



March 30, 2010

103-87505

**RECEIVED** Via Electronic Delivery

Alvaro A. Linero, Program Administrator  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

**MAR 31 2010**  
**BUREAU OF**  
**AIR REGULATION**

**RE: AIR PERMIT NO. 0930104-014-AC/PSD-FL-382**  
**OKEECHOBEE LANDFILL**  
**LANDFILL GAS TO ENERGY PROJECT**

Dear Mr. Linero:

Okeechobee Landfill, Inc. (OLI) and Golder Associates, Inc. (Golder) have reviewed the draft air construction permit issued by the Florida Department of Environmental Protection (FDEP) dated February 1st, 2010 for the landfill gas to energy (LFGTE) project at the Okeechobee Landfill in Okeechobee County, FL and have comments/questions on some of the conditions in the draft permit. The comments and questions are presented below following an excerpt from each permit condition related to the comments/questions.

- 1. Page 6 of 21, Section II, Condition 7, Installation of GDP Required. “.. the permittee is required to install and operate by December 31, 2011 a GDP such that all collected LFG shall be treated to a concentration less than or equal to 200 parts per million by volume of hydrogen sulfide (H<sub>2</sub>S) by volume (ppmv) as determined by a H<sub>2</sub>S continuous emission monitoring system (CEMS) prior to combustion whether or not the permittee builds a LFGTE plant.”**

Comments: This appears to be an enforcement issue being imposed through an air construction permit. If OLI accepts the permit with this condition, and moves forward with construction of either the turbines or the proposed flares, the condition will have to be satisfied. However, if OLI does not accept the permit, or accepts the permit but never implements (constructs) the project, it will not be obligated to install the GDP.

If the GDP is required to be installed irrespective of the LFGTE project, the deadline to install the GDP is not realistic. For example, A LO-CAT GDP needs at least 6 months to complete final design and at least 1 year from ordering equipment to start of operation. Therefore, considering time for the final permit to be issued and time to contract a GDP vendor, OLI requests that the deadline be revised to June 30, 2012.

- 2. Page 8 of 21, Emission Unit Description.**

**Berman Road Landfill...This emission unit is expected to be closed by 2012.**

**Clay Farm landfill...This landfill is expected to be open by 2012.**

Comments: These dates are no longer correct and are subject to revision at any time. It is therefore suggested that these statements be deleted from the permit.

- 3. Page 8 of 21, Section III, Subsection A, Condition 1, GDP. “The permittee is required to install and operate by December 31, 2011 a GDP such that all collected LFG shall be treated to a concentration less than or equal to 200 ppmv....”**



Comments: This condition is the same as Section II, Condition 1, and therefore should be deleted. If it is kept, please refer to the previous comment. OLI requests that the deadline be revised to June 30, 2012.

**4. Page 8 of 21, Section III, Subsection A, Condition 2, LFGCS: “....in which the initial solid waste has been placed for a period of 3 years or more.”**

Comments: This 3 year requirement goes far beyond what is required by 40 CFR Subpart WWW, which is a 5 year requirement. This may have been required as LAER in the past, but not as BACT. In addition, this requirement or its basis is not even discussed in the Technical Evaluation and Preliminary Determination. Moreover, the 3 year requirement cannot always be met based on LFG collection planning, flare capacities, and other factors. Therefore, this requirement should be changed to 5 years to be consistent with Subpart WWW.

**5. Page 8 of 21, Section III, Subsection A, Condition 2, LFGCS: Permitting Note. “The time requirement is 3 years based on BACT and odor control....”**

Comments: Odor is not a PSD pollutant and should not be subject to BACT or any other stricter rule than what is required under 40 CFR Subpart WWW requirements. No BACT analysis was performed for odor.

**6. Page 8 of 21, Section III, Subsection A, Condition 5, Restricted Operation. “The hours of operation of this emissions unit with regard to the GDP and LFGCS are not limited (8,760 hr/yr).”**

Comments: The permit should have a provision to allow at least 2 weeks downtime per year for the GDP. For example, the LO-CAT system requires up to 2 weeks per year for routine maintenance to be performed. The permit should also allow untreated LFG to be combusted in the flares during the 2 weeks of downtime per year.

**7. Page 9 of 21, Section III, Subsection A, Condition 8, H<sub>2</sub>S Continuous Monitoring System (CEMS). “The permittee shall install a H<sub>2</sub>S CEMS to continuously monitor and record the concentration of H<sub>2</sub>S in the LFG after it is processed by the GDP and before it is combusted in the CTG or the backup flares.”**

Comments: The requirement for a H<sub>2</sub>S CEMS is very costly (estimated at \$40,000-\$60,000), places undue burden on the permittee, and is not justified technically. Daily monitoring, such as that required for Waste Management's Central Landfill in Broward County, Florida with a similar GDP, is sufficient for purposes of estimating and tracking H<sub>2</sub>S and SO<sub>2</sub> emissions. It is requested that the option of daily monitoring be added in lieu of CEMS to the condition.

**8. Page 9 of 21, Section III, Subsection A, Condition 9, GDP Reports and Records. “The permittee shall maintain the following reports and records on a monthly basis and submit a summary report to the compliance authority no later than 45 days after each calendar month ....”**

Comments: OLI agrees with the monthly record keeping requirements. However, the monthly reporting requirements will add additional burden on OLI, which seems unnecessary. Consistent with many other permits which incorporate CEMS units or other monitoring, reporting should be on a quarterly or semi-annual basis.

**9. Page 9 of 21, Section III, Subsection A, Condition 10, H<sub>2</sub>S LFG Concentration Exceedance. “If an exceedance of the allowed H<sub>2</sub>S concentration of 200 ppmv from ....”**

Comments: The condition currently does not have any provision for GDP downtime. Please note that the GDP will need to be shut down for at least 2 weeks per year for annual maintenance and/or repair, at

which time the LFG will not be "cleaned." OLI requests that the provision for at least 2 weeks of GDP downtime be added to this condition.

It is also noted that OLI proposed an H<sub>2</sub>S limit of 400 ppmvd. Modeling for the ambient standards demonstrated compliance at this level. Another landfill in Florida has received a limit of 465 ppmvd H<sub>2</sub>S in their permit. It is requested that the 400 ppmvd limit be specified in the permit.

- 10. Page 11 of 21, Section III, Subsection B, Condition 1, Flares Installation and Construction. "The permittee is authorized to install one 1,500 scfm open flare and four 3,000 scfm open flares with a continuous pilots and combustion chambers to combust LFG as necessary to backup ...."**

Comments: This condition states that the flares are installed as backup devices for the combustion turbine generators (CTGs). Please note that the Okeechobee Landfill is subject to 40 CFR 60, Subpart WWW, and Section 60.752(b)(2)(iii) of the subpart requires all collected gas to be routed to a control system, which can be either the flares or the CTG. So the flares should not be interpreted as backup devices for the CTGs. Note that this will have no effect on SO<sub>2</sub> emissions, whether the LFG is combusted in the flares or the CTGs. OLI requests that the last portion of the first sentence "to backup the CTG that will combust the LFG to generate electrical power" be removed.

Also, the use of continuous pilots is not required. The flares will have automatic startup/shutdown sequences which include the starting of the pilot flame. The flares will meet the NSPS requirements.

- 11. Page 11 of 21, Section III, Subsection B, Condition 3, Shutdown of Existing Flares.**

Comments: This permit should be the approval for the shutdown of the existing flares. Note the OLI may desire to replace some older flares prior to the GDP being operational. The primary reason for such a replacement is to avoid the high cost of refurbishment of an old flare needing repair. There is no reason to incur significant costs now to repair a flare for a flare that will be replaced in the near future. Note that this will not in itself increase any SO<sub>2</sub> emissions because the amount of LFG available for combustion is not changing. Previous conditions which required the GDP to be installed prior to combustion of any LFG in the new flares or CTG will have to be revised as well to reflect this change.

- 12. Page 11 of 21, Section III, Subsection B, Condition 5, Restricted Operation. "The hours of operation of these emissions units are not limited (8,760 hours per year). However, the flares may only be operated when the CTG are unavailable ...."**

Comments: Referring to the previous comment, OLI requests that the operation restriction for the flares when the CTGs are unavailable be removed. To comply with the Subpart WWW requirements, the flares should be allowed to operate at any time, not just when the CTGs are unavailable. If OLI decides to not construct the CTGs, the collected LFG would still need to be flared. Please also note that once the LFG is treated (cleaned), it should not matter whether the LFG is combusted in the CTGs or in the flares. Note that NO<sub>x</sub> and CO emissions are less with the flares than with the CTG operating, on a lb/MMBtu basis. Therefore, please remove the second sentence starting with "However."

- 13. Page 11 of 21, Section III, Subsection B, Condition 6, Flare H<sub>2</sub>S Limit. "Only treated LFG containing no more than 200 ppmv of H<sub>2</sub>S on a 30 day rolling average shall be combusted in the flares."**

Comments: First, note that the GDP will not be installed until as late as June 30, 2012 (as requested above). Therefore, the condition should read "Beginning no later than June 30, 2012, only treated LFG.....". Please note that the GDP is expected to be shutdown for a total period of 2 weeks during a calendar year for the purpose of routine maintenance and/or repair and will not be able to treat (clean) the LFG. During this time the untreated LFG will be combusted in the flares. OLI requests that an exemption be provided for the untreated LFG to be combusted in the flares during the 2-week period.

