part 60.2, and at such other times as specified by EPA.

2. At least 60 days prior to actual testing, the Permittee shall submit to the EPA a Quality Assurance Project Plan detailing methods and procedures to be used during the performance stack testing. A Quality Assurance Project Plan that does not have EPA approval may be grounds to invalidate any test and require a re-test.

3. Notification of the stack test must be given to EPA at least 30 days prior to actual testing.

4. For performance test purposes, sampling ports, platforms and access shall be provided by the Permittee on the emission units' exhaust, as applicable, in accordance with 40 CFR Part 60.8 (e).

5. Performance tests must be conducted under such conditions to ensure representative performance of each emission unit. Operations during periods of startup, warmup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.

6. All performance tests required for the municipal waste combustor units (Boiler 1 and Boiler 2) shall be conducted at 500 MMBtu/hr, and 550 MMBtu/hr.

7. Three test runs shall be conducted for each load condition and compliance for each operating mode shall be based on the average emission rate of these runs. Except otherwise indicated, the minimum sampling time per each run shall be 1 hour. For Dioxin/Furan (D/F) emissions, the minimum sampling time shall be 4-hour per test run.

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8. Results of emission testing must be submitted to EPA within 60 days after completion of performance tests.

9. Performance tests for the: (1) emissions of $NO_x$, CO, $SO_2$ (including $SO_2$ as a surrogate for MWC acid gases), PM (including PM as a surrogate for MWC metals), HCL, D/F, $CO_2$, $O_2$, and Opacity of emissions required for Boiler 1 and Boiler 2; and (2) Visible emissions of combustion ash required for the conveying systems (including conveyor transfer points) and from buildings and enclosures of ash conveying systems of the Ash Handling System emission units (Trans 1, Trans 2, Ash, Silo 4) shall comply with all applicable procedures and methods specified at 40 CFR Part 60.58b.

10. The Permittee shall conduct initial performance tests (as described in 40 CFR Part 60.8) as follows:

    a. For the PM (including PM as a surrogate for MWC metals), $PM_{10}$, $PM_{2.5}$, $NO_x$, CO, VOC, $SO_2$ (including $SO_2$ as a surrogate for MWC acid gases), D/F, HCL, $H_2SO_4$, HF, $NH_3$, $O_2$, $CO_2$ total (biogenic + non-biogenic) emissions resulting from Boiler 1, and Boiler 2.

    b. For the drift loss of the cooling tower cells (Cool 1 through 4).

    c. For the heating value (i.e., heat content) of the RDF and WDF.

    d. For the opacity of emissions resulting from each of the following emission units: Boiler 1, Boiler 2, fabric filters' exhaust of the Trans 1, Trans 2, Ash, Silo 1, Silo 2, Silo 4, Gen, and Fire.

    e. No later than 30 days following any exceedances of the opacity of emissions limit specified in this permit at Section X.G.2 for any of the ash handling system emission units (Trans 1, Trans 2, Ash, and Silo 4), the Permittee shall conduct PM, $PM_{10}$, and $PM_{2.5}$ performance tests following the test procedures specified in this permit.

    f. For the visible emissions of combustion ash resulting from the conveying systems (including conveyor transfer points) and from

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buildings and enclosures of ash conveying systems of the Ash Handling System emission units: Trans 1, Trans 2, Ash, and Silo 4.

11. Following the date of the initial performance tests, the Permittee shall conduct performance tests as follows:

    a. On a calendar year basis (as described in 40 CFR Part 60.55b):

        i. For the PM (including PM as a surrogate for MWC metals), $PM_{10}$, $PM_{2.5}$, emissions (Boiler 1 and Boiler 2).

    b. On an annual basis (as described in 40 CFR Part 60.55b):

        i. For the VOC, HCL, $H_2SO_4$, HF, $O_2$, and $NH_3$ emissions (Boiler 1 and Boiler 2).

        ii. For the drift loss of the cooling tower cells (Cool 1 through 4).

        iii. For the opacity of emissions from each of the following emission units: Boiler 1, Boiler 2, fabric filters' exhaust of Trans 1, Trans 2, Ash, Silo 1, Silo 2, Silo 4, Gen, and Fire.

