



PSD APPLICATION

APPLICATION FOR AIR CONSTRUCTION PERMIT

J.E.D. SOLID WASTE MANAGEMENT FACILITY

Osceola County, Florida

Prepared For: Omni Waste of Osceola County, LLC
1501 Omni Way
St. Cloud, FL 34773

Submitted By: Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607

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Golder Associates Inc. (2 copies)

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Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Omni Waste of Osceola County, LLC	
2. Site Name: J.E.D. Solid Waste Management Facility	
3. Facility Identification Number: 0970079	
4. Facility Location... Street Address or Other Locator: 1501 OMNI WAY City: St. Cloud County: Osceola Zip Code: 34773	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Facility Contact Name: Michael Kaiser, Region Engineer	
2. Facility Contact Mailing Address... Organization/Firm: Omni Waste of Osceola County, LLC Street Address: 1501 OMNI WAY City: St. Cloud State: FL Zip Code: 34773	
3. Facility Contact Telephone Numbers: Telephone: (904) 673-0446 ext. Fax: (407) 891-3730	
4. Facility Contact E-mail Address: mkaiser@wasteservicesinc.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	3. PSD Number (if applicable):
2. Project Number(s):	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

**Air construction (AC) permit application to request changes in the AC permit No. 0970079-011-AC/PSD-FL-429 issued on September 15, 2014.
There are no changes in emissions authorized under permit No. 0970079-011-AC/PSD-FL-429. As a result, only the first 7 pages of the permit application form is submitted.**

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
	Open Candlestick Utility Flares	AC1A	
	Twelve identical CAT G3520C Engines	AC1A	


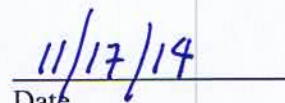
Application Processing Fee

Check one: Attached - Amount: \$ _____ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1.	Owner/Authorized Representative Name : Michael Kaiser, Region Engineer
2.	Owner/Authorized Representative Mailing Address... Organization/Firm: Omni Waste of Osceola County, LLC Street Address: 1501 OMNI WAY City: St. Cloud State: FL Zip Code: 34773
3.	Facility Contact Telephone Numbers: Telephone: (904) 673-0446 ext. Fax: (407) 891-3730
4.	Facility Contact E-mail Address: mkaiser@wasteservicesinc.com
5.	Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>  Signature  Date

APPLICATION INFORMATION



Application Responsible Official Certification

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the “application responsible official” need not be the “primary responsible official.”

1. Application Responsible Official Name:			
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):			
<input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.			
<input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively.			
<input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.			
<input type="checkbox"/> The designated representative at an Acid Rain source or CAIR source.			
3. Application Responsible Official Mailing Address...			
Organization/Firm:			
Street Address:			
City:		State:	Zip Code:
4. Application Responsible Official Telephone Numbers...			
Telephone: ()		ext.	Fax: ()
5. Application Responsible Official E-mail Address:			
6. Application Responsible Official Certification:			
<p>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</p>			
_____ Signature		_____ Date	

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Kennard F. Kosky Registration Number: 14996
2. Professional Engineer Mailing Address... Organization/Firm: Golder Associates Inc.** Street Address: 6026 NW 1st Place City: Gainesville State: FL Zip Code: 32607
3. Professional Engineer Telephone Numbers... Telephone: (352) 336-5600 ext. 21156 Fax: (352) 336-6603
4. Professional Engineer E-mail Address: Ken_Kosky@golder.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/> , if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/> , if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/> , if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/> , if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i> Signature: <u></u> Date: <u>11/14/14</u> (seal) 

* Attach any exception to certification statement.

**Board of Professional Engineers Certificate of Authorization #00001670.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 East (km) 491.6 North (km) 3102.9		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) 28/03/6.5 Longitude (DD/MM/SS) 81/05/8.4	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4953
7. Facility Comment : <p style="text-align: center;">Facility currently operates a MSW Class I landfill and one 3,600-scfm open flare (EU ID 002). Expansion of the Class I landfill and construction of additional open flares and LFGTE plant with twelve CAT G3520C engines have been authorized under permit No. 0970079-011-AC/PSD-FL-429.</p>			

Facility Contact

1. Facility Contact Name: Michael Kaiser, Region Engineer
2. Facility Contact Mailing Address... Organization/Firm: Omni Waste of Osceola Florida, LLC Street Address: 1501 OMNI WAY <div style="display: flex; justify-content: space-between; margin-top: 10px;"> City: St. Cloud State: FL Zip Code: 34773 </div>
3. Facility Contact Telephone Numbers: Telephone: (904) 673-0446 ext. Fax: (407) 891-3730
4. Facility Contact E-mail Address: mkaiser@wasteservicesinc.com

Facility Primary Responsible Official

Complete if an “application responsible official” is identified in Section I that is not the facility “primary responsible official.”

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> City: State: Zip Code: </div>
3. Facility Primary Responsible Official Telephone Numbers... Telephone: () ext. Fax: ()
4. Facility Primary Responsible Official E-mail Address:

PART II

PART II

MINOR SOURCE AIR CONSTRUCTION PERMIT APPLICATION TO MODIFY AIR PERMIT NO. 0970079-011-AC/PSD-FL-429

EXECUTIVE SUMMARY

Omni Waste of Osceola County, LLC (Omni Waste) is requesting with this air construction (AC) permit application the Florida Department of Environmental Protection (FDEP) to modify AC permit No. 0970079-011-AC/PSD-FL-429 in order to make certain administrative corrections and other minor changes. The requested changes have been compiled in a tracked-change version of the AC permit. Omni Waste understands that the requested changes that are clarifying in nature are administrative changes. Those requested changes that modify values or descriptions to specific conditions would require a minor-source AC permit approval. The main purpose of the changes is to have clarity in some of the specific conditions of the permit as well as providing operational flexibility. For the latter, the requested changes in the specific conditions related to SO₂ emissions would still provide assurance that the emissions from the Project remains below the 40 tons/yr major modification PSD threshold. No changes to the Project emissions are requested in this AC permit application.

PROPOSED PROJECT

Omni Waste has identified the requested changes in the tracked change version of the permit No. 0970079-011-AC/PSD-FL-429 issued on September 9, 2014, which is attached in Appendix A. The requested changes that were identified by FDEP to require an AC permit application have also been identified below with a rationale behind each request:

1. **Section 1. General Information (Page 3 of 19)** – Please revise the description under PSD Phase 1 as “Open candlestick utility flares (total additional flaring capacity of 7,200 scfm to achieve a total facility-wide flaring capacity of up to 10,800 scfm). The LFGTE plant with 12 CAT® G3520C engines.”

Please revise the description under PSD Phase 2 as “Additional open candlestick utility flares (total additional flaring capacity of 7,200 scfm of LFG) to achieve a total facility-wide flaring capacity of up to 18,000 scfm (includes new flaring capacity of 14,400 scfm and existing flaring capacity of 3,600 scfm), which is necessary for the full build-out LFG collection capacity of 15,845 scfm.”

Rationale – Omni Waste proposes to not be limited by a specific number of flares with specific flaring capacity since the emissions are based on total amount of gas flared. It was indicated in the permit application that actual flare size may vary due to availability and economic reasons. For example, Omni Waste may want to install just one 4,800 scfm flare in the PSD Phase 1 and install the remaining flare capacity in PSD Phase 2. Flare size that are different than the specific



flare sizes presented in the PSD application, will mean different release characteristics (effective release height) and therefore, may affect air quality modeling results. However, the overall project impacts, which includes 12 CAT 3520C engines in addition to the flares is not expected to change. A modeling demonstration has been performed and the results are presented in Appendix B. As shown, the overall Project impacts remain unchanged.

Omni Waste also proposes to add description clarifying the total flaring capacity of the facility in each PSD Phase.

2. **Section 1. General Information (Page 4 of 19)** – Please revise the E.U. Brief Description associated with EU 007 from “new 4-Open Candlestick Flares” to “new Open Candlestick Flares”.

Rationale – For the same reason described for Item No. 1 above, Omni Waste proposes to not be limited by a specific number of flares with specific flaring capacity since the emissions are based on total amount of gas flared.

3. **Section 2. Administrative Requirements. Condition 9. Approved Phases of a Phased Construction Project (Page 6 of 19)** – Please revise the description under PSD Phase 1 as “Open candlestick utility flares (total additional flaring capacity of 7,200 scfm to achieve a total facility-wide flaring capacity of up to 10,800 scfm). The LFGTE plant with 12 CAT® G3520C engines. During this phase, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time, approval to construct PSD Phase 1 authorized by this permit shall expire. This means that construction defined as the expansion of the new landfill (EU005) and the installation of flares, engines, the GCCS, the LFG conditioning system and/or the Phase 1 LFG H2S removal system cannot cease for a period of 18 months or more.”

Please revise the description under PSD Phase 2 as “Additional open candlestick utility flares (total additional flaring capacity of 7,200 scfm of LFG) to achieve a total facility-wide flaring capacity of up to 18,000 scfm (includes new flaring capacity of 14,400 scfm and existing flaring capacity of 3,600 scfm), which is necessary for the full build-out LFG collection capacity of 15,845 scfm (estimated based on LANDGEM modeling results). During this phase, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time, approval to construct PSD Phase 2 authorized by this permit shall expire. This means that construction defined as the as the expansion of the new landfill (EU 005) and the installation of flares and the continued installation of GCCS and/or the Phase 2 LFG H2S removal system cannot cease for a period of 18 months or more.”

Rationale – Omni Waste is requesting removal of specific number of flares and proposing additional clarification in the description.

4. **Section 3.A. E.U. Brief Description (Page 8 of 19)** – Please revise the EU description of EU001 as follows –

001	<p><i>The E.U. ID No. 001's description as part of this project is</i> changed from: MSW Class I Landfill with Gas Extraction <i>to: MSW Class I Landfill with Gas Extraction - Cells 1-23</i></p>
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Please also delete EU ID 005.

Rationale – Omni Waste is requesting to not have two separate emissions units for the MSW Class I Landfill since it is one continuous emissions source. Landfills are continuously expanded in volume in the form of adding new cells as the waste volume increases. Therefore Omni Waste is requesting that the existing description of the emission unit is changed to reflect the total number of cells with the proposed expansion.

5. **Section 3.A. E.U. Brief Description (Page 8 of 19)** – Please revise the sentence “With the proposed H₂S scrubbing system installed & operational potential SO₂ emissions from the engines and flares were calculated to be 38.9 & 38.2 TPY in the proposed project, just below the PSD SER of 40 TPY.” to “With the proposed H₂S scrubbing system installed & operational potential SO₂ emissions from the engines and flares combined (the “Project”) were calculated to be just below the PSD SER of 40 TPY.”

Rationale – The SO₂ emissions calculation in the permit application presented different worst-case scenarios for the Project, which includes 12 CAT 3520C and 4 open flares with a total flaring capacity of 14,400 scfm. For example, the SO₂ emission of 38.9 TPY is based on the PSD Phase 1 worst-case scenario of all 12 engines operating and no additional flaring is required (because remaining LFG is flared by the existing flare). Similarly, the SO₂ emission of 38.2 TPY is based on the scenario when all engines are offline and all gases are flared off. These potential emissions represent the SO₂ emissions that could occur and that potential emissions for the Project will be below 40 TPY major modification PSD threshold.

6. **Section 3.A. Specific Condition 5 (Page 9 of 19)** – Please add “required to restrict actual SO₂ emissions from the new engines and flares combined (the “Project”) to 39 TPY or less” in the first sentence of the second paragraph after the word “concentrations”.

Rationale –The H₂S concentrations were based on the maximum potential emissions that would occur during each phase. However, if the actual LFG flow is lower than the design LFG flow of each PSD Phase and the actual H₂S concentration of the LFG is lower than the H₂S concentration used in emissions calculation, then the H₂S concentration may not have to be reduced according to the design efficiencies to restrict the SO₂ emissions to below 40 TPY. This change will provide Omni Waste operational flexibility in the control of SO emissions to less than the 40 tpy major modification PSD threshold.

7. **Section 3.B. Specific Condition 5 (Page 12 of 19)** – Please revise the condition from “Only H₂S scrubbed, treated & conditioned LFG shall be fired in the engine/generator sets.” to “LFG fired in the engine/generator sets shall be H₂S scrubbed, treated and conditioned sufficiently to meet the emission standards and limitations in Condition 8 through 16 of this section.”

Rationale –As described in Item No. 5 above, this change will allow Omni Waste operational flexibility reduce the H₂S concentration to the design efficiencies necessary to limit emissions from the Project to less than 40 tpy.

8. **Section 3.B. Specific Condition 15.a. (Page 14 of 19)** – Please revise the condition to read as follows: “To ensure that PSD is avoided, SO₂ emissions from all 12 LFG-fired engines and the new open flares combined (the “Project”) shall be 39 tons or less per consecutive 12 month period. Compliance with this SO₂ emissions cap shall be demonstrated on a 12-month rolling basis using the following information: the sulfur level in the scrubbed LFG; the amount of LFG fired in each engine; and, the assumption that all sulfur is converted to SO₂.”

Rationale – The SO₂ emissions calculation in the PSD permit application presented different worst-case scenarios of the Project, which includes 12 CAT 3520C and 4 open flares with a total flaring capacity of 14,400 scfm. The SO₂ emission limit of 38.9 TPY listed in the condition is based on the PSD Phase 1 worst-case scenario of all 12 engines operating and no additional flaring is required (because remaining LFG is flared by the existing flare). Similarly, the SO₂ emission limit of 38.2 TPY is based on the scenario when all engines are offline and all gases are flared off. This range of maximum potential emissions demonstrates that potential emissions for the Project will be below 40 TPY. Therefore, an emissions limit of equal to or less 39 TPY provides reasonable assurance that SO₂ emission from the proposed Project avoids PSD review.

9. **Section 3.B. Specific Condition 15.b. (Page 14 of 19)** – Omni Waste requests that this condition be deleted.

Rationale – Omni Waste is requesting deletion of this condition because PSD review including a determination of BACT is not required for SO₂. Specific Condition No. 15.a. limits potential SO₂

emissions for the Project to 39 TPY. Moreover, this condition is unnecessary since compliance with Specific Condition 15.a. must be determined on a monthly basis pursuant to Specific Condition 25. Monitoring of the H₂S concentration, LFG flow and calculating a 12-month average emission rate will provide information for meeting the Project's SO₂ emission limit of 39 tons/year (from 12 engines and new open flares).

Please note that determining an equivalent hourly emission rate for SO₂ just for the engines can only be estimated through calculations since the total LFG flow gets distributed between the engines and flares. The hourly LFG flow to engines is also not constant. For example, if the heating value of LFG is less, each engine will need more LFG (scfm) to achieve the design heat input, which means that the hourly SO₂ emission rate from each engine will increase. However, since the total LFG flow is constant, less LFG will be available for flaring, which means hourly SO₂ emission rate from the flares will decrease. In other words, the total Project hourly SO₂ emission rate does not change unless the hourly captured LFG flow for the landfill change.

10. **Section 3.C. Section Header (Pages 18 of 19 to 20 of 19)** – In the section header for Section 3, Omni Waste is requesting changing the unit description from “New Four (4) Candlestick Utility Flares” to “New Candlestick Utility Flares”.

Rationale – As described in Item No. 1 above, Omni Waste is requesting not to be limited by specific number of flares.

11. **Section 3.C. E.U. Brief Description for EU ID 007 (Pages 18 of 19)** – Please change the brief description for E.U. ID 007 from “New 4-Open Candlestick Utility Flares” to “New Open Candlestick Utility Flares”.

Rationale – As described above, Omni Waste is requesting not to be limited by specific number of flares.

12. **Section 3.C. E.U. Brief Description (Page 18 of 19)** – In the EU description for the flares, please add the words “for total new flaring capacity of 14,400 scfm” after the word “flares” in the first sentence.

Please also add the sentence “Total additional flaring capacity of 7,200 is proposed for PSD Phase 1 and additional flaring capacity of 7,200 scfm is proposed for PSD Phase 2. LFG collection capacities for PSD Phase 1 and PSD Phase II are estimated (using EPA LANDGEM Model) to be 8,183 scfm and 15, 845 scfm, respectively.” after the last sentence and before the permitting note.

Please delete the first sentence of the second paragraph – “Additional open flares similar in model and size to the existing flare were proposed. Likely two 3,600 scfm open flares are planned for PSD Phase 1 and two more 3,600 scfm open flares are planned for PSD Phase 2.”

Rationale – Changes requested in the emissions unit description and throughout Section 3 are –

- for adding clarification for the additional flaring capacity for each PSD Phase
- deleting references to specific number of flares
- deleting references to flares with specific flaring capacity

13. **Section 3.C. Specific Condition 1. (Page 18 of 19)** – Please revise the first paragraph under “Flares” as “The permittee is authorized to install, operate and maintain new open candlestick utility flares that will fire LFG with the total flaring capacity of 14,400 scfm with 7,200 scfm in PSD Phase 1 and additional 7,200 scfm in PSD Phase 2 and a maximum heat input rate of 498.5 MMBtu/hr, HHV from LFG.”

Please revise Permitting Note as “The heat input rate is based on a LFG higher heating value (HHV) of 577 Btu/scf and LFG flow of 14,400 scfm for all flares combined at a methane content of 44%.”

Rationale – Same as described in Item No. 11 above.

14. **Section 3.C. Specific Condition 4. (Page 20 of 19)** – Please revise the specific condition as “Total new flaring capacity permitted is 14,400 scfm.”

Rationale – As described above, Omni Waste is requesting to not be limited to a specific flare size.

15. **Section 3.C. Specific Condition 5. (Page 20 of 19)** – Please revise the specific condition as “LFG fired in the new flares shall be H₂S scrubbed, treated and conditioned sufficiently to meet the emission standards and limitations in Condition 11 through 15 of this section.”

Rationale – As described in Item No. 6 above, Omni Waste is requesting operational flexibility of the H₂S scrubbing system.

16. **Section 3.C. Specific Condition 12. (Page 20 of 19)** – Please delete the permitting note regarding the PM/PM₁₀/PM_{2.5} emissions rates.

Rationale – Omni Waste is requesting that the permitting note be deleted as specific flare size may change.

17. **Section 3.C. Specific Condition 29.a. (Page 20 of 19)** – Please revise the first sentence as “To ensure that PSD is avoided, SO₂ emissions from all 12 LFG-fired engines and the new open flares combined (the “Project”) shall be 39 tons or less per consecutive 12 month period.”

Rationale – As described in Item No. 7 above, Omni Waste is requesting an emission limit of 39 TPY for the proposed Project, which is adequate to assure that SO₂ emission from the proposed Project avoids PSD review.

18. **Section 3.C. Specific Condition 14.b. (Page 22 of 19)** – Omni Waste requests to delete this condition.

Rationale – As described in Item No. 8 above, Omni Waste is requesting deletion of this condition.

RULE APPLICABILITY

Under federal and state of Florida Prevention of Significant Deterioration (PSD) review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. The U.S. Environmental Protection Agency (EPA) has approved Florida’s State Implementation Plan (SIP), which contains PSD regulations. The applicable PSD rules in Florida are found in Rule 62-212.400, Florida Administrative Code (F.A.C.).

A “major facility” is defined as any of 28 named-source categories that have the potential to emit 100 tons per year (TPY) or more, or any other stationary facility that has the potential to emit 250 TPY or more, of any pollutant regulated under the CAA. “Potential to emit” means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a “major facility” for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD significant emission rates.

The existing JED Landfill facility is not classified as a PSD major facility, however the proposed Project authorized under permit No. 0970079-011-AC/PSD-FL-429 is subject to PSD review and after completion, the facility will become a PSD major facility under FDEP and EPA rules. This AC permit application is for the purpose of requesting changes in permit No. 0970079-011-AC/PSD-FL-429 and not associated with any change in emissions authorized by permit No. 0970079-011-AC/PSD-FL-429. Therefore, this is not a



“modification” as defined in Rule 62-210.200(185), F.A.C., and requires only a “minor-source” AC permit approval.

PROPOSED CHANGES

Changes proposed in this AC permit application are described in the section “Proposed Project” above and identified in the tracked-change version of the permit No. 0970079-011-AC/PSD-FL-429 attached in Appendix A.

APPENDIX A



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BOB MARTINEZ CENTER
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

PERMITTEE

Omni Waste of Osceola County, LLC -
JED Solid Waste Management Facility
1501 Omni Way
St. Cloud, FL 34773

Authorized Representative:
Mr. Michael Kaiser, Region Engineer

Air Permit No. 0970079-011-AC/PSD-FL-429
Expires: September 11, 2024

Facility ID No. 0970079

Project: Solid Waste Management Facility Expansion

PROJECT

The existing JED Landfill will be expanded from its current (existing) capacity of 16.2 million tons to an estimated 81.5 million tons. A gas collection & control system will be installed under the expansion into additional cells. All of the landfill gas (LFG) generated will be either routed and combusted in engines or in open flares. The JED landfill currently has one 3,600 scfm open flare. Two (2) Open flares with a total flaring capacity of 7,200 scfm and twelve (12) Landfill Gas-to-Energy (LFGTE) AT® G3520C engines will be added in PSD Phase 1. In PSD Phase 2 (full built-out) two (2) additional open flares with a total flaring capacity of 7,200 scfm will be added. The new landfill gas-to-energy (LFGTE) plant which is comprised of the 12 engines will be classified under electric generation - sanitary service under Standard Industrial Classification (SIC) No. 4953.

The proposed expansion will be sited with the existing JED Landfill which is located in Osceola County at 1501 Omni Way, St. Cloud, Florida. The NAD 83 UTM Coordinates for the JED Landfill are: Zone 17, 491.6 East and 3102.9 North. Latitude is 28°03'6.5" North; and, Longitude is: 81°05'8.4" West.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and Section 4 (Appendices). Because of the nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 1 of this permit.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of: Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-204, 62-200, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit. This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida

David L. Read, P.E.

Handwritten signature of David L. Read

2014.09.15

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for Jeffery F. Koerner, Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management
www.dep.state.fl.us

DRAFT

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Determination and Final Permit with Appendices) was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

- Mr. Michael Kaiser, OWOC-JED: michael.kaiser@progressivewaste.com
- Mr. Kennard F. Kosky, P.E., Golder Associates Inc.: kkosky@golder.com
- Mr. Tom Lubozynski, DEP CD: tom.lubozynski@dep.state.fl.us
- Ms. Heather Ceron, U.S. EPA Region 4: ceron.heather@epa.gov
- Ms. Lynn Scearce, DEP OPC: lynn.scearce@dep.state.fl.us

Clerk Stamp

FILED
ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

Lynn Scearce

Lynn Scearce
2014.09.15
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SECTION 1. GENERAL INFORMATION

FACILITY DESCRIPTION

The existing JED Landfill facility is located in Osceola County approximately 60 kilometers (km) (38 miles) southeast of downtown Orlando. The JED Landfill is an open Class I Landfill with a municipal solid waste (MSW) design capacity greater than 2.5 million megagrams (Mg) by mass or 2.5 million cubic meters by volume. This landfill began receiving solid waste in January 2004. The JED Landfill is currently operating under Title V air operation Permit No. 0970079-009-AV.

The facility currently operates one 3,600-scfm open flare (E.U. ID No. 002) used as the primary flare, which was installed in 2009. The open flare is not equipped with a bypass in which LFG can bypass the control device in an uncombusted manner.

PROPOSED PROJECT

The proposed project is for the JED Solid Waste Management Facility Expansion.

The permittee is proposing flares and a LFGTE plant to accommodate the LFG generated by the full build-out of the JED Landfill from the existing capacity of 16.2 million to an estimated 20 million tons. All of the LFG collected at the JED Landfill will be combusted in the LFGTE plant and/or open flares. At capacity, the LFGTE plant will use LFG to fire up to 12 CAT® G3520C. The engines will be capable of generating a total of 19.2 MW of electricity (1.6 MW per CAT® G3520C). The generation capacity varies with ambient temperature and may go up to 1.63 MW per engine if the ambient temperature is below 90°F.

The existing JED Landfill is currently operating one open flare with a maximum capacity of 3,600 scfm of LFG. The additional flares are required to flare the maximum potential LFG estimated to be collected at the landfill in 2041 when the landfill is expected to be fully built-out. The additional flares and the LFGTE plant will be constructed in two PSD phases:

- PSD Phase 1 - ~~Two~~ Open candlestick utility flares with additional flaring capacity of 7,200 scfm to ~~accommodate total LFG collection up to~~ achieve a total facility-wide flaring capacity of up to of 10,800 scfm. The LFGTE plant will use 12 CAT® G3520C engines.
- PSD Phase 2 - ~~Two~~ A Additional open candlestick utility flares (total additional flaring capacity of 7,200 scfm of LFG) to ~~achieve a total facility-wide flaring capacity of up to 18,000 scfm~~ (includes new flaring capacity of 14,400 scfm and existing flaring capacity of 3,600 scfm), which is necessary for the full build-out LFG collection capacity of 18,000 scfm.

The first phase of the project is estimated to be completed within 10 years of receiving the permit. Additional flares in the second phase of the project will be required once the gas generation potential exceeds 10,800 scfm and therefore, the second phase is expected to start in 2024. As shown in the LFG gas curve presented in appendix A of the permit application, 10,910 scfm of the LFG ~~will~~ may be ~~generated~~ collected at the landfill in 2024.

The project will include installation of a gas collection & control system (GCCS) for the additional cells and routing of LFG from the GCCS to the flares and to the CAT® engines after being processed in a gas treatment and conditioning system. The current GCCS was installed and is operated in accordance with NSPS found in 40 CFR 60, Subpart WWW. Standards of Performance for Municipal Solid Waste Landfills. Expansion of the system to accommodate the additional LFG gas and modification to the system to connect to the additional flares and LFGTE plant will be in accordance with Subpart WWW requirements.

The LFG treatment and conditioning system associated with the LFGTE plant will include the following:

- Initial gas dewatering, utilizing a moisture knock-out vessel;
- Gas compressor and blowers;
- Air-to-gas coolers and de-watering; and,
- Removal of particulate matter larger than 10 microns from the LFG.

This LFG treatment system meets the current U.S. EPA determinations for a treatment system that processes LFG for subsequent use. Additionally, in accordance with NSPS Subpart WWW, no LFG will be vented to the

SECTION 1. GENERAL INFORMATION

atmosphere from the gas treatment system. When the LFG is routed to the LFGTE plant, the LFG will comply with the requirements of 40 CFR 60.752(b)(2)(iii)(C).

All 12 of the CAT® G3520C engines will be located in an enclosed building (east and west). Exhaust from each engine will be routed to the atmosphere via individual vertical exhaust stacks, each equipped with a silencer and located in the north side of the building.

LFG collected at the landfill will be filtered, compressed, and treated to remove the moisture prior to combustion in the new flares or in the engines. The permittee is also proposing to install equipment to treat LFG for the purpose of reducing the concentrations of hydrogen sulfide (H2S) in the LFG. When the LFGTE plant will be operating (one or all engines), excess LFG that are is not combusted in the engines will be combusted in the flares. The LFGTE plant may be expanded in the future depending on the gas power market and/or alternative energy use. Separate permit application(s) shall be submitted for such expansion.

The proposed project is considered an expansion of the existing facility and is subject to PSD preconstruction review for CO, NOx, PM, PM10, PM2.5, VOC, NMOC and GHG emissions in accordance with Rule 62-212.400, F.A.C.

The proposed project will add the following new emission units (E.U.s):

Table with 2 columns: E.U. ID No. and E.U. Brief Description(s). Rows include: 005 new MSW Class I Landfill (expansion) with Gas Extraction Cells 11-23; 006 new LFGTE Plant - 12 LFG Engines; 007 new 4-Open Candlestick Utility Flare.

The proposed project affects the following existing emission units (E.U.s):

Table with 2 columns: E.U. ID No. and E.U. Brief Description(s). Rows include: 001 existing MSW Class I Landfill with Gas Extraction - Cells 1-10; 002 existing 1-Open Candlestick Utility Flare, #1.

FACILITY REGULATORY CLASSIFICATIONS

- The existing facility is not classified as a Prevention of Significant Deterioration (PSD) major facility. The proposed project is subject to PSD preconstruction review in accordance with Rule 62-212.400, F.A.C.
The existing facility is not a major source of hazardous air pollutants (HAP). However, the proposed project will not cause it to become a major source of HAP.
The existing facility is as a Title V Source in accordance with Rule 62-210.200, F.A.C.
The proposed project includes units subject to applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations.
The proposed project includes units subject to applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations.
The proposed project includes no units subject to the acid rain or CAIR provisions of the Clean Air Act.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. **Permitting Authority:** The Permitting Authority for this project is the Office of Permitting and Compliance in the Division of Air Resource Management of the Department of Environmental Protection (Department). The mailing address for the Office of Permitting and Compliance is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400.
2. **Compliance Authority:** All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Department's Central District Office (Compliance Authority) at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767; Telephone: (407) 894-7555, Fax: (407) 897-2966.
3. **Appendices:** The following Appendices are attached as a part of this permit and the permittee must comply with the requirements of the appendices:

Appendix CF	Citation Formats and Glossary of Common Terms
Appendix GC	General Conditions;
Appendix CC	Common Conditions;
Appendix CTR	Common Testing Requirements;
Appendix BD	Final BACT Determinations;
Appendix ATM	U.S. EPA Alternative Test Method ALT-096 (TECO 55I);
Appendix A	NSPS 40 CFR 60, Subpart A - General Provisions
Appendix WWW	NSPS 40 CFR 60, Subpart WWW - Municipal Solid Waste Landfills;
Appendix JJJJ	NSPS 40 CFR 60, Subpart JJJJ - Standard Performance for Stationary Spark Ignition Internal Combustion Engines;
Appendix A1	NESHAP 40 CFR 61, Subpart A - General Provisions;
Appendix AAAA	NESHAP 40 CFR 63, Subpart AAAA - Municipal Solid Waste Landfills; and,
Appendix ZZZZ	NESHAP 40 CFR 63, Subpart ZZZZ - General Emission Standards for Hazardous Air Pollutants from Stationary Reciprocating Internal Combustion Engines.
4. **Applicable Regulations, Forms and Application Procedures:** Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-14, 62-212, 62-214, 62-292, 62-296 and 62-297, F.A.C. Issuance of this permit does not require the permittee to comply with any applicable federal, state, or local permitting or regulations.
5. **New or Additional Conditions:** For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
6. **Modifications:** Emissions units shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-210.300(1)(a), F.A.C.]
7. **Construction and Expiration:** The expiration date shown on the first page of this permit provides time to complete the physical construction activities authorized by this permit, complete any necessary compliance testing, and obtain an operation permit. Notwithstanding this expiration date, all specific emissions limitations and operating requirements established by this permit shall remain in effect until the facility or emissions unit is permanently shut down. For good cause, the permittee may request that a permit be extended. Pursuant to Rule 62-4.080(3), F.A.C., such a request shall be submitted to the Permitting Authority in writing before the permit expires. [Rules 62-4.070(4), 62-4.080 & 62-210.300(1), F.A.C.]
8. **Source Obligation:**

SECTION 2. ADMINISTRATIVE REQUIREMENTS

- (a) Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between construction of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit.
- (b) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.
- (c) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

[Rule 62-212.400(12), F.A.C.]

- 9. Approved Phases of a Phased Construction Project: This permit contains an approved phased construction project. In accordance with Rule 62-212.400(12)(a), F.A.C., the permittee must commence construction within 18 months of the commencement date established by the Department in this permit.

The existing JED Landfill is currently operating an open flare with a maximum capacity of 3,600 scfm of LFG. Additional flares and a LFGTE plant are required to combust the maximum potential LFG estimated to be collected at the landfill in by the year 2024 when the landfill is expected to be fully built out. The additional flares and the LFGTE plant shall be constructed in the following major PSD phases.

- *PSD Phase 1 - ~~Two (2)~~ Open end candlestick utility flares with an additional flaring capacity of 7,200 scfm to accommodate total LFG collection achieve a total facility-wide flaring capacity of up to ~~up to~~ 10,800 scfm).* The LFGTE plant with 1000 kW ^{AT} G3520 engines. During this phase, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time, approval to construct PSD Phase 1 authorized by this permit shall expire. This means that construction defined as the expansion of the new landfill (EU 005) and the installation of flares, the LFGTE, the LFG conditioning system and/or the Phase 1 LFG H₂S removal system cannot cease for a period of 18 months or more.
- *PSD Phase 2 - ~~Two (2)~~ Additional open end candlestick utility flares (total additional flaring capacity of 7,200 scfm of LFG) to achieve a total facility-wide flaring capacity of up to 18,000 scfm (includes new flaring capacity of 14,400 scfm and existing flaring capacity of 3,600 scfm),* which is necessary for the full build-out LFG collection capacity of 15,845 scfm (estimated based on LANDGEM modeling results). During this phase, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time, approval to construct PSD Phase 2 authorized by this permit shall expire. This means that construction defined as the expansion of the new landfill (EU 005) and the installation of flares and the continued installation of GCCS and/or the Phase 2 LFG H₂S removal system cannot cease for a period of 18 months or more.

The first phase (PSD Phase 1) of the project is estimated to be completed within 10 years of receiving the permit. Additional flares in the second phase (PSD Phase 2) of the project will be required once the gas generation potential exceeds 10,800 scfm and therefore, the second phase (PSD Phase 2) is expected to start around the year 2024.

If the requirements of Rule 62-212.400(12)(a), F.A.C. are not met, the permittee must submit a revised PSD BACT analysis and proposals to the Department.

[Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rule 62-212.400(12)(a), F.A.C.]

SECTION 2. ADMINISTRATIVE REQUIREMENTS

10. Approved Phases of a Phased Construction Project - Reporting: The permittee shall provide a written notification to the Department of the actual date of commencement for each PSD phase of the approved phased construction project. In addition, 18 months after the issuance of the final version of this permit and every 18 months thereafter, the permittee shall submit a written report to both the Compliance Authority and the Permitting Authority describing what construction activities have occurred during the previous 18 months. This report shall be submitted within 60 days of the end of each 18 month reporting period. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rule 62-212.400(12)(a), F.A.C.]
11. Approved Phases of a Phased Construction Project - New Standards: The emission units under this phased construction project shall meet any new applicable requirements, i.e., newly promulgated federal and/or state specific emission limiting standards. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rule 62-212.400(12)(a), F.A.C.]
12. Title V Air Operation Permit: This permit authorizes specific emissions and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V air operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V air operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work commencing operation. To apply for a Title V air operation permit, the applicant shall submit the appropriate application form, complete test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to each Compliance Authority. [Rules 62-400.001, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]
13. Objectionable Odors Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]
{Note: An objectionable odor is defined in Rule 62-296.320(Definition), F.A.C., as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, unreasonably interferes with the comfort, ease and enjoyment of life or property, or which creates a nuisance.}
14. Unconfined Emissions of Particulate Matter: No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction, alteration, demolition, or grading; or industrially related activities such as loading, unloading, storing, or handling, without the use of reasonable precautions to prevent such emissions. Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by the facility to control the emissions of unconfined particulate matter. General reasonable precautions include the following: a. Paving and maintenance of roads, parking areas and yards; b. Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing; c. Application of asphalt, cement, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities; d. Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent re-entrainment, and from buildings or work areas to prevent particulate matter from becoming airborne; e. Landscaping or planting of vegetation; f. Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter; g. Confining abrasive blasting where possible; and h. Enclosure or covering of conveyor systems. [Rule 62-296.320(4)(c), F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

A. JED Landfill (E.U. ID Nos. 001 & 005)

This subsection of the permit addresses the following emission units:

E.U. ID No.	E.U. Brief Description(s)
001	The E.U. ID No. 001's description as part of this project is changed-administratively-corrected from: MSW Class I Landfill with Gas Extraction to: existing MSW Class I Landfill with Gas Extraction - Cells 1-23+0
005	new MSW Class I Landfill (expansion) with Gas Extraction - Cells 11-23

The existing JED Landfill will be expanded from the existing capacity of 2 million tons to an estimated new capacity 81.5 million tons.

The JED landfill, a Class I landfill, currently accepts municipal solid waste (MSW). The current annual waste acceptance is approximately 1,600,000 tons. The JED landfill commenced construction in April 2003 and started receiving waste in January 2004. The facility is currently authorized to construct 10 landfill cells (cells 1-10) for a total footprint of 123 acres. At full build-out, the landfill will have 23 cells (cells 11-23) for a total footprint of 360 acres.

Non-methane organic compound (NMOC) emissions from the landfill had been calculated to be greater than 50 Mg per year, therefore, gas collection & control systems (GCCS) have been and will continue to be required.

As part of this proposed project, the permittee proposed to install additional equipment at the JED Landfill to treat LFG for the purpose of reducing the concentrations of hydrogen sulfide (H₂S) in the JED landfill gas (LFG). This equipment is referred to as the H₂S scrubbing system in this permit. Reducing H₂S content prior to combustion in either the engines and/or the new flares effectively reduces SO₂ emissions. When the proposed H₂S scrubbing system installed & operating, total SO₂ emissions from the engines and flares combined (the "Project") were calculated to be 38.9 & 38.2 TPY in the proposed project, just below the PSD SER of 40 TPY. To demonstrate that the proposed project meets PSD for SO₂ emissions this permit contains specific conditions for reasonable assurances.

The following conditions apply to the existing and new landfill (expansion).

PERFORMANCE CRITERIA

- Permitted Capacity:** The existing JED landfill may be expanded to an estimated new capacity of 81.5 million tons. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-210.200, F.A.C.]
- LFG Collection & Control System:** The project shall include installation of a GCCS for the additional cells and routing of LFG from the GCCS to the flares and to the CAT® engines after being processed in a gas treatment & conditioning system. [Application No. 0970079-011-AC/PSD-FL-429; and, Rule 62-212.400, PSD - BACT Determination, F.A.C.]
- Applicable NSPS Provisions:** The JED Landfill is subject to, and shall continue to comply with, the applicable provisions in NSPS Subpart A (General Provisions) and NSPS Subpart WWW (Municipal Solid Waste Landfills) of 40 CFR 60, which are identified in Appendix A and Appendix WWW of this permit. [NSPS Subparts A and WWW in 40 CFR 60; and, Rule 62-204.800, F.A.C.]
- Applicable NESHAP Provisions:** The JED Landfill is subject to, and shall continue to comply with, the applicable provisions in NESHAP Subpart A (General Provisions) and NESHAP Subpart AAAA (Municipal Solid Waste Landfills) of 40 CFR 63, which are identified in Appendix A1 and Appendix AAAA of this permit. [NESHAP Subparts A and AAAA in 40 CFR 63; and, Rule 62-204.800, F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

A. JED Landfill (E.U. ID Nos. 001 & 005)

Note: The following specific conditions are related specifically to the new H₂S Scrubbing System:

EQUIPMENT

5. New H₂S Scrubbing System: The permittee shall install, maintain and operate a two-stage H₂S scrubbing system for the JED LFG with the first stage constructed and operated in the first PSD phase ("PSD Phase 1") and the second stage constructed and operated in the second PSD phase ("PSD Phase 2"). The two stages shall have the following design efficiencies:
 - a. First stage - Reduce LFG H₂S concentration to < 160 ppmv; and
 - b. Second stage - Reduce LFG H₂S concentration to < 65 ppmv.The H₂S scrubbing system shall achieve the H₂S reduction concentrations required to restrict actual SO₂ emissions from the new engines and flares combined (the "Project") to 39 TPY or less for each stage (these reductions restrict SO₂ emissions from the combustion of the LFG in the engines and the new flares). The H₂S scrubbing system shall be maintained in accordance with the manufacturer's recommendations or determined best practices. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]
6. H₂S Scrubbing System Selected Notification: The permittee is required to select an H₂S scrubbing system that will achieve the reduced H₂S concentrations of this permit for the Expansion LFG. The permittee provided the following types of reduction technologies from which they may select from: Biological Conversion to Sulfate, Biological Conversion to Elemental Sulfur, Physical-Chemical Conversion to Elemental Sulfur (LOW-CAT™ process, or equivalent), Paques/THIOPAQ® Process or equivalent), Physical/Chemical Sulfur Removal System (ECO-TEC, Grgtek, Inc. or equivalent), Sacrificial Media Systems; and, Packed Tower Chemical Scrubbing. The permittee shall inform the Department upon selection of the specific H₂S scrubbing system to be installed under this permit, i.e., biological conversion/treatment. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]

{Note: The permittee is not restricted to these specific technologies, these were simply the ones that had been identified in the permit application.}
7. H₂S Scrubbing System Selected Notification: The permittee shall provide detailed information on the selected specific H₂S scrubbing system selected as soon as it becomes available. The details shall include but not be limited to the manufacturer information (Manufacturer Model No., etc.), manufacturer brochure, actual process/operation diagram for the technology selected, facility (plant) layout showing where the equipment will be installed if different from the application submitted, etc. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]
8. Operating & Maintenance (O&M) Procedures: All operators and supervisors shall be properly trained to operate and maintain the H₂S scrubbing system in accordance with the guidelines and procedures established by the manufacturer. The training shall include good operating & maintenance practices. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]

MONITORING REQUIREMENTS

9. Semi-Annual LFG Sampling/Analysis - H₂S Content: The sulfur content of the H₂S scrubbing system's outlet concentration shall be sampled semi-annually, analyzed and the results provided to the compliance authority. Based on the sampling results and Rule 62-297.310(7)(b), F.A.C., the Department may request additional gas sampling and analyses. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]
10. LFG - H₂S Content Analysis: The owner or operator shall analyze the sulfur content of the H₂S scrubbing system's outlet concentration using ASTM Methods ~~D1072-90~~ or D5504-~~1201~~, or equivalent, and later

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

A. JED Landfill (E.U. ID Nos. 001 & 005)

methods. The LFG shall be collected and transported in an appropriate canister (e.g. SUMMA®, Bottle-Vac Sampler or equivalent). [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]

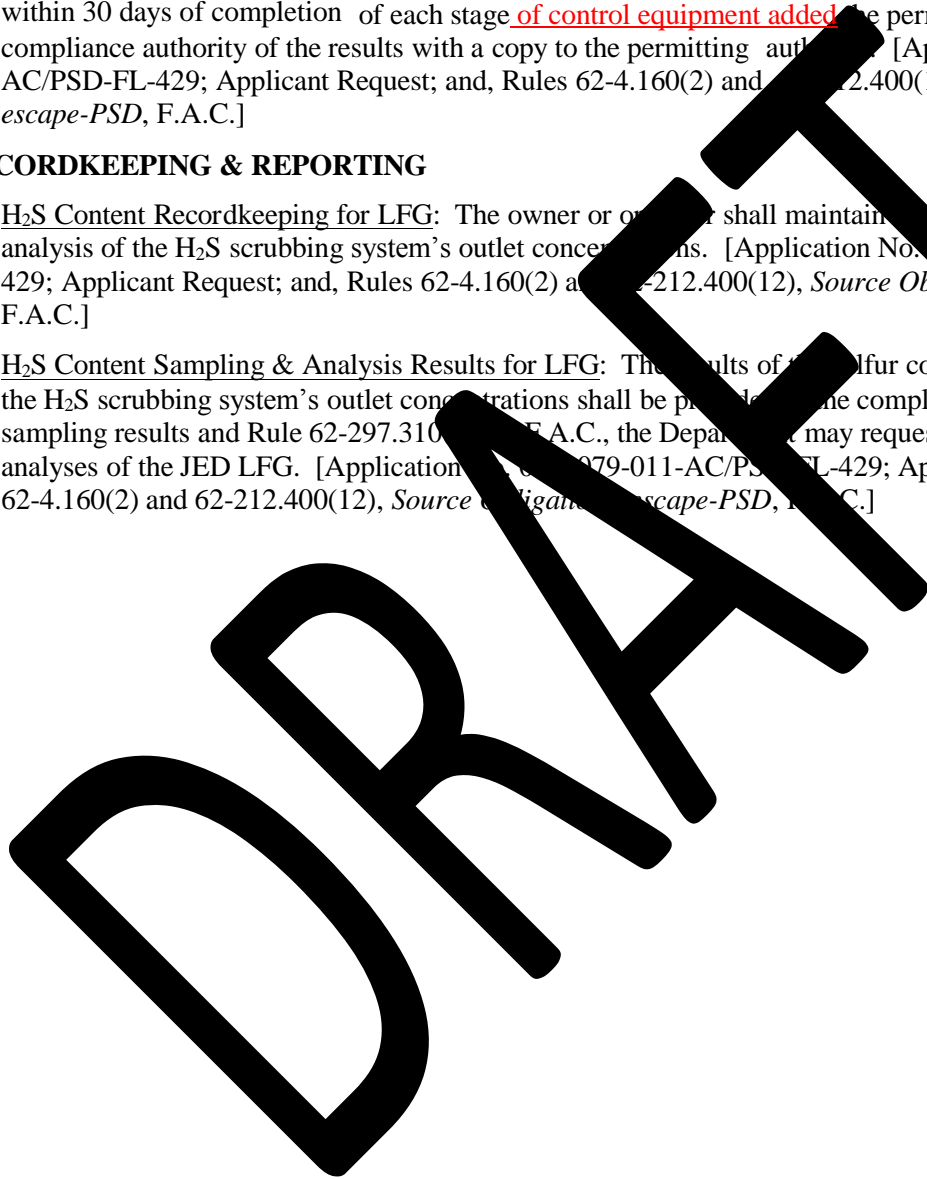
INITIAL COMPLIANCE REQUIREMENTS

11. Compliance - H₂S Concentration Reductions: To demonstrate initial compliance that the selected H₂S scrubbing system achieves the design H₂S reduction efficiencies for each stage of control equipment added, within 30 days of completion of each stage of control equipment added the permittee shall notify the compliance authority of the results with a copy to the permitting authority. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]

RECORDKEEPING & REPORTING

12. H₂S Content Recordkeeping for LFG: The owner or operator shall maintain records of the sulfur content analysis of the H₂S scrubbing system's outlet concentrations. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]

13. H₂S Content Sampling & Analysis Results for LFG: The results of the sulfur content sampling & analysis of the H₂S scrubbing system's outlet concentrations shall be provided to the compliance authority. Based on the sampling results and Rule 62-297.310, F.A.C., the Department may request additional gas sampling and analyses of the JED LFG. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]



SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

B. New LFGTE Plant: Twelve (12) LFG-fired Engines (E.U. ID No. 006)

This subsection of the permit addresses the following emission units:

E.U. ID No.	E.U. Brief Description(s)
006	new Landfill Gas-to-Energy (LFGTE) Plant 12 LFG-fired Lean-burn Reciprocating Internal Combustion Engine/Generator Sets

This emissions unit is the Landfill Gas-to-Energy (LFGTE) Plant which is comprised of 12 LFG-fired engines.

The LFG-fired engines shall be Caterpillar Model G3520C or equivalent. The CAT® G3520C internal combustion engine is a lean-burn water-cooled engine with a design power generation rating of 2,242 brake-horsepower (bhp) and a maximum fuel consumption rating of 6,511 Btu/bhp-hr (lower heating value, LHV). The maximum heat input rating for each engine is 14.6 million British thermal units per hour (MMBtu/hr, LHV) (engine power at 100% load is 2,242+ bhp and nominal engine fuel consumption is 6,511 Btu/bhp-hr, LHV). Each engine will be connected to an electric power generator with a nominal rating of 1.6 MW. Using a fuel consumption tolerance of +2.5% (Caterpillar data), the maximum heat input could be 14.96 MMBtu/hr, LHV, which is equivalent to 16.61 MMBtu/hr, HHV. Exhaust gases from each engine will be vented through a 60-foot (ft) high stack. The exhaust parameters and other design parameters for the engine were provided in the permit application in Appendix C.

{Permitting Note: In accordance with Rule 62-212.400, PSD, F.A.C., the above engines are subject to Best Available Control Technology (BACT) determinations for the following pollutants: CO, NOx, SO2, PM10, PM2.5, VOC, NMOC and GHG. The final BACT determinations are presented in the appendices of this permit. Other emissions standards and performance metrics specified in this permit allow the emission units to escape PSD preconstruction review for sulfur dioxide (SO2) emissions.}

EQUIPMENT

1. **LFG Engine/Generator Set:** The permittee is authorized to install and operate 12 lean-burn, spark-ignited reciprocating internal combustion engine/generator sets (Caterpillar Model G3520C or equivalent) that will fire LFG with the following nominal design specifications per engine: a maximum engine rating of 2,242 bhp at 100% load; a nominal electrical generator rating of 1.6 MW; and a heat input rate of approximately 16.61 MMBtu/hour, HHV from LFG.
 - a. Each engine shall be equipped with an air-fuel ratio controller and electronic ignition timing to maintain efficient and complete combustion.
 - b. Each engine shall be equipped with an automatic fail-safe block valve which must be designed to stop the flow of LFG in the event of an engine failure. Excess LFG not fired in the engines shall be flared or free vented until the facility is required to meet the applicable collection and control system requirements in accordance with NSPS Subpart WWW in 40 CFR 60.
 - c. Each engine shall be equipped with a non-resettable elapsed time meter to indicate the elapsed engine operating time, cumulative hours.
 - d. A gas flow meter shall be installed to monitor the total volumetric flow rate of LFG to the engines.

[Application No. 0970079-011-AC/PSD-FL-429; Rules 62-4.070(1)&(3), Reasonable Assurance, 62-210.200, Definitions - Potential to Emit (PTE), and 62-212.400, PSD - BACT Determination, F.A.C.; and, NESHAP Subpart ZZZZ.]

{Permitting Note: The heat input rate is based on 100% load (2,242 bhp), a LFG higher heating value (HHV) of 446 British thermal units per standard cubic foot (Btu/scf) and an approximate LFG firing rate of 550 scfm per engine at a methane content of 44%.}

2. **LFG Treatment & Conditioning System for Engines:** The permittee shall install a LFG treatment & conditioning system that includes initial gas dewatering (moisture knock-out vessel), gas compressors and blowers, air-to-gas coolers or equivalent and particulate removal. The particulate filtration system shall be

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

B. New LFGTE Plant: Twelve (12) LFG-fired Engines (E.U. ID No. 006)

designed to remove particulate matter larger than 10 microns via primary and polishing filters. The gas treatment system shall not be equipped with atmospheric vents. [Application No. 0970079-011-AC/PSD-FL-429; and, Rule 62-212.400, PSD - BACT Determination, F.A.C.]

3. Hours of Operation: The new engine/generator sets may operate continuously (i.e., 8,760 hours/year). [Application No. 0970079-011-AC/PSD-FL-429; and, Rule 62-210.200, PTE, F.A.C.]

PERFORMANCE RESTRICTIONS

4. Permitted Capacity: Each LFG engine has a maximum power rating of 1,442 bhp at 100% load (approximately 16.61 MMBtu/hour, HHV). The electrical generator has a nominal power rating of 1,600 kilowatts (kW). [Rule 62-210.200, PTE, F.A.C.]
5. Authorized Fuel: ~~Only H₂S scrubbed, treated & conditioned LFG shall be fired in the engine/generator sets~~ LFG fired in the engine/generator sets shall be H₂S scrubbed, treated and conditioned sufficiently to meet the emission standards and limitations in Condition 8 through 16 of this section.
{Permitting note: Propane may be used as a startup fuel.} [Application No. 0970079-011-AC/PSD-FL-429; and, Rules 62-212.400, PSD - BACT Determination and Rule 62-212.400(12), Spill Prevention - escape-PSD, F.A.C.]
6. Applicable NSPS Provisions: The LFG engines are subject to, and shall comply with, the applicable provisions in NSPS Subpart A (General Provisions) and NSPS Subpart JJJJ (Stationary Spark Ignition Internal Combustion Engines) of 40 CFR 60, which are identified in Appendix A and Appendix JJJJ of this permit. [NSPS Subparts A and JJJJ in 40 CFR 60; and, Rule 62-204.800, F.A.C.]
7. Applicable NESHAP Provisions: The LFG engines are subject to, and shall comply with, the applicable provisions in NESHAP Subpart A (General Provisions) and NESHAP Subpart ZZZZ (Reciprocating Internal Combustion Engines) of 40 CFR 63, which are identified in Appendix A1 and Appendix ZZZZ of this permit. [NESHAP Subparts A and ZZZZ in 40 CFR 63; and, Rule 62-204.800, F.A.C.]

EMISSION STANDARDS & LIMITATIONS

8. CO, VOC, NMOC, NO_x, PM/PM₁₀, H₂S and GHG Emissions: The permittee shall minimize CO, VOC, NMOC, NO_x, PM/PM₁₀, H₂S and GHG emissions by installing, operating and maintaining the required LFG treatment system (H₂S scrubbing system and treatment & conditioning system) as well as maintaining the air-to-fuel ratio to ensure efficient combustion. [Rule 62-212.400, PSD - BACT Determination, F.A.C.]
9. Carbon Monoxide (CO): The advanced lean burn engine design, use of treated LFG, good combustion practices and proper maintenance minimize CO emissions. CO emissions from each engine/generator set shall not exceed 3.5 gram per brake horsepower per hour (g/bhp-hour) and 17.3 pounds/hour (lbs/hour).
{Permitting note: For each engine/generator equivalent to 75.8 TPY of CO emissions. Compliance with the BACT limit assures compliance with the higher NSPS Subpart JJJJ limit of 5.0 g/bhp-hr.}
[NSPS Subparts A and JJJJ in 40 CFR 60; Rules 62-204.800 and, 62-212.400, PSD - BACT Determination, F.A.C.]
10. Volatile Organic Compounds (VOC): The advanced lean burn engine design, use of treated LFG, good combustion practices and proper maintenance minimizes VOC emissions. VOC emissions from each engine/generator set shall not exceed 0.56 g/bhp-hour and 2.77 lbs/hour. [NSPS Subparts A and JJJJ in 40 CFR 60; Rules 62-204.800 and, 62-212.400, PSD - BACT Determination, F.A.C.]
{Permitting Note: ~~VOC was assumed to be 100% NMOC.~~ For each engine/generator equivalent to 12.12 TPY of CO emissions.}
11. Non-Methane Organic Compounds (NMOC): The advanced lean burn engine design, use of treated LFG, good combustion practices and proper maintenance minimizes NMOC emissions. NMOC emissions from each engine/generator set shall not exceed 0.85 g/bhp-hour and 4.2 lbs/hour. [Rule 62-212.400, PSD - BACT Determination, F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

{Permitting Note: For each engine/generator equivalent to 18.4 TPY of ~~CO~~-NMO~~C~~ emissions.}

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SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

B. New LFGTE Plant: Twelve (12) LFG-fired Engines (E.U. ID No. 006)

12. Nitrogen Oxides (NOx): The advanced lean burn engine design, use of treated LFG, good combustion practices and proper maintenance minimizes NOx emissions. NOx emissions from each engine/generator set shall not exceed 0.60 g/bhp-hour and 3.0 lbs/hour. [Rule 62-212.400, PSD - BACT Determination, F.A.C.]
{Permitting Note: For each engine/generator equivalent to 13 TPY of NOx emissions.}
13. Particulate Matter (PM) - PM/PM₁₀/PM_{2.5}: The advanced engine design, use of treated LFG, good combustion practices and proper maintenance minimizes PM/PM₁₀/PM_{2.5} emissions. The LFG shall also be treated to remove PM larger than 10 microns prior to combusting in the engines. In addition, as determined by EPA Method 9, visible emissions from each engine/generator set shall not exceed 10% opacity, based on a six-minute average. Visible emissions (VE) shall serve as a surrogate for PM/PM₁₀/PM_{2.5} emissions. [Rule 62-212.400, PSD - BACT Determination, F.A.C.]
{Permitting Note: Based on these work practice standards, the maximum PM/PM₁₀/PM_{2.5} emissions from each engine/generator were estimated to be 0.24 g/bhp-hour, 1.2 lbs/hour and 5.2 tons/year.}
14. Visible Emissions (VE): VE from each engine/generator exhaust shall not exceed 10% opacity. [Rule 62-212.400, PSD - BACT Determination, F.A.C.]
15. Sulfur Dioxide (SO₂) Emissions:
- a. To ensure that PSD is avoided, SO₂ emissions shall not exceed 38.9 tons per consecutive 12 months from all 12 LFG-fired engines and the new open flares (combined) (the "Project") shall be 39 tons or less per consecutive 12 month period. Compliance with this SO₂ emissions cap shall be demonstrated on a 12-month rolling basis using the following information: the sulfur level in the scrubbed LFG; the amount of LFG fired in each engine; and, the assumption that all sulfur is converted to SO₂.
- ~~b. SO₂ emissions from each engine/generator set shall not exceed 45 pounds/million standard cubic feet (lbs/MMscf). {Permitting Note: For each engine/generator equivalent to 0.68 lbs/hour and 3.24 TPY.}~~
- [Application No. 0970079-011, PSD-FL-429, Application Requirements and, Rules 62-4.160(2) and 62-212.400(12), Source Investigation - Type-PSD, F.A.C.]
16. Greenhouse Gases (GHG): The advanced engine design, use of treated LFG, good combustion practices and proper maintenance minimize GHG emissions (being primarily N₂O & CH₄). The collection of the LFG and subsequent combustion in the engines with the energy production facility also minimize GHG emissions. SO₂ emissions shall serve as primary surrogates for GHG emissions (being primarily N₂O & CH₄). [Rule 62-212.400, PSD - BACT Determination, F.A.C.]

COMPLIANCE DEMONSTRATION (TESTING) REQUIREMENTS

17. Test Requirements: During each required compliance stack test, the permittee shall operate a tested LFG engine at permitted capacity (90% to 100% of 242 bhp). The permittee shall notify the Compliance Authority in writing at least 15 days prior to any scheduled stack tests. Tests shall be conducted in accordance with applicable requirements specified in Appendix CTR (Common Testing Requirements) of this permit. [Rule 62-297.310(7)(b), F.A.C.]
{Permitting Note: Although the PSD provides for a 30-day test notification, a 15-day notice is sufficient in Florida.}
18. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
7 or 7E	Determination of NOx Emissions from Stationary Sources
9	Visual Determination of the Opacity (VE) of Emissions from Stationary Sources

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

10	Determination of CO Emissions from Stationary Sources <i>{Note: The method shall be based on a continuous sampling train.}</i>
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SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

B. New LFGTE Plant: Twelve (12) LFG-fired Engines (E.U. ID No. 006)

Method	Description of Method and Comments
19	Determination of SO ₂ Removal Efficiency and PM, SO ₂ , and NO _x Emission Rates (Optional Factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)
25C	Method for Determining NMOC in Landfill Gases
TECO-55I	ALT-096 Direct total Non-Methane Hydrocarbon Analysis

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800 and 62-297.100, F.A.C.; and, Appendix A of 40 CFR 60.]

19. **Initial Compliance Tests - CO, VOC, NMOC, NO_x & Opacity:** Each engine shall be tested to demonstrate initial compliance with the emissions standards for CO, NO_x and VOC under 40 CFR 60, Subpart JJJ as well as the BACT standards of this permit. In addition, each unit shall also be tested for opacity in accordance with EPA Method 9. Each engine shall be tested for NMOC in accordance with EPA Method 25C, or Method 25A and 18, or alternative test method ALT-096 (TECO-55I) as instructed in the EPA's alternative approval letter in Appendix ATM of this permit. The initial performance tests must be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial start-up of each engine. [Rules 62-212.400, *PSD - BACT Determination* and 62-297.310(7)(a)1., F.A.C.; and, NSPS Subpart JJJJ of 40 CFR 60.]
20. **Periodic Compliance Tests - CO, VOC, NMOC, NO_x & Opacity:** Every 760 engine hours or at least once every three years, whichever comes first, each engine shall be tested to demonstrate compliance with the emissions standards for CO, NO_x and VOC under 40 CFR 60, Subpart JJJJ as well as the BACT standards of this permit. During these periodic tests, at least one engine shall also be tested for opacity in accordance with EPA Method 9 and NMOC in accordance with EPA Method 25C, or Method 25A and 18, or alternative test method ALT-096 (TECO-55I) as instructed in the EPA's alternative approval letter in Appendix ATM of this permit. [Rules 62-212.400, *PSD - BACT Determination* and 62-297.310(7)(a)1., F.A.C.; and, NSPS Subpart JJJJ of 40 CFR 60.]
21. **Compliance Tests - PM/PM₁₀/PM_{2.5}:** Since VE serves as a surrogate for PM/PM₁₀/PM_{2.5} emissions PM/PM₁₀/PM_{2.5} emissions testing is not required. Instead, demonstration of compliance with the PM/PM₁₀/PM_{2.5} BACT standards of this permit is through the VE testing. [Rules 62-212.400, *PSD - BACT Determination* and 62-297.310(7)(a)1., F.A.C.]
22. **Compliance Tests - GHG:** Since NO_x & CO emissions serves as primary surrogates for GHG emissions (being primarily N₂O & CH₄) GHG emissions testing is not required. Instead, demonstration of compliance with the GHG BACT standards of this permit is through the NO_x & CO emissions testing. Low NO_x emissions indicates low formation of N₂O, a GHG gas. Low CO emissions is an indicator of complete combustion, i.e., conversion of CH₄ (a GHG gas) to CO₂ and water. [Rules 62-212.400, *PSD - BACT Determination* and 62-297.310(7)(a), F.A.C.]

MONITORING REQUIREMENTS

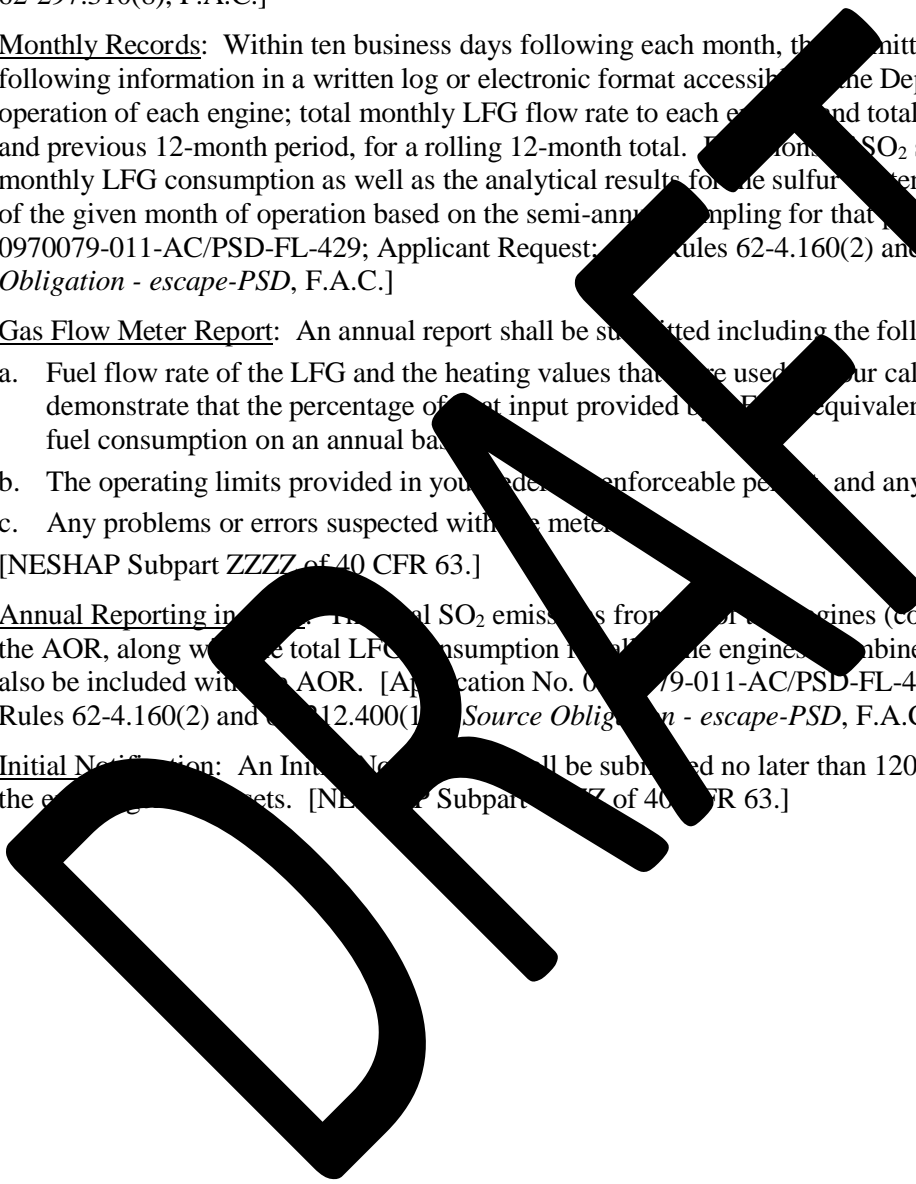
23. **Gas Flow Meter Daily Records:** Daily records shall be used to monitor and record the fuel usage for all engines combined with a separate fuel meter to measure the volumetric flow rate of the LFG. [NESHAP Subpart ZZZZ of 40 CFR 63.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

B. New LFGTE Plant: Twelve (12) LFG-fired Engines (E.U. ID No. 006)

RECORDKEEPING & REPORTING

- 24. Test Reports: The required test reports shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA test, shall provide the applicable information identified in Rule 62-297.310(8)(c), F.A.C. [Rule 62-297.310(8), F.A.C.]
- 25. Monthly Records: Within ten business days following each month, the permittee shall observe and record the following information in a written log or electronic format accessible to the Department: number of hours of operation of each engine; total monthly LFG flow rate to each engine and total SO₂ emissions for the month and previous 12-month period, for a rolling 12-month total. Emissions of SO₂ shall be calculated from the monthly LFG consumption as well as the analytical results for the sulfur content of the LFG representative of the given month of operation based on the semi-annual sampling for that period. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and Rules 62-4.160(2) and 62-12.400(12), *Source Obligation - escape-PSD*, F.A.C.]
- 26. Gas Flow Meter Report: An annual report shall be submitted including the following:
 - a. Fuel flow rate of the LFG and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by LFG is equivalent to 10% or more of the total fuel consumption on an annual basis.
 - b. The operating limits provided in your permit, enforceable permit, and any deviations from these limits.
 - c. Any problems or errors suspected with the meter.[NESHAP Subpart ZZZZ of 40 CFR 63.]
- 27. Annual Reporting in AOR: Annual SO₂ emissions from all LFG engines (combined) shall be reported in the AOR, along with the total LFG consumption from all the engines (combined). The sulfur content shall also be included with the AOR. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-12.400(12), *Source Obligation - escape-PSD*, F.A.C.]
- 28. Initial Notification: An Initial Notification shall be submitted no later than 120 days after you begin startup of the engine units. [NESHAP Subpart ZZZZ of 40 CFR 63.]



SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

C. New ~~Four (4)~~ Open Candlestick Utility Flares (E.U. ID No. 007)

This subsection of the permit addresses the following emission units:

E.U. ID No.	E.U. Brief Description(s)
002	<i>The E.U. ID No. 002's description as part of this project is administratively corrected from: Phase 1 - Class I Landfill Gas Collection System Flare #1 to: existing Open Candlestick Utility Flare, Flare #1</i>
007	<i>new 4 Open Candlestick Utility Flares</i>

This emissions unit is comprised of ~~4~~ open candlestick utility flares for total new flaring capacity of 14,400 scfm.

The JED Landfill currently operates a 3,600 scfm candle type open flare (Model No. PCFT1444I12, manufactured by LFG Specialties), which is used as the primary flare. Volume of flow to the flare is measured using a thermal dispersion flow meter and flow is continuously recorded on a data recorder. The flare has an automatic propane pilot system and control panel that monitors the presence and temperature of pilot flame. The free cross-sectional area of the flare tip is 143.5 in² and the height of the flare is 58 feet above ground. The exit velocity of the combusted gas for the flare is 58.6 feet/second (LFG flow of 3,506 scfm and cross-sectional area of 143.5 in²). There will be no change to this flare as a result of the proposed expansion.

~~Additional open flares similar in model and size to the existing flare were proposed. Likely two 3,600 scfm open flares are planned for PSD Phase 1 and two more 3,600 scfm open flares are planned for PSD Phase 2.~~ Note that the exact size and manufacturer of the flare may vary depending on availability and cost. Total additional flaring capacity of 7,200 is proposed for PSD Phase 1 and additional flaring capacity of 7,200 scfm is proposed for PSD Phase 2. LFG collection capacities for PSD Phase I and PSD Phase II are estimated (using EPA LANDGEM Model) to be 8,183 scfm and 15,845 scfm, respectively.

{Permitting Note: In accordance with Rule 62-212.400, PSD - BACT Determination, F.A.C., these flares are subject to Best Available Control Technology (BACT) determinations for the following air pollutants: CO, NOx, PM, PM₁₀, PM_{2.5}, VOC, NMOC and SO₂. The final BACT determinations are presented in the appendices of this permit. Other emissions standards and performance restrictions specified in this permit allow the emission units to escape PSD preconstruction review for Sulfur Dioxide (SO₂) emissions.}

EQUIPMENT

1. **Flares:** The permittee is authorized to install, operate and maintain ~~four (4)~~ new open candlestick utility flares (LFG Specialties Model No. PCFT1444I12 or equivalent) that will fire LFG with the total flaring capacity of 14,400 scfm with 7,200 scfm in PSD Phase 1 and additional 7,200 scfm in PSD Phase 2 following nominal design specifications per flare: a maximum rating of 3,600 scfm; and, a maximum heat input rate of ~~498.5406~~ MM Btu/hour, HHV from LFG.
 - a. Each flare shall be equipped with an automatic propane pilot system and control panel that monitors the presence and temperature of pilot flame.
 - b. The total LFG volume flow to each flare shall be measured using a thermal dispersion flow meter and flow shall be continuously recorded on a data recorder.

{Permitting Note: The heat input rate is based on Phase 2 flaring only case, a LFG higher heating value (HHV) of 577 Btu/scf and an approximate LFG flow of 14,400 firing rate of 3,064 for flares combined scfm per flare at a methane content of 44%.}

[Application No. 0970079-011-AC/PSD-FL-429; Rules 62-4.070(1)&(3), Reasonable Assurance, 62-210.200, Definitions - Potential to Emit (PTE), and 62-212.400, PSD - BACT Determination, F.A.C.]

2. **Flares:** The existing and new flares may be moved during the landfill expansion project. [Application No. 0970079-011-AC/PSD-FL-429.]
3. **Hours of Operation:** The new flares may operate continuously (i.e., 8,760 hours/year). [Application No.

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SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

C. ~~New Four (4)~~ Open Candlestick Utility Flares (E.U. ID No. 007)

PERFORMANCE RESTRICTIONS

4. Permitted Capacity: ~~Total new flaring capacity permitted is 14,400 scfm. Each flare shall have a maximum rating of 3,600 scfm and a maximum heat input rate of 106 MMBtu/hour, HHV from LFG.~~ [Rule 62-210.200, PTE, F.A.C.]
5. Authorized Fuel: LFG fired in the new flares shall be H2S scrubbed, treated and conditioned sufficiently to meet the emission standards and limitations in Condition 11 through 15 of this section~~Only H2S scrubbed LFG shall be fired in the flares.~~ {Permitting Note: Propane may be used as a startup fuel.} [Application No. 0970079-011-AC/PSD-FL-429; and, Rule 62-212.400, PSD - BACT Determination, and Rule 62-212.400(12), Source Obligation - escape PSD, F.A.C.]
6. Applicable NSPS Provisions: The new flares are subject to, and shall comply with, the applicable provisions in NSPS Subpart A (General Provisions) of 40 CFR 60, which are identified in Appendix A of this permit. [NSPS Subpart A in 40 CFR 60; and, Rule 62-204.800, F.A.C.]

OPERATIONAL REQUIREMENTS

7. Operation: The new flares shall be operated with a flame present at all times, as determined by the methods specified in 40 CFR 60.18(f). [Rule 62-204.800(8)(d), F.A.C.; 40 CFR 60.18(c)(2); and, Rule 62-212.400, PSD - BACT Determination, F.A.C.]
8. Exit Velocity: The new flares shall be operated with an exit velocity in accordance with 40 CFR 60.18(c)(4) and (5), as determined by the methods specified in 40 CFR 60.18(c)(4) and (f)(6). [Rule 62-204.800(8)(d), F.A.C.; 40 CFR 60.18(c)(4) & (5); and, Rule 62-212.400, PSD - BACT Determination, F.A.C.]
9. Actual Exit Velocity: The owner or operator shall annually determine the actual exit velocity of each new flare as determined by the methods specified in 40 CFR 60.18(c)(4) and (f)(6). [Rule 62-212.400, PSD - BACT Determination, F.A.C.]
10. Operation: The new flares used to comply with provisions of 40 CFR 60, Subpart A shall be operated at all times when emissions may be vented to them. [Rule 62-204.800(8)(d), F.A.C.; 40 CFR 60.18(e); and, Rule 62-212.400, PSD - BACT Determination, F.A.C.]

EMISSION STANDARDS & LIMITATIONS

11. CO, NMOC, NOx & GHG emissions: The permittee shall minimize CO, VOC, NMOC, NOx and GHG emissions by following the operational requirements of this permit. The operational requirements of this permit shall serve as a surrogate for CO, VOC, NMOC, NOx & GHG emissions. [Rule 62-212.400, PSD - BACT Determination, F.A.C.]
12. Particulate Matter (PM) - PM₁₀/PM_{2.5}: The requirements stated in the previous specific condition 11. for CO, VOC, NMOC, NOx and GHG emissions also apply for PM emissions. The use of treated LFG also minimizes PM₁₀/PM_{2.5} emissions. The LFG shall be treated to remove PM larger than 10 microns prior to combusting in the new flares. The new flares shall be operated with air assist to promote proper mixing and complete combustion of LFG to reduce VE. VE shall serve as a surrogate for PM/PM₁₀/PM_{2.5} emissions. ~~{Permitting Note: Based on these work practice standards, the maximum PM/PM₁₀/PM_{2.5} emissions from each flare were estimated to be 1.6 lbs/hour and 6.9 tons/year.}~~ [Rule 62-212.400, PSD - BACT Determination, F.A.C.]
13. Visible Emissions (VE): The new flares shall be operated with no visible emissions (VE), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [Rule 62-204.800(8)(d), F.A.C.; 40 CFR 60.18(c)(1); and, Rule 62-212.400, PSD - BACT Determination, F.A.C.]
14. Sulfur Dioxide (SO₂) Emissions:
 - a. To ensure that PSD is avoided, SO₂ emissions from all 12 LFG-fired engines and the new open flares combined (the "Project") shall be 39 tons or less per consecutive 12 month period shall not exceed 38.2

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

~~tons per consecutive 12 months from all 4 flares (combined)~~. Compliance with this SO₂ emissions cap shall be demonstrated on a 12-month rolling basis using the following information: the sulfur level in the scrubbed LFG; the amount of LFG combusted by all 12 LFG-fired engines and the new open flares combined ~~each flare~~; and, the assumption that all sulfur is converted to SO₂.

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SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

C. New ~~Four (4)~~ Open Candlestick Utility Flares (E.U. ID No. 007)

~~b. SO₂ emissions from each flare shall not exceed 22.8 lbs/MMscf. (Permitting Note: For each flare equivalent to 2.2 lbs/hour and 9.6 TPY.)~~

[Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), Source Obligation - escape-PSD, F.A.C.]

- 15. Greenhouse Gases (GHG): The operational requirements of this permit minimize GHG emissions (being primarily N₂O & CH₄). The collection of the LFG and subsequent combustion in the new flares also minimizes GHG emissions. NO_x & CO emissions shall serve as primary surrogates for GHG emissions (being primarily N₂O & CH₄). [Rule 62-212.400, PSD - BACT Determination, F.A.C.]

COMPLIANCE DEMONSTRATION (TESTING) REQUIREMENTS

- 16. Compliance Tests - CO, VOC, NMOC, NO_x & GHG: Since the operational requirements of this permit serve as a surrogate for CO, VOC, NMOC, NO_x & GHG emissions, CO, VOC, NMOC, NO_x & GHG emissions testing is not required. Instead, demonstration of compliance with the CO, VOC, NMOC, NO_x & GHG BACT standards of this permit is by the owner or operators following the operational requirements of this permit. [Rules 62-212.400, PSD - BACT Determination and 62-297.310(7), F.A.C.]
- 17. Compliance Tests - PM/PM₁₀/PM_{2.5}: Since VE serves as a surrogate for PM/PM₁₀/PM_{2.5} emissions, PM/PM₁₀/PM_{2.5} emissions testing is not required. Instead, demonstration of compliance with the PM/PM₁₀/PM_{2.5} BACT standards of this permit is through the VE testing. [Rules 62-212.400, PSD - BACT Determination and 62-297.310(7), F.A.C.]

TESTING REQUIREMENTS

- 18. Test Methods: Required tests shall be performed in accordance with the following reference methods:

Method(s)	Description of Method(s) and Instrument(s)
EPA Method 9	Visible Determination of Sulfur Emissions from Flares

The above methods described in Chapter 62-297, F.A.C. and/or 40 C.F.R. 60, Appendix A, and adopted by reference in Rule 62-212.400, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Chapter 62-297, F.A.C. and Rule 62-204.800(9)(b)7., F.A.C.]

- 19. Visible Test Method: Method 9 shall be used to determine the compliance with the visible emissions limit for new flares. The observation periods 2 hours and shall be used according to EPA Method 22. [Rule 62-204.800(8), F.A.C.; and, 40 C.F.R. 60.18(f)(1).]
- 20. Test Requirements: Tests shall be conducted in accordance with the applicable requirements specified in Appendix CTR (Common Testing Requirements) of this permit. [Rule 62-297.310(7)(a)9., F.A.C.]

MONITORING REQUIREMENTS

- 21. Operation & Maintenance (O&M) Plan: The permittee shall submit an O&M plan for the new flares selected. [Application No. 0970079-011-AC/PSD-FL-429; Rules 62-4.070(1)&(3), Reasonable Assurance, 62-210.200, Definitions - Potential to Emit (PTE), and 62-212.400, PSD - BACT Determination, F.A.C.]

RECORDKEEPING & REPORTING

- 22. Monthly Records: Within ten calendar days following each month, the permittee shall observe and record the following information in a written log or electronic format accessible to the Department: number of hours of operation of each new flare; total monthly LFG flow rate to each new flare; and total SO₂ emissions for the month and previous 12-month period, for a rolling 12-month total. Emissions of SO₂ shall be calculated from the monthly LFG consumption as well as the analytical results for the sulfur contents of the LFG representative of the given month of operation based on the semi-annual sampling for that period. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), Source Obligation - escape-PSD, F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

C. New ~~Four (4)~~ Open Candlestick Utility Flares (E.U. ID No. 007)

23. Annual Reporting in AOR: The total SO₂ emissions from all new flares (combined) shall be reported in the AOR, along with the total LFG consumption for all new flares (combined). The sulfur content shall also be included with the AOR. [Application No. 0970079-011-AC/PSD-FL-429; Applicant Request; and, Rules 62-4.160(2) and 62-212.400(12), *Source Obligation - escape-PSD*, F.A.C.]
24. Annual Reporting in AOR: The permittee shall annually report the actual exit velocity of each new flare. The actual exit velocity shall be reported to the Department as an attachment to the facility's AOR. [Rules 62- 4.070(1)&(3), *Reasonable Assurance* and 62-4.160(2), F.A.C.]

DRAFT

APPENDIX B

MODELING DEMONSTRATION FOR DIFFERENT SIZE FLARES

The PSD permit application for permit No. 0970079-011-AC/PSD-FL-429 required air quality analysis to demonstrate that the proposed Project complies with the National Ambient Air Quality Standards (NAAQS) for NO₂, PM₁₀, PM_{2.5}, and CO. The proposed Project as presented in the application included 12 CAT G3520C engines and two 3,600 scfm, each open flares (total additional flaring capacity of 7,200 scfm to achieve total facility-wide flaring capacity of 10,800-scfm) in PSD Phase I and two more 3,600 scfm, each open flares (total facility-wide flaring capacity of 18,000 scfm) in PSD Phase II. In this AC permit application, Omni Waste is requesting to not be limited by a specific flare size. It should be noted that flare emissions are based on the landfill gas flow to the flares. Therefore, if the permitted total flaring capacity of each PSD Phase is not exceeded, any number and flare size combination will not increase flaring emissions presented in the PSD application for each PSD Phase. The open flare size (gas flow capacity) however, affects the effective release height of the flare, which may affect modeling impacts. In order to evaluate any difference from the modeling results presented in the PSD permit application, modeling were conducted for the Project including the 12 CAT G3520C engines and flares different in size than the 3,600-scfm flares presented in the PSD permit application.

Table 1 shows how the design landfill gas collected in each PSD Phase was distributed among the flares and engines following the 4 modeling scenarios presented in the PSD permit application. There are two modeling scenarios for each PSD Phase, one for flaring-only case and one for engines operating and flaring together case. As a conservative approach, the existing 3,600-scfm flare was not utilized and all available gas were sent first to a new 6,000-scfm flare and other new flares as necessary. The choice of new 6,000-scfm flare in PSD Phase I is arbitrary and for the modeling comparison only.

Table 2 shows the effective release heights and effective release diameters for the different flare landfill gas flows in each modeling scenario.

Table 3 shows the comparison between maximum predicted impacts for each 4 modeling scenario with the alternate flare size and the maximum impacts presented in the PSD permit application. As shown, although modeled flare emissions rates are higher than the rates modeled for the PSD permit application, total Project impacts have increased only slightly in some cases and in some other cases, the maximum impacts actually have decreased. The slight increase can be attributed to overall higher flare emission rate or higher emission rate from the same flare. The slight decrease can be attributed to higher effective release height as the gas flow increases. The overall small difference can also be attributed to the fact that the Project impacts are dominated by the maximum impacts from the 12 CAT G3520C engines.

TABLES

Table 1: Model Scenarios and Emission Rates, JED Landfill Expansion Project

Source	Model ID	LFG Flow	Hourly Emission Rates								
			NO _x			CO			PM ₁₀ /PM _{2.5}		
			(lb/scf)	(lb/hr)	(g/s)	(lb/scf)	(lb/hr)	(g/s)	(lb/scf)	(lb/hr)	(g/s)
Model Scenario 1: PSD Phase 1 - Flaring Only (Flaring of 8,183 scfm)^a											
Flare 2	FLARE2	6,000	3.92E-05	14.12	1.78	2.13E-04	76.86	9.68	8.55E-06	3.08	0.39
Flare 3	FLARE3	2,183	3.92E-05	5.14	0.65	2.13E-04	27.96	3.52	8.55E-06	1.12	0.14
		8,183									
Model Scenario 2: PSD Phase 1 - Flaring + LFGTE Plant (LFGTE Plant - 5,060 scfm, Flaring - 3,123 scfm)^b											
Flare 2	FLARE2	0	3.92E-05	0.00	0.00	2.13E-04	0.00	0.00	8.55E-06	0.00	0.00
Flare 3	FLARE3	3,123	3.92E-05	7.35	0.93	2.13E-04	40.00	5.04	8.55E-06	1.60	0.20
Engine 1	CAT1	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 2	CAT2	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 3	CAT3	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 4	CAT4	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 5	CAT5	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 6	CAT6	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 7	CAT7	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 8	CAT8	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 9	CAT9	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 10	CAT10	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 11	CAT11	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 12	CAT12	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
		8,183									
Model Scenario 3: PSD Phase 2 - Flaring Only (Flaring of 15,845 scfm)^c											
Flare 2	FLARE2	6,000	3.92E-05	14.12	1.78	2.13E-04	76.86	9.68	8.55E-06	3.08	0.39
Flare 3	FLARE3	2,645	3.92E-05	6.23	0.78	2.13E-04	33.88	4.27	8.55E-06	1.36	0.17
Flare 4	FLARE4	3,600	3.92E-05	8.47	1.07	2.13E-04	46.11	5.81	8.55E-06	1.85	0.23
Flare 5	FLARE5	3,600	3.92E-05	8.47	1.07	2.13E-04	46.11	5.81	8.55E-06	1.85	0.23
		15,845									
Model Scenario 4: PSD Phase 2 - Flaring + LFGTE Plant (LFGTE Plant - 5,060 scfm, Flaring - 10,785 scfm)^d											
Flare 2	FLARE2	6,000	3.92E-05	14.12	1.78	2.13E-04	76.86	9.68	8.55E-06	3.08	0.39
Flare 3	FLARE3	4,785	3.92E-05	11.26	1.42	2.13E-04	61.29	7.72	8.55E-06	2.45	0.31
Flare 4	FLARE4	0	3.92E-05	0.00	0.00	2.13E-04	0.00	0.00	8.55E-06	0.00	0.00
Flare 5	FLARE5	0	3.92E-05	0.00	0.00	2.13E-04	0.00	0.00	8.55E-06	0.00	0.00
Engine 1	CAT1	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 2	CAT2	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 3	CAT3	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 4	CAT4	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 5	CAT5	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 6	CAT6	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 7	CAT7	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 8	CAT8	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 9	CAT9	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 10	CAT10	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 11	CAT11	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
Engine 12	CAT12	422	--	2.97	0.37	--	17.3	2.18	--	1.19	0.149
		15,845									

^a Modeling scenario for Phase 1, flaring-only case. Hourly emissions for each flare are based on total flaring emissions divided by no. of flares. See Table E-1.

^b Modeling scenario for Phase 1, LFGTE Plant operating case. Hourly emissions for each flare are based on total flaring emissions divided by no. of flares (See Table 2-7). Hourly emissions for each CAT engine is based on total LFGTE plant emissions divided by no. of engines (See Table 2-6).

^c Modeling scenario for Phase 2 (full built-out), flaring-only case. Hourly emissions for each flare are based on total flaring emissions divided by no. of flares. See Table E-2.

^d Modeling scenario for Phase 1, LFGTE Plant operating case. Hourly emissions for each flare are based on total flaring emissions divided by no. of flares (See Table 2-9). Hourly emissions for each CAT engine is based on total LFGTE plant emissions divided by no. of engines (See Table 2-7).

Table 2: Model Parameters Used for the Significant Impact Analysis, JED Landfill

Source	Model ID	UTM NAD83		Gas Flow (scfm)	Heat Release (Btu/hr)	Physical								Operating				
		East (m)	North (m)			Actual Height		Actual Diameter		Effective Height ^a		Effective Diameter ^a		Temperature ^b		Exhaust Flow (acfm)	Velocity ^c	
						(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(°F)	(K)		(fps)	(m/s)
PSD Phase 1																		
Model Scenario 1: PSD Phase 1 - Flaring Only (Flaring of 8,183 scfm) ^a																		
Flare 2	FLARE2	490,750	3,104,124	6,000	207,720,000	54.0	16.5	1.13	0.343	93.7	28.6	8.3	2.53	1,832	1273.0	--	--	20.00
Flare 3	FLARE3	490,745	3,104,124	<u>2,183</u>	75,575,460	54.0	16.5	1.13	0.343	78.5	23.9	5.0	1.52	1,832	1273.0	--	--	20.00
				8,183														
Model Scenario 2: PSD Phase 1 - Flaring + LFGTE Plant (LFGTE Plant - 5,060 scfm, Flaring - 3,123 scfm) ^b																		
Engine 1	CAT1	491,564	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 2	CAT2	491,569	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 3	CAT3	491,574	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 4	CAT4	491,579	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 5	CAT5	491,583	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 6	CAT6	491,588	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 7	CAT7	491,607	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 8	CAT8	491,612	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 9	CAT9	491,617	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 10	CAT10	491,621	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 11	CAT11	491,626	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 12	CAT12	491,631	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
				5,060														
Flare 2	FLARE2	490,750	3,104,124	0	0	54.0	16.5	1.13	0.343	54.0	16.5	0.0	0.00	1,832	1273.0	--	--	20.00
Flare 3	FLARE3	490,745	3,104,124	<u>3,123</u>	108,118,260	54.0	16.5	1.13	0.343	83.1	25.3	6.0	1.82	1,832	1273.0	--	--	20.00
				3,123														
PSD Phase 2																		
Model Scenario 3: PSD Phase 2 - Flaring Only (Flaring of 15,845 scfm) ^c																		
Flare 2	FLARE2	491,580	3,102,943	6,000	207,720,000	54.0	16.5	1.13	0.343	93.7	28.6	8.3	2.53	1,832	1273.0	--	--	20.00
Flare 3	FLARE3	491,575	3,102,943	2,645	91,569,900	54.0	16.5	1.13	0.343	80.8	24.6	5.5	1.68	1,832	1273.0	--	--	20.00
Flare 4	FLARE4	491,570	3,102,943	3,600	124,632,000	54.0	16.5	1.13	0.343	85.1	25.9	6.4	1.96	1,832	1273.0	--	--	20.00
Flare 5	FLARE5	491,565	3,102,943	<u>3,600</u>	124,632,000	54.0	16.5	1.13	0.343	85.1	25.9	6.4	1.96	1,832	1273.0	--	--	20.00
				15,845														
Model Scenario 4: PSD Phase 2 - Flaring + LFGTE Plant (LFGTE Plant - 5,060 scfm, Flaring - 10,785 scfm) ^d																		
Engine 1	CAT1	491,564	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 2	CAT2	491,569	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 3	CAT3	491,574	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 4	CAT4	491,579	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 5	CAT5	491,583	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 6	CAT6	491,588	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 7	CAT7	491,607	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 8	CAT8	491,612	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 9	CAT9	491,617	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 10	CAT10	491,621	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 11	CAT11	491,626	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
Engine 12	CAT12	491,631	3,102,997	422	--	60.0	18.29	1.33	0.406	--	--	--	--	903	757.0	12,723	151.9	46.31
				5,060														
Flare 2	FLARE2	491,580	3,102,943	6,000	207,720,000	54.0	16.5	1.13	0.343	93.7	28.6	8.3	2.53	1,832	1273.0	--	--	20.00
Flare 3	FLARE3	491,575	3,102,943	4,785	165,656,700	54.0	16.5	1.13	0.343	89.6	27.3	7.4	2.25	1,832	1273.0	--	--	20.00
Flare 4	FLARE4	491,570	3,102,943	0	0	54.0	16.5	1.13	0.343	54.0	16.5	0.0	0.00	1,832	1273.0	--	--	20.00
Flare 5	FLARE5	491,565	3,102,943	<u>0</u>	0	54.0	16.5	1.13	0.343	54.0	16.5	0.0	0.00	1,832	1273.0	--	--	20.00
				10,785														

^a Flare effective height and diameter calculated based on the Air Dispersion Modeling, Oklahoma Department of Environmental Quality, April 2011.

$$H_{equiv} = H_{actual} + 0.00128 Q_c^{0.478}$$

Example Calculation for Flare 2 in Modeling Scenario 1:

$$H_{actual} = \text{Actual height of flare above ground} = 16.5 \text{ m}$$

$$Q_c = \text{Flared gas heat release rate (Btu/hr)} = \frac{3,462,000 \text{ Btu/min (3,506 scfm x 577 Btu/scf)}}{60} = 207,720,000 \text{ Btu/hr}$$

$$H_{equiv} = \text{Effective Height (m)} = 28.6 \text{ m}$$

$$D_{equiv} = 1.752 \times 10^{-4} \sqrt{Q_c}$$

$$D_{equiv} = \text{Effective Diameter (m)} = 2.53 \text{ m}$$

^b Exhaust temperature for flares is based on EPA default exhaust temperature for flares. Exhaust temperature for the CAT engines are based on Caterpillar data (100% load scenario).

^c For flares, exhaust velocity calculated based on design LFG flow and actual diameter of the flare tip.

**TABLE 3
COMPARISON OF MAXIMUM PREDICTED IMPACTS
BETWEEN THE PSD APPLICATION MODEL RESULTS AND THE ALTERNATE FLARE SIZE MODELING RESULT**

Pollutant	Averaging Time	Maximum Concentration ($\mu\text{g}/\text{m}^3$)								EPA Class II Significant Impact Levels ($\mu\text{g}/\text{m}^3$)
		PSD Phase I				PSD Phase II (Full Build-out)				
		Scenario 1		Scenario 2		Scenario 3		Scenario 4		
		Flaring Only		Flaring with LFGTE		Flaring Only		Flaring with LFGTE		
		Original ^a	Alternate ^b	Original ^a	Alternate ^b	Original ^a	Alternate ^b	Original ^a	Alternate ^b	
NO ₂ ^c	Annual	0.08	0.11	1.39	1.45	0.22	0.23	1.52	1.51	1
	1-Hour	2.95	3.93	45.5	45.5	7.80	8.12	45.6	45.5	7.5
PM _{2.5}	Annual	0.02	0.02	0.65	0.67	0.05	0.05	0.68	0.68	0.3
	24-Hour	0.21	0.29	8.28	8.35	0.55	0.58	8.44	8.39	1.2
PM ₁₀	Annual	0.02	0.03	0.75	0.76	0.07	0.07	0.78	0.78	1
	24-Hour	0.30	0.36	13.0	13.0	0.79	0.76	13.1	13.0	5
CO	8-Hour	21.5	25.2	279.2	279.5	54.7	54.6	279.9	279.7	500
	1-Hour	29.5	35.8	341.8	341.9	72.8	74.7	342.0	341.8	2,000

^a See Table 6-3 in the PSD application submitted in April 2014

^b Maximum impacts based on alternative flare sizes in each in PSD Phase I and modeling scenarios presented in Tables 1 and parameters are presented in Tables 1 and 2.

^c NO_x to NO₂ conversion factor of 0.75 and 0.80 applied to modeled annual average and 1-hour average NQ impacts, respectively, based on EPA Modeling Guidelines.