**14. Page 12 of 21, Section III, Subsection B, Condition 10, Continuous Monitoring Devices. "Proper devices for the continuous monitoring and recording of the total LFG flow rate and flame temperature at each flare ...."**

Comments: Please note that monitoring of flame temperature in an open flare is not technically feasible. Therefore, OLI requests that monitoring of flame temperature be removed. Note that this condition already requires continuous monitoring of flame presence. OLI also requests that the requirement of a fire alarm or auto dialer be removed. A flare normally re-starts itself and may not need any auto dialer.

**15. Page 12 of 21, Section III, Subsection B, Condition 11, Flame Presence Visual Inspection Monitoring. "Flares shall be operated with a flame present at all times as determined by the methods specified in ...."**

Comments: 40 CFR 60.18 does not require the visual inspection for flame presence. It requires the use of a thermocouple or equivalent device. This condition adds unnecessary inspection burden on OLI when the presence of the flame is continuously monitored as required by Specific Conditions 1 and 10 of this Subsection. Please note that based on OLI research, no other landfill in Florida subject to Subpart WWW is required to perform visual inspection of flame presence. OLI requests that the condition be removed to be consistent with other landfill permits in the state.

**16. Page 13 of 21, Section III, Subsection B, Condition 13, Inspection and Maintenance of the Flares. "The owner or operator shall inspect all flare components on a monthly basis. Monitoring of the condensate pump ...."**

Comments: Please note that 40 CFR 60.756(c) requires that the owner or operator of an open flare must calibrate, maintain, and operate according to the manufacturer's specifications only the following equipment: (1) a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame, and (2) a device that records flow to or bypass of the flare. 40 CFR 60.756(c) also requires that the owner or operator of an open flare must either install, calibrate, and maintain a gas flow rate measuring device to record the flow to the flare or secure the bypass line valve in the closed position and visually inspect it once every month.

The proposed open flares at the Okeechobee Landfill will have continuous flow metering devices, which are required by Specific Condition No. 10 of this Subpart. Therefore, OLI requests that the monthly inspection and monitoring requirements and the quarterly maintenance requirements are removed from the condition. OLI proposes that the condition be revised as follows

"The owner or operator shall install, calibrate, maintain, and operate the flares, including heat sensing device, gas flow rate device, and bypass line valve, according to the manufacturer's specifications. If any problems ...."

**17. Page 13 of 21, Section III, Subsection B, Condition 14, Flare Malfunction and Emergencies. "When the facility is in operation, an on-site flare alarm or an auto dialer shall be maintained in working order at all times that ...."**

Comments: As mentioned in Comment No. 14, a flare normally re-starts itself and an alarm or an auto dialer is not needed. Therefore, this condition should be deleted. It is also more stringent than the Subpart WWW and MACT Subpart AAAA requirements. The facility is required to have a Startup/Shutdown/Malfunction (SSM) Plan. OLI should not be held to a certain hour's response time. Please note that based on OLI research, no other landfill in Florida is subject to such requirement.

**18. Page 13 of 21, Section III, Subsection B, Condition 15, Test Requirements. "The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests ...."**

Comments: Please add "stack" before the words "test."

19. **Page 13 of 21, Section III, Subsection B, Condition 16, Work Practice. “Good combustion practices will be utilized at all times to ensure emissions from the flare systems are minimized. Therefore, all operators and supervisors ....”**

Comments: Open flares burn LFG as open flames with a windshield to protect the flame from the wind. Open flares allow only some degree of combustion control through adjustment of the flow of air. The proposed open flares will be operated according to the manufacturer provided operating instructions and by trained operators who are currently operating existing open flares at the site. Please remove the term “methods for minimizing excess emissions” from the last sentence. This is not needed since the operation will be according to the manufacturer specifications.

In addition, this condition is sufficient to allow Conditions 13 and 14 to be removed.

20. **Page 13 of 21, Section III, Subsection B, Condition 18, Records. “The permittee shall record in a written log the duration of each flare event and the reason for flaring. ....”**

Comments: The facility must have a written SSM plan per 40 CFR Chapter 63, Subpart AAAA. This condition should therefore reference the Subpart AAAA requirements.

21. **Page 13 of 21, Section III, Subsection B, Condition 19, Test Reports. “The permittee shall prepare and submit reports for all required tests ....”**

Comments: Please add “stack” before the word “test” in the condition title, and also in the first sentence prior to the word “tests.”

22. **Page 14 of 21, Section III, Subsection C, Condition 1, CTG. “The permittee shall install, tune, operate and maintain a simple cycle CTG consisting of: one 14 MW LFG-fueled Solar T-130 CTG, an inlet air filtration system; one automated CTG control system; and one CTG stack.”**

Comments: The inlet air filter, turbine control system, and stack are integral to the Solar T 130 CTG proposed for the Okeechobee Landfill. Therefore, OLI requests that to avoid confusion, “an inlet air filtration system; one automated CTG control system; and one CTG stack” be removed from the condition.

23. **Page 14 of 21, Section III, Subsection C, Condition 3, NO<sub>x</sub> CEMS. “In accordance with 60.4335(b) and 60.4345, the permittee shall install, calibrate, operate and maintain a CEMS to continuously monitor and record NO<sub>x</sub> emissions from the CTG exhaust. The CEMS ....”**

Comments: Please note that 40 CFR 60 Subpart KKKK, Section 60.4335 is not applicable to the proposed Solar T-130 CTG for the Okeechobee Landfill. The proposed Solar T-130 CTG is a 15 megawatt (MW) stationary combustion turbine with no water or steam injection. Therefore, the CTG should be subject to the monitoring requirements contained in 40 CFR 60.4340, which requires annual performance tests for continuous compliance demonstration for NO<sub>x</sub> and states that a NO<sub>x</sub> CEMS may be installed as an alternative. OLI requests that the condition be removed. OLI is not aware of a NO<sub>x</sub> CEMS being required on any gas turbine burning landfill gas. A CEMS may be justified on a large gas turbine located at a power plant, but not for a 15-MW turbine at a landfill. The CEMS for the Titan turbine along with the requirement for a CEMS for the Centaur turbines would mean four individual NO<sub>x</sub> CEMS would have to be installed at a considerable cost to the facility. The initial and annual compliance test requirements for NO<sub>x</sub> are contained in Condition Nos. 13 and 14.

24. **Page 14 of 21, Section III, Subsection C, Condition 5, CTG Permitted Capacity. “The maximum heat input rate of the CTG is 150 million British thermal units per hour (mmBtu/hr) on a 4 hour averaging time basis ....”**

Comments: Please change the term "maximum heat input" to "design heat input" similar to Condition 5 in Subsection D.

- 25. Page 15 of 21, Section III, Subsection C, Condition 9, Emission Standards. "The following standards are at least as stringent as the Subpart KKKK limits describing ....."**

Comments: Please remove the CEMS-based average emission limits from the table. Please also remove footnote "g" and revise footnote "c" to remove references to the NO<sub>x</sub> CEMS.

- 26. Page 16 of 21, Section III, Subsection C, Condition 12, Excess Emissions Calculations. a. NO<sub>x</sub> Emissions. "Excess NO<sub>x</sub> emissions based on a 4 hour block average standard shall be calculated in accordance with the NSPS Subpart KKKK provisions."**

Comments: Please remove the condition as a CEMS should not be required for the Solar T-130 turbine.

- 27. Page 17 of 21, Section III, Subsection C, Condition 17, CEMS. "The permittee shall install, calibrate, maintain, and operate CEMS and a diluents monitor to measure and record the emissions of NO<sub>x</sub> from the CTG in a manner ....."**

Comments: Please remove the condition as a CEMS should not be required for the Solar T-130 CTG.

- 28. Page 18 of 21, Section III, Subsection D, Condition 1, CTG. "The permittee shall install, tune, operate and maintain three simple cycle CTG consisting of: 3.5 MW LFG-fueled Solar C-40 CTG, inlet air filtration systems; automated CTG control systems; and CTG stack."**

Comments: The inlet air filter, turbine control system, and stack are integral to each of the Solar C-40 CTGs proposed for the Okeechobee Landfill. Therefore, OLI requests that to avoid confusion, "inlet air filtration systems; automated CTG control systems; and CTG stack" be removed from the condition.

- 29. Page 18 of 21, Section III, Subsection D, Condition 3, NO<sub>x</sub> CEMS. "In accordance with 60.4335(b) and 60.4345, the permittee shall install, calibrate, operate and maintain a CEMS to continuously monitor and record NO<sub>x</sub> emissions from the exhaust of each CTG. Each CEMS shall be ....."**

Comments: Please note that 40 CFR 60 Subpart KKKK, Section 60.4335 is not applicable to the proposed Solar C-40 CTGs for the Okeechobee Landfill. Each proposed Solar C-40 CTG is a 3.5-MW stationary combustion turbine with no water or steam injection. Therefore, the CTGs should be subject to the monitoring requirements contained in 40 CFR 60.4340, which requires annual performance tests for continuous compliance demonstration for NO<sub>x</sub> and states that a NO<sub>x</sub> CEMS may be installed as an alternative. OLI requests that the condition be removed. As