    c. On a calendar quarter basis:

        i. For the heating value (i.e., heat content) of the RDF and WDF.

        ii. For D/F emissions (Boiler 1 and Boiler 2);

        iii. The D/F performance test shall be performed quarterly on each combustor for the first three (3) years of operation. The reduction of the frequency of the performance tests for D/F, from once per calendar quarter to once per calendar year, may be authorized by EPA in its discretion, provided that each one of the twelve (12) quarterly performance tests over the first 3-year period indicate that D/F emissions are less than or equal to 7 nanograms (ng)/dscm @ 7% $O_2$). In the event that any of the subsequent calendar year performance tests (if authorized by EPA) indicates that D/F

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emissions exceed 7 ng/dscm @ 7% $O_2$, the Permittee shall return to the quarterly D/F performance test requirement.

d. On a monthly basis:

i. For the visible emissions of combustion ash (including conveyor transfer points) and from buildings and enclosures of ash conveying systems of the Ash Handling System' emission units: Trans 1, Trans 2, Ash, and Silo 4.

12. Additional performance tests may be required at the discretion of the EPA for any or all of the air pollutants specified by this permit.

**B. Test Methods**

1. The Permittee shall use the following test methods or a test method applicable at the time of the test and detailed in a test protocol approved by EPA.

a. Performance test for the emissions of $NO_x$ and $SO_2$ (including $SO_2$ as a surrogate for MWC acid gases) shall be conducted using EPA Method 19.

b. Performance test for the emissions of CO shall be conducted using EPA Method 10, 10A, or 10B.

c. Performance test for the emissions of PM (including PM as a surrogate for MWC metals), shall be conducted using EPA Method 5.

d. Performance test for emissions $PM_{10}$ and $PM_{2.5}$ shall be conducted using EPA Method 201 or 201A, and Method 202

e. Performance test for the emissions of VOC shall be conducted using EPA Method 25A.

f. Performance test for the emissions of HCL shall be conducted using EPA Method 26 or 26A.

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g. Performance test for the emissions of D/F shall be conducted using EPA Method 23.

h. Performance test for the emissions of HF shall be conducted using EPA Method 13A or 13B.

i. Performance test for the emissions of $H_2SO_4$ shall be conducted using EPA Method 8.

j. Performance test for the emissions of $NH_3$ shall be conducted in accordance with EPA Conditional Test Method 027.

k. Performance test for the emissions of $O_2$, and $CO_2$ total (biogenic + non-biogenic) shall be conducted using EPA Method 3, 3A, or 3B.

l. Performance test for the visual determination of the opacity of emissions from each of the following emission units: Boiler 1, Boiler 2, fabric filters' exhaust of Trans 1, Trans 2, Ash, Silo 1, Silo 2, and Silo 4, Gen, and Fire shall be conducted using EPA Method 9.

m. Performance test for the visual determination of the visible emissions of combustion ash from Trans 1, Trans 2, Ash, and Silo 4 shall be conducted using EPA Method 22.

n. Performance tests for the drift loss on the cooling tower cells shall be conducted using the isokinetic sampling system with the heated beakpack style method (HBIK) to confirm the specified drift loss of the circulating water flow of 0.0005%.

o. ASME Test Code 34-2007 or approved equivalent for the heating value (i.e., heat content) of the RDF and WDF.

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## XII. Continuous Emission Monitoring/Continuous Opacity Monitoring

1. Prior to the initial performance tests and thereafter, the Permittee shall install, calibrate, maintain, and operate the following continuous monitoring systems for each municipal waste combustion unit ( Boiler 1 and Boiler 2):

   a. Continuous emission monitoring system (CEMS) to measure stack gas $NO_x$ (measured as $NO_2$) and CO.

   b. CEMS, to measure stack gas $SO_2$, and $SO_2$ at the inlet of the Turbosorp Circulating Dry Scrubber.

   c. CEMS, to measure total $CO_2$ (biogenic + non- biogenic) emissions at: (1) the stack; (2) the inlet of the Turbosorp Circulating Dry Scrubber; and (3) each location where CO, $SO_2$, and $NO_x$ are monitored.

   d. CEMS, to measure $O_2$ at each location where CO, $SO_2$, and $NO_x$ are monitored

   e. Continuous opacity monitoring system (COMS), to measure the opacity emissions at the stack.

   f. In the event EPA promulgates HCL CEMS performance specification before the end of calendar year 2014, the Permittee shall install, calibrate, maintain, and operate CEMS to measure stack gas HCL. Before using CEMS for HCL, the Permittee shall comply with all notifications requirements of 40 CFR Part 60. 58 b (n). In the event that no EPA HCL CEMS performance specifications are promulgated before the end of calendar year 2014, the Permittee shall conduct HCL annual performance test, as it is required at section XI. A.11.b.i of this permit.

2. The CEMS for CO, $NO_x$, $SO_2$, HCL, $O_2$, $CO_2$, and the COMS shall comply with all requirements of 40 CFR Part 60.58b.

3. No less than 90 days prior to the date of startup of the municipal waste combustor units, the Permittee shall submit a written report to EPA of a Quality Assurance Project Plan for the certification of each municipal waste combustor units' CEMS and COMS.

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4. The Permittee shall conduct performance evaluations of the COMS, CEMS, and all of the continuous monitoring systems required by this permit at a date no later than the date of the initial performance testing required under this permit. These performance evaluations shall be conducted in accordance with the applicable EPA specifications, including but not limited to, 40 CFR Part 60, Appendix B. The Permittee shall notify EPA 15 days in advance of the date upon which demonstration of the continuous monitoring systems' performance will commence (40 CFR Part 60.13(c)).

5. The Permittee shall submit a written report to EPA of the results of all monitor performance specification tests conducted on the monitoring system(s) within 45 days of the completion of the tests. The continuous monitors must meet all the requirements of the applicable performance specification test in order for the monitors to be certified.

## XIII. Other Monitoring Requirements

### A. Determination of Actual $CO_2e$ Emissions - Municipal Waste Combustors Units and Emergency Equipment

1. The GHG global warming potentials and the default $CO_2$, $CH_4$ and $N_2O$ emission factors used for the calculation of the $CO_2e$ emissions resulting from the municipal waste combustor units, the RSCR units, the emergency diesel generator, and the emergency fire pump shall be equal with those contained in 40 CFR Part 98.

2. The heating values of the RDF, ASR, PUWW, TDF, distillate fuel oil No.2, and propane used for the calculations of the $CO_2e$ emissions shall equal the following:

   a. 11.4 MMBtu/ton for RDF;
   b. 38.0 MMBtu/ton for ASR;
   c. 15.38 MMBtu/ton for PUWW;
   d. 26.87 MMBtu/ton for TDF;
   e. 0.138 MMBtu/gallon for distillate fuel oil No.2;
   f. 0.091 MMBtu/gallon for propane;

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3. During normal operation, the $CO_2e$ emissions ( which includes biogenic + non-biogenic $CO_2$) for each municipal waste combustor unit and the corresponding RSCR unit shall be determined as follows:

   a. Total $CO_2$ emissions (biogenic + non-biogenic) shall be measured by CEMS.

   b. The $CH_4$ and $N_2O$ emissions resulting from each municipal combustor unit and the RSCR unit shall be determined by calculations using:

      i. Actual measured consumption rates of RFD and WDF for Boiler 1, and Boiler 2; and distillate fuel oil No.2 and propane for the RSCR units.

      ii. $CH_4$ and $N_2O$ default emission factors and fuel heating values specified in this permit.

   c. $CO_2e$ emissions shall be determined by adding the total $CO_2$ (biogenic + non-biogenic), $CH_4$, and $N_2O$ emissions.

4. During warmup, and shutdown periods, the $CO_2e$ emissions for each municipal waste combustor unit and the corresponding RSCR unit, while firing distillate fuel oil No.2, shall be determined as follows:

   a. $CO_2$ emissions shall be measured by CEMS.

   b. $CH_4$ and $N_2O$ emissions shall be determined by calculations using:

      i. Actual measured distillate fuel oil No.2 consumption rate for each municipal waste combustor unit and RSCR unit, and propane for the RSCR unit; and

      ii. $CH_4$ and $N_2O$ default emission factors and fuels heating value specified in this permit.

   c. $CO_2e$ emissions shall be determined by adding the $CO_2$, $CH_4$, and $N_2O$ emissions.

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5. The $CO_2e$ emissions for the emergency generator (Gen), and the emergency generator fire pump (Fire) shall be determined separately by calculations based on the:

   a. Actual measured distillate fuel oil No.2 consumption rates.

   b. $CO_2$, $CH_4$ and $N_2O$ emission factors and fuel heating value specified in this permit.

   c. $CO_2e$ emissions shall be determined by adding the $CO_2$, $CH_4$, and $N_2O$ emissions.

**B. Storage Tanks**

1. Compliance with the ammonia emission limit of the ammonia storage tank shall be determined by calculations using the storage tank manufacturer's emission factors, and assuming 365 operating days per year, and 24 hours/day.

2. Compliance with the volatile organic compounds emission limit of the distillate fuel oil No.2 storage tanks shall be determined by calculations using the EPA's Tanks 4.09d program.

**C. Cooling Tower System**

1. The Permittee shall calculate the total hourly particulate emissions using the following equation:

   a. Cooling tower total particulate emissions (lb/hr) =
   Total Circulating Flow Water Rate (gpm) X 60 minutes/hour X Drift Loss X Density Water (8.34 lb/gallon) X Total Dissolved Solids (ppmw) X 1/1,000,000.

   b. Total Circulating Flow Water, Drift Loss, and Total Dissolved Solids shall be determined as specified in this permit.

2. The PM, $PM_{10}$ and $PM_{2.5}$ emissions shall be calculated using the following assumptions:

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a. PM emissions shall not exceed 94.7% of the total particulate emissions; $PM_{10}$ emissions shall not exceed 49.8% of the total particulate emissions; and $PM_{2.5}$ emissions shall not exceed 0.17% of the total particulate emissions.

**D. Fugitive Particulate Emissions Sources**

1. Compliance with the fugitive PM, $PM_{10}$, and $PM_{2.5}$ emission limits shall be determined by using the emission factors, equations, and assumptions in Section 13.2.1 of the AP-42 Emission Factors, January 2011, for paved roadways. These emission limits shall be determined based on the actual vehicle miles traveled on site per day, 365 days of operation per year, and 80% control efficiency for PM, $PM_{10}$ and $PM_{2.5}$ from using dust suppression measures specified in this permit.

**E. Heat input rate, and refuse-derived fuel consumption rate "12-month rolling average" limit.**

1. The "12-month rolling average" limit as used in this permit shall mean the average of the 12 successive calendar months of the municipal waste combustors units' operation.

2. The "12-month rolling average" of heat input rate (MMBTU/hr) shall mean the average MMBTU/hr determined at the conclusion of each calendar month, by calculating:

   a. For each municipal waste combustor unit, the sum of the hourly heat input rate during the calendar month (while the boiler is operating on RDF or WDF) divided by the number of hours within the month to obtain a monthly heat input (MMBTU/hr) average; and

   b. The average heat input rate (MMBTU/hr) of the current month and the previous 11 successive months to obtain the 12-month rolling average heat input rate (MMBTU/hr).

3. The "12-month rolling average" RDF consumption rate (TPD) shall mean an average consumption rate determined at the conclusion of each calendar month by calculating:

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a. For each municipal waste combustor unit the sum of tons of RDF combusted during the calendar month, divided by the number of days within the month to obtain a monthly RDF consumption rate (TPD) average; and

b. The average RDF consumption rate(s) of the current month and the previous 11 successive months to obtain the 12-month rolling average RDF consumption rate (TPD).

**F. Heat rate (MMBtu/MW-hour) and lb of $CO_2$e/lb steam "30-day rolling average" limits.**

1. The "30-day rolling average" limit as used in this permit shall mean the average of 30 successive municipal waste combustor units operating days.

2. The term "operating day", as used in this permit, shall mean any day the municipal waste combustors units combust any RDF or WDF.

3. The "30-day rolling average" of MMBtu/MWh and lb $CO_2$e/lb of steam shall be determined by calculating the arithmetic average of all hourly MMBtu/MWh or lb of $CO_2$e/lb of steam recordings for the current municipal waste combustor operating day and the previous 29 municipal waste combustor operating days.

## XIV. Recordkeeping Requirements

1. Logs shall be kept and updated daily to record the following:

   a. Amount of refuse-derived fuel, waste-derived fuel, and each supplementary fuel consumed by each municipal waste combustor unit, in tons per day.

   b. Amount of the distillate fuel oil No.2 and propane, for Boiler 1, Boiler 2, Gen, Fire, and each RSCR unit, in gallons per day.

   c. Number of hours of operation for Boiler 1, and Boiler 2.

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d. Beginning, duration, and completion of each warmup, shutdown, malfunction, and excess emissions events.

e. Reason and amount of time (hours per day) the emergency generator, and emergency fire pump was in operation (i.e., emergency service or maintenance or testing).

f. All instances when visible emissions were observed from any emission unit, including the fugitive particulate emission sources, and the corrective actions taken.

g. Type and quantity of water treatment chemicals used in the cooling water system on a monthly basis including all material data safety sheets associated with each chemical.

h. All checks, inspections, and all maintenance work, repairs, adjustments, and calibrations done for the emission units, air pollution control equipment, and monitoring systems or devices.

i. Each pressure drop deviation investigation and corrective action taken.

j. Each event of the audible alarm sounds on the bag leak detectors system. The records shall include the date, time, duration, cause, and the action taken in response to the alarm.

k. For each distillate fuel oil No.2 and propane delivery, documents from the fuel supplier certifying compliance with the fuel sulfur content limit specified in this permit

l. ASR and PUWW supplier's documentation and analysis reports required by this permit.

m. All calculations, opacity readings, measurements, and results of all monitoring systems and devices, performance tests, and CEMS summaries and information related to emission determinations, and other parameters required by this permit.

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n. Logs shall be kept and updated daily to record, for each ammonia delivery, documents from the ammonia supplier certifying compliance with the 19% ammonia by volume specified in this permit.

2. Logs shall be kept and updated periodically to record the following:

a. For the life of the storage tanks, records that include the dimensions and capacity of each tank authorized by this permit.

b. Manufacturer technical documentation that includes:

i. Emission factors for the ammonia storage tank.

ii. Maximum design air flow rate of each fabric filter.

iii. Model year, power output and emission factors of the emergency equipment.

3. All recordkeeping requirements required by this permit shall comply with the provisions of 40 CFR Part 60, Subpart A, Eb, and other Subparts as applicable. All records and logs required by this permit, must be maintained for a period of five years after the date of record, and made available upon request.

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## XV. Reporting Requirements

1. For the purposes of this permit, excess emissions shall be defined as any period in which the facility emissions exceeded the emission limits set forth in this permit. Excess emissions indicated by monitoring systems, source testing or compliance monitoring shall be considered violations of the applicable emission limits.

2. The Permittee shall submit a written report of all excess emissions to EPA for every calendar quarter. All quarterly reports shall be postmarked by the 30$^{th}$ day following the end of each quarter and shall include the information specified below:

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a. The magnitude of excess emissions computed in accordance with 40 CFR Part 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions;

b. The specific identification of each period of excess emissions that occurs during warmup, shutdown, and malfunctions for Boiler 1 and Boiler 2. The nature and cause of any malfunction and the corrective action taken or preventive measures adopted shall also be reported;

c. The date and time identifying each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of the system repairs or adjustments.

d. When no excess emissions have occurred or the CEM system has not been inoperative, repaired, or adjusted, such information shall be stated in the report.

e. Results of quarterly monitor performance audits, as required in 40 CFR Part 60, Appendix F (including the Data Assessment Report) and all reporting specified in 40 CFR Part 60.7 including the submission of excess emissions and CEMS downtime summary sheets.

3. Malfunction means any sudden infrequent and not reasonably preventable failure of an air pollution control equipment, process equipment, or process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

4. All malfunctions of any emission unit must be reported within 24 hours by telephone or e-mail to the Chief, Compliance and Inspection Division Air Quality Area at the telephone and e-mail listed below.

5. A follow-up letter must be submitted within 5 calendar days after each malfunction to the Chief, Compliance and Inspection Division Air Quality Area at the address listed below. A copy shall be submitted to Director, Caribbean Environmental Protection Division of the U.S. Environmental Protection Agency, Region 2 Office. The letter shall include: a description of the malfunctioning equipment or abnormal operation; the date of the initial failure; the period of time over which emissions were increased due to the

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failure; the cause of the failure; the estimated resultant emissions in excess of those allowed under this permit; and the methods utilized to restore normal operations. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations, which such malfunction may cause.

6. The quarterly excess emission reports required in this section shall be sent to the following EPA and PREQB personnel:

   Region 2 CEM Coordinator
   AWQAT MS-220, Monitoring and Management Branch
   U.S.EPA Region 2
   2890 Woodbridge Avenue
   Edison, New Jersey 08837

   Director, Caribbean Environmental Protection Division
   U.S. Environmental Protection Agency, Region 2 Office
   City View Plaza III-Suite 7000
   #48 Rd. 165 km 1.2
   Guaynabo, PR 00968-8069
   (787) 977-5870

   Chief, Compliance and Inspection Division Air Quality Area
   Puerto Rico Environmental Quality Board
   P.O. Box 11488
   San Juan, PR 00910
   (787)767-8181
   E-mail : complianceAQA@jca.pr.gov

7. All reporting requirements required by this permit shall comply with the provisions of 40 CFR Part 60, Subpart A, Eb, and other Subparts as applicable. All emission reports, testing reports and start-up notifications required under this permit shall be submitted to Director, Caribbean Environmental Protection Division, U.S. EPA, Region 2 at the address listed above.

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8. Copies of all reports and Quality Assurance Project Plans shall also be submitted to:

   Region 2 CEM Coordinator
   AWQAT MS-220, Monitoring and Management Branch
   U.S.EPA Region 2
   2890 Woodbridge Avenue
   Edison, New Jersey 08837

   Chief, Compliance and Inspection Division Air Quality Area
   Puerto Rico Environmental Quality Board
   P.O. Box 11488
   San Juan, PR 00910

## XVI. Other Applicable Requirements

The Permittee shall construct and operate the facility in compliance with all other applicable provisions of federal and state regulation, including but not limited to those contained in the Puerto Rico State Implementation Plan (SIP), the applicable provisions of the New Source Performance Standards (NSPS) (including 40 CFR Part 60, Subparts A, Da, Eb, and IIII), and the National Emissions Standards for Hazardous Air Pollutants (NESHAP) (including 40 CFR Part 63, Subpart ZZZZ).

**ENCLOSURE II**

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## General Project Description

Energy Answers Arecibo, LLC is proposing to construct and operate a new resource recovery facility, known as the Arecibo Puerto Rico Renewable Energy Project, capable of producing 77 megawatts (MW) of electrical power. The project will be located at the former site of Global Fibers Paper Mill in Barrio Cambalache in Arecibo, Puerto Rico. The major components of the project will consist of two identical municipal waste combustor units (i. e., spreader-stoker boilers); a steam turbine electrical-generator; ash handling system; a carbon storage silo; a lime storage silo; an emergency diesel generator; an emergency diesel fire pump; a "four-cell" cooling tower; an ammonia storage tank; and three distillate fuel oil No.2 storage tanks.

The municipal waste combustors will be primarily fueled by refuse-derived fuel (RDF). RDF is shredded municipal solid waste with most of the metal content removed and recycled. The municipal waste combustors will also be capable of combusting, when available, supplementary fuels consisting of auto-shredder residue (ASR), tire-derived fuel (TDF), and processed urban wood waste (PUWW). These supplementary fuels will be substituted for a portion of RDF. The municipal solid waste (MSW) will be received on the MSW storage area's tipping floor and separated into materials and items that qualify as MSW, non-MSW, and bulky-recyclable materials. The MSW will be shredded and further processed to magnetically remove a portion (approximately 70%) of the ferrous metal that is recycled. The resulting shredded MSW, called refuse-derived fuel (RDF), will be either stored or loaded onto conveyors and fed to the combustors. The supplementary fuels will be delivered separately, not mixed with MSW, unloaded, and stored in a designated area inside the MSW enclosed storage area. The TDF and PUWW will be received either shredded or they will be shredded at the facility. The ASR will be delivered only in a shredded form. The supplementary fuels will be either blended with MSW prior to shredding or blended directly into the RDF stream prior to combustion. The supplementary fuels will only be blended and combusted with RDF and only one supplementary fuel can be present in the RDF mixture at one time

Each municipal waste combustor will be permitted at a maximum capacity of 398,840 pounds of steam per hour. The steam from the municipal waste will operate the steam turbine, which is capable of producing up to 77 MW of electricity. Ultra low sulfur distillate fuel oil No.2 with a maximum sulfur concentration of 0.0015 percent (%) [15 parts per million] by weight will be used to fire the: (1) municipal waste combustors' auxiliary burners during warmup, shutdown, and to maintain the combustors' chamber temperature during potentially short-term interruptions of the waste supply;

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(2) emergency diesel generator and diesel fire pump; and (3) the Regenerative Selective Catalytic Reduction (RSCR) units' burners to provide optimal temperature range necessary for the nitrogen oxides' reduction.

The proposed project is subject to PSD, and therefore requires the use of Best Available Control Technology (BACT) to limit emissions of the following pollutants: nitrogen oxides ($NO_x$), carbon monoxide (CO) , volatile organic compounds (VOC), sulfur dioxide ($SO_2$) , particulate matter (PM), particulate matter with an aerodynamic diameter equal to or less than 10 micrometers ($PM_{10}$), particulate matter with an aerodynamic diameter equal to or less than 2.5 micrometers ($PM_{2.5}$), fluorides (as hydrogen fluoride: HF), sulfuric acid mist ($H_2SO_4$), municipal waste combustor organics (dioxins and furans), municipal combustor metals (measured as particulate matter), municipal waste acid gases (sulfur dioxide and hydrogen chloride: HCl), and greenhouse gas (GHG) emissions.

To assure compliance with the BACT emission limitations set up in the PSD permit, the facility is required to perform the following performance testing and use the following monitoring systems:

- Initial performance tests: $NO_x$, CO, $SO_2$, $CO_2$ total (biogenic + non-biogenic).
- Initial and annual performance tests for: PM (including PM as a surrogate for MWC metals), $PM_{10}$, $PM_{2.5}$, VOC, HCL, $H_2SO_4$, HF, $NH_3$, and opacity of emissions (for the municipal waste combustors, fabric filters' exhaust of the ash conveyors, ash processing building, ash, carbon, and lime silos, emergency generator, and emergency fire pump.
- Initial and quarterly performance tests for dioxins and furans.
- Initial and monthly performance tests for the visible emissions of combustion ash.
- Continuous Emission Monitoring Systems (CEMS) for: $NO_x$, CO, $SO_2$, and $CO_2$ total (biogenic + non-biogenic). Additionally, the permit requires CEMS for HCL in the event EPA promulgates performance specifications for HCL CEMS before the end of calendar year 2014.
- Continuous Opacity Monitoring System (COMS) for the opacity emissions for the municipal waste combustors.

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Each municipal waste combustor will use the following air pollution control equipment: Turbosorp circulating dry scrubber, activated carbon injection system, fabric filter, and RSCR system with two modules, an Oxidation Catalyst, and a Selective Catalytic Reduction module. Fabric filters will control the particulate emissions resulting from each of the ash handling system's emission units and from the silos. In addition, the cooling tower will be equipped with a drift eliminator for the control of the particulate emissions.