PERMITTEE

Wheelabrator North Broward, Inc.
2600 NW 48th Street
Pompano Beach, Florida 33073

PERMITTING AUTHORITY

Florida Department of Environmental Protection (Department)
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

PROJECT

Permit No. 0112120-017-AC/PSD-FL-112E
Application for Minor Source Air Construction Permit
Combustion of Biosolids & Landfill Gas in Municipal Waste Combustor Unit Nos. 1, 2 & 3 and Waste (Fuel Slate) Revisions

PUBLIC NOTICE

The Department distributed a draft air construction permit package on March 17, 2014. The applicant published the Public Notice in the Sun-Sentinel in Broward County, Florida on March 21, 2014. The Department received the proof of publication on March 31, 2014.

No requests for an administrative hearing or requests for an extension of time in which to file a petition for an administrative hearing were received by the Agency Clerk in the Department's Office of General Counsel.

COMMENTS

No comments on the permit were received from the public or the U.S. EPA Region 4 Office during the 14-day public comment period. Comments on the permit were received from the Applicant during the 14-day public comment period. The comments are addressed below.

All changes are emphasized with yellow highlight in this document only. Additions to the permit are indicated below by double underline. Deletions from the permit are indicated below by ~~strike through~~

Comments from the Applicant submitted via email on March 27, 2014

Most of the comments submitted were on both projects. For ease of addressing the comments they are kept comingled as they were submitted even though the permitting actions are for individually separate permitting actions yet the projects (North and South) are very similar. Where it made sense, some of the applicant's comments were grouped together. A cross reference back to each of the applicant's comments as submitted is contained in curly brackets, for example - "{Applicant's Comment 1)}."

Comments

1. Page 3 (Section I. General Information - Proposed Project) {Applicant's Comment 1)}. The third paragraph states North Broward can burn 2,420 tons of MSW and South Broward can burn 2,589 tons and we requested a maximum of 15% biosolids, which is equivalent to 390 tons/day at North Broward and 416 tons at South Broward. It is not clear where these 390 ton and 416 ton numbers come from as 15% of 2,420 tons is 363 tons and 15% of 2,589 tons is 388 tons.

   Page 8 (Section III. Subsection A. Emissions Unit **Specific Condition IIIA.3.**) {Applicant's Comment 3)}. Specific Condition III.A.3. again references 390 tons for North Broward and 416 tons for South Broward.

   ***Response*:** The Department found different biosolids rates in the permit applications.

   For the North facility, on page 21 of the permit application form submitted, the proposed biosolids rate was 15.13 tons/hour. At 24 hours/day this equals 363 tons/day (TPD). However, in the Part II document of the

permit application on page 9 the requested biosolids rate was 65 wet tons per day per unit at 7.5% biosolids. For 3 MWC units at 15% biosolids, the calculated equivalent rate is 390 wet tons per day (WTPD). The higher value of 390 TPD was placed into the draft permit. The Department understands from the comment that the biosolids rate requested is in fact 363 TPD.

For the South facility, on page 21 of the permit application form submitted, the proposed biosolids rate was 16.18 tons/hour. At 24 hours/day this equals 388 tons/day (TPD). However, in the Part II document of the permit application on page 8 the requested biosolids rate was 65 wet tons per day per unit at 7.5% biosolids. For 3 MWC units at 15% biosolids, the calculated equivalent rate is 390 wet tons per day (WTPD). For the South facility (larger facility than the North), the Department scaled up the 65 WTPD to 69 WTPD, which is equivalent to 416 WTPD. The higher value of 416 TPD was placed into the draft permit. The Department understands from the comment that the biosolids rate requested is in fact 388 TPD.

For the North facility, the Department makes the requested corrections to the proposed project description 3rd paragraph on page 3 of 15 and **Specific Condition III.A.3**. to read as follows:

"…

PROPOSED PROJECT

…

The MWC Unit Nos. 1-3 have a total charging rate (short-term) of 2,420 TPD of municipal solid waste (MSW). The applicant requested a maximum of up to 15% biosolids on an as received (i.e., wet) basis to be combusted in the MWC units. This is equivalent to a maximum mass of ~~390~~363 tons per day (TPD) facility-wide.

…"

"3. Post Biosolids Combustion Trial Period: After successfully demonstrating initial compliance while combusting biosolids and after submitting the test reports required in Specific Condition Nos. III.8., 9., 10. & 11., the North Broward Waste-to-Energy Facility is authorized to combust biosolids in the amount of up to 15% of the municipal solid waste combustor Unit Nos. 1, 2 and 3 loading rates on an as received (i.e., wet) basis not to exceed ~~390~~363 TPD facility-wide, averaged monthly. [Application No. 0112120-017-AC; Rule 62-210.200, *Definitions - Potential to Emit (PTE)*, F.A.C.; and, Applicant Request.]"

2. Page 7 (Section III. Subsection A. Emissions Unit **Specific Condition III.A.2.**). The second paragraph ends by saying this construction permit "…authorizes the combustion of biosolids that are not liquid biosolids in municipal waste combustor Unit Nos. 1, 2 and 3 as allowable non-MSW fuel received as a segregated load." Wheelabrator would prefer the language be slightly modified so no confusion exists that biosolids are **NOT** part of the non-MSW that was permitted last year to increase from 5% to 20%.

***Response*:** The request for biosolids was not part of the non-MSW authorized increase from 5% to 20% project. The Department makes the requested clarification to **Specific Condition III.A.2.** as follows:

"2. Authorization to Combust Biosolids: The owner or operator is authorized to combust biosolids (includes Class B, A and AA biosolids) that are not liquid biosolids in municipal solid waste combustor Unit Nos. 1, 2 and 3 as an allowable non-MSW fuel received as a segregated material. Biosolids are not part of the non-MSW (municipal solid waste) materials ("non-hazardous solid and liquid wastes") that were authorized under Permit No. 0112120-015-AC/PSD-FL-112D, increasing non-MSW from 5% to 20%. …"

3. Page 8 (Section III. Subsection A. Emissions Unit **Specific Condition III.A.6**.). **Specific Condition III.A.6.** references a specific biosolids training plan. Wheelabrator would like language added that this plan may be incorporated into the site specific operating manual required by MWC standards (40 CFR 60.54b(e)). The training and recordkeeping requirements associated with this manual would comply with the specific biosolids requirements listed in the construction permit.

***Response*:** The referenced biosolids training plan is not required by the federal regulation for MWCs under 40 CFR 60.54b(e). The biosolids training plan is required under this minor source AC permit which authorizes biosolids. The authorization for biosolids does not stem from the MWC federal regulations. To the extent that you can add the biosolids training plan to the federally required site-specific operating plan, you may. No change is necessary to the permit.

4. Page 9 (Section III. Subsection A. Emissions Unit **Specific Condition III.A.8.**). **Specific Condition III.A.8.** (the initial compliance stack test) states the facility shall do three one-hour runs and the three runs shall be averaged. First, Wheelabrator requests that this line should read "a minimum" of three runs shall be conducted and "all" runs shall be averaged. This makes the biosolids/landfill gas stack test requirements consistent with existing TV stack test requirements. Secondly, the EPA methods for PM and MWC metals (mercury cadmium and lead) are Methods 5 and 29 respectively, which under the EPA MWC standards (40 CFR 60.58b) and TV permit require two-hour runs be conducted. Wheelabrator requests that the duration of M5 and M29 test runs be a minimum of 2 hours consistent with existing requirements.

   ***Response*:** The Department makes clarifications to **Specific Condition III.A.8.** as follows:

   "8. Initial Compliance Demonstration - Stack Test Data: The initial compliance demonstration while combusting biosolids shall be performed for PM and the individual MWC metals (e.g., cadmium (Cd), lead (Pb) and mercury (Hg)) using stack test data. All of the stack tests while combusting biosolids shall be performed on either MWC Unit No. 1, 2 or 3. A minimum of ~~T~~three~~, 1 hour~~ stack test runs shall be conducted for each air pollutant (e.g., PM, Cd, Pb and Hg) while combusting biosolids and all runs shall be averaged. The emissions data shall be reduced to the averaging time(s) as specified in the current valid Title V air operation permit, Permit No. 0112120-013-AV. The ~~average of the three stack test runs~~results shall be compared to the existing emission standards/limits. …"

5. Page 10 (Section III. Subsection A. Emissions Unit **Specific Condition III.A.10.**). **Specific Condition III.A.10.** states that the ammonia injection rate during NOx testing shall be included in the report. Wheelabrator requests that this phrase be changed to "ammonia/urea" since the facility uses urea, not ammonia, for NOx control.

   ***Response*:** The Department makes the correction to Specific Condition III.A.10. as follows:

   "10. …

   The ammonia/urea injection rate during NOx testing shall be included in the test report.

   …"

6. Page 10 (Section III. Subsection A. Emissions Unit **Specific Condition III.A.14.c.**). **Specific Condition III.A. 14.c.** states that the facility has to keep records of analytical results from the source of the biosolids. This condition should be clarified that analytical results are not required for each load of biosolids received at the facility. Rather, the facility is required to maintain records of analytical results provided by the biosolids source under the sampling requirements in Chapter 640 FAC as explained in permitting note. Suggested language might be: "c. *analytical results provided by sources of biosolids pursuant to biosolids analyses requirements in Chapter 640 FAC including metals constituents, % solids by weight and pathogen results."*

   ***Response*:** The Department is not requiring the facility to perform an analysis on the biosolids received. The facility can simply keep records of the biosolids analysis provided by the source of the biosolids. The Department makes the clarification to Specific Condition III.A.14.c. as follows:

   "14. …

   c. the analytical results ~~from~~provided by the source of the biosolids showing: the metal constituents; % solids by weight, and pathogen results.

   …"

7. Page 10 (Section III. Subsection A. Emissions Unit **Specific Conditions III.A.20. & 21.). Specific Conditions III.A.20. & 21.** appear to be unnecessary hourly facility emission limits (lbs/hr) to restrict emission increases below the annual significant emission rate (SER) levels (in tons/yr) for NOx (9.11 lbs/hr x 8760 hr x 1/2000 lbs = 40 tons/yr) and CO (22.8 lbs/hr x 8760 hr x 1/2000 lbs=100 tons/yr). Wheelabrator does not believe such additional facility limits are necessary as the facility will be keeping 12 month rolling average annual emissions calculations to maintain emissions below the respective annual SER. If the Department believes such additional facility restrictions are necessary, such restrictions should be based on tons/yr consistent with the SER and tied to annual baseline emissions as in: "*Any increase in facility SO2 emissions shall be limited to 40 tons/year above projected baseline actual emissions.*"

   ***Response*:** The Department had added these specific conditions to the draft permit for reasonable assurance purposes to ensure that the proposed escape PSD emission levels for NOx & CO emissions would not be exceeded {please see the discussion beginning on page 14 under "Air Pollution Affects from the Combustion of Biosolids" in the Technical Evaluation & Preliminary Determination document distributed along with the draft permit}. The Department understands that these could be unnecessary restrictions so the Department removes the unnecessary restrictions in Specific Conditions III.A.20. & 21. as follows:

   "20. SNCR Operation for NO_X Emissions: When combusting biosolids the owner or operator may need to inject additional reagent (ammonia/urea) into the SNCR system~~,~~ to keep NOx emissions low~~er than 9.11 lbs/hour~~ from the project (all three MWC units combined). [Application No. 0112120-017-AC; and, Rules 62-4.160(2), 62-212.400(12), *Source Obligation, escape-PSD*, and 62-210.200, *Definitions - Potential to Emit (PTE)*, F.A.C.]"

   "21. Combustion Optimization for CO Emissions: When combusting biosolids the owner or operator may need to optimize combustion~~,~~ to keep CO emissions low~~er than 22.81 lbs/hour~~ from the project (all three MWC units combined). [Application No. 0112120-017-AC; and, Rules 62-4.160(2), 62-212.400(12), *Source Obligation, escape-PSD*, and 62-210.200, *Definitions - Potential to Emit (PTE)*, F.A.C.]"

8. Page 12 (Section III. Subsection B. Emissions Unit **Specific Condition III.B.4.**). **Specific Condition III.B.4.** states that the landfill gas cannot exceed 2800 ppm sulfur Wheelabrator believes there should be no restriction on landfill gas sulfur content given the facility has CEMS to continuously monitor SO_2 levels, demonstrate compliance with 29 ppm Title V permit limit and for calculation of annual emissions. Additionally the facility has the option to install SO_2 CEMS at the SDA inlets to determine SO_2 removal efficiency should it become desirable.

   ***Response*:** The Department had added this specific condition for a maximum sulfur content to the draft permit for reasonable assurance purposes to ensure that the proposed escape PSD emission level for SO_2 emissions would not be exceeded {please see the discussion beginning on page 22 under "Combustion of Landfill Gas's Effect on Air Pollutant Emissions" in the Technical Evaluation & Preliminary Determination document distributed along with the draft permit}. The Department acknowledges that the applicant is keenly aware of the emission level to stay below to keep the project from triggering PSD for SO_2 emissions. As indicated because the MWC units are closely monitored with the SO_2 CEMS and the applicant understands the emission level at which PSD could be triggered the Department does not find the absolute need to have this specific condition. For these reasons, **Specific Condition III.B.4.** is not absolutely necessary and is therefore removed from the permit as follows:

   "~~4. Sulfur Content of LFG: Sulfur content [either as TRS or H_2S] of the LFG shall not exceed 2,800 ppmvd. [Application No. 0112120-017-AC; and, Rules 62-4.160(2), 62-212.400(12), *Source Obligation, escape-PSD*, and 62-210.200, *Definitions - Potential to Emit (PTE)*, F.A.C.]~~"

9. Page 12 (Section III. Subsection B. Emissions Unit **Specific Condition III.B.5.**). Regarding **Specific Condition III.B.5. (Now Specific Condition III.B.4.)** Wheelabrator offers the same comment as listed in comment #8 regarding the unnecessary hourly SO_2 limit of 9.11 lbs/hr.

   ***Response*:** The Department had added this specific condition to the draft permit for reasonable assurance purposes to ensure that the proposed escape PSD emission level for SO_2 emissions would not be exceeded

{please see the discussion beginning on page 22 under "Combustion of Landfill Gas's Effect on Air Pollutant Emissions" in the Technical Evaluation & Preliminary Determination document distributed along with the draft permit}. The Department understands that this could be an unnecessary restriction so the Department removes the unnecessary restriction in **Specific Condition III.B.5.** as follows:

"5. Sulfur Content of LFG: When the sulfur content [either as TRS or H_2S] of the LFG is at 1,204 ppmvd or higher the owner or operator may need to scrub the MWC exhaust gases more, i.e., increase the spray dryer absorber (SDA) systems (scrubbers) efficiencies above 90%, to keep SO_2 emissions low~~er than 9.11 lbs/hour~~ from the project (all three MWC units combined). [Application No. 0112120-017-AC; and, Rules 62-4.160(2), 62-212.400(12), *Source Obligation, escape-PSD*, and 62-210.200, *Definitions - Potential to Emit (PTE)*, F.A.C.]"

10. Page 13 (Section III. Subsection B. Emissions Unit **Specific Conditions III.B.6. & 7.**). **Specific Conditions III.B.6. & 7. (Now combined Specific Condition III.B.5.)** state that a gas chromatograph must be used to analyze the landfill gas for sulfur. As stated in comment #9 above, and since CEMS are available and landfill gas may only be a component of the total fuel mixture, if the facility is able to maintain SO_2 and NOx levels below Title V permit limits, these conditions are unnecessary. In addition, the conditions do not provide sampling procedures or averaging times. Lastly, both conditions reference analysis for sulfur. It is assumed **Specific Condition 7** in meant to reference nitrogen.

***Response*:** The applicant had identified potential increases in SO_2 and PM emissions when combusting LFG. The Department believes that NOx emissions could increase when combusting LFG. Please see the discussion beginning on page 22 under "Combustion of Landfill Gas's Effect on Air Pollutant Emissions" in the Technical Evaluation & Preliminary Determination document distributed along with the draft permit. Thus, the reasons why the Department had added **Specific Conditions III.B.6., 7. & 8.** to the draft permit for initial compliance demonstration purposes.

As the applicant indicates in the comments, the MWC units are equipped with SO_2 and NOx CEMS and COMS. In a follow up email received on April 11, 2014, the applicant also indicated that SO_2 and NOx emissions are controlled with an automated system linking lime and urea injection rates. As SO_2 or NOx emissions increase more lime or urea is injected accordingly. Initial compliance when combusting LFG can therefore be demonstrated easily by using the SO_2 and NOx CEMS.

The Department corrects/revises **Specific Conditions III.B.6. & 7**. to read as follows:

from:

"~~6. Sulfur Content of LFG: The owner or operator shall use a gas chromatograph to determine the sulfur content, analyzed as both TRS and H_2S, of the LFG prior to being introduced to the MWCs. [Rule 62-4.070(1)&(3), *Reasonable Assurance*, F.A.C.]~~"

"~~7. Nitrogen Content of LFG: The owner or operator shall use a gas chromatograph to determine the sulfur content, analyzed as both TRS and H2S, of the LFG prior to being introduced to the MWCs. [Rule 62-4.070(1)&(3), *Reasonable Assurance*, F.A.C.]~~"

to:

"6. Initial Compliance Demonstration - CEMS Data: The initial compliance demonstration while combusting LFG in each MWC unit shall be performed for SO_2 and NOx using CEMS data. At least 24 hours of CEMS data shall be collected while combusting LFG to demonstrate compliance with the SO_2 and NOx emissions standards. The periods of time in which the data is collected shall be the same periods of time for NOx and SO_2 emissions and each time period shall be no less than 4 continuous hours. The emissions data shall be reduced to the averaging time(s) as specified in the current valid Title V air operation permit, Permit No. 0112120-013-AV. The results shall be compared to the existing emission standards/limits. A summary of the emissions data from the SO_2 and NOx CEMS while combusting LFG shall be submitted in a test report to the permitting and compliance authorities. In a summary of the test report, the permittee shall compare the results to when LFG are not combusted in MWC units and to evaluate & report any changes in emissions.

The test report shall include the rate (quantity, ft^3) at which LFG were combusted during testing.

A representative analysis of the LFG combusted during testing shall be provided with the test report. The analysis shall include: a. sulfur content, analyzed as both TRS and H_2S; and, b. nitrogen content.

The lime injection rate during SO_2 testing and the ammonia/urea injection rate during NOx testing shall be included in the test report.

[Application No. 0112120-017-AC; Rule 62-4.070(1)&(3), *Reasonable Assurance*, F.A.C.; Rule 62-4.030, *General Prohibition*, F.A.C.; and, Rule 62-4.210, *Construction Permits*, F.A.C.]"

The nitrogen content associated recordkeeping requirement in **Specific Condition III.B.11.** of the draft permit is deleted as follows:

"~~11. Recordkeeping - Sulfur and Nitrogen Content of LFG: The owner or operator shall maintain records of the sulfur and nitrogen contents of the LFG fired in the MWC units. [Rule 62-4.070(1)&(3), *Reasonable Assurance*, F.A.C.]~~"

The Department had an omission in the draft permit with regard to LFG. A recordkeeping and reporting requirement for the quantity of LFG combusted is necessary to show compliance with Specific Condition 3. A specific condition is added to the permit as follows (new **Specific Condition III.B.9.**):

"9. Records and Reporting of Quantities of LFG Combusted: The permittee shall keep records on-site of the total quantity of LFG combusted in the MWC units. The total annual quantity of LFG combusted in the MWC units shall be reported in the AOR. [Application No. 0112120-017-AC; Rule 62-4.070(1)&(3), *Reasonable Assurance*, F.A.C.; Rule 62-4.030, *General Prohibition*, F.A.C.; and, Rule 62-4.210, *Construction Permits*, F.A.C.]"

11. Page 15 (Section III. Subsection C. **Specific Conditions III.C.7.g. & c.**) Wheelabrator North and South Broward are also requesting the following modification to construction permits 0112120-015-AC/PSD-FL-112D (North) and 0112119-017-AC/PSD-FL-105E (South). The permits were issued in December, 2013 increasing the allowable amount of non-MSW able to be received at the facilities from 5% to 20%. There are two methods of calculating non-MSW in the permits On page 11, condition 7.f, the original language of a 30-day rolling average is used. On page 12, condition 7.g. and Recordkeeping and Reporting Requirement condition c. the conditions state the calculation is to be on a calendar monthly basis, not a 30-day rolling average. Wheelabrator is requesting the permits be revised uniformly to require a 30-day rolling average for calculations of non-MSW.

***Response*:** For uniformity the Department makes corrections to **Specific Conditions III.C.7.g. & c.** as follows:

"**7.** Methods of Operation -- Fuels.

…

"g. *Non-hazardous Solid and Liquid Wastes/Segregated Loads.* Subject to the conditions and limitations contained in this permit, non-hazardous solid and liquid wastes may be used as fuel at the facility (i.e., authorized fuels that are non-MSW material). The total quantity of the non-MSW material received as segregated loads and burned at the facility shall not exceed 20%, by weight, of the facility's total fuel, unless otherwise stated. Compliance with this limitation shall be determined as a ~~daily average on a calendar monthly basis~~30-day rolling average in accordance with Specific Condition **7.** [Section 403.707(1), F.S. (amendment in 2012).]"

…

Recordkeeping and Reporting Requirements

Segregated Solid Waste Record Keeping. …

c. *Non-hazardous Solid and Liquid Waste/Segregated Loads.* Each day, the total weight of segregated non-MSW materials received that are subject to the 20% restriction shall be computed~~,~~ and the

~~daily total~~30-day rolling average shall be updated ~~added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of segregated non-MSW materials shall be divided by the total weight of all waste materials received in the same calendar month, and the resulting number shall be multiplied by 100 to express the ratio in percentage terms~~. The percentage computed shall be compared to the 20% limitation. Records shall be maintained showing the non-hazardous solid and liquid waste's written certification that the waste is non-hazardous. Documentation requirements shall include a written description of the waste and a material characterization form for the waste components. Tonnages of non-hazardous solid and liquid waste fired shall be recorded and made available to the Department upon request. These records shall be maintained for a period of five (5) years. [Section 403.707(1), F.S. (amendment in 2012).]"

CONCLUSION

The final action of the Department is to issue the permit with the administrative corrections and/or clarifications as noted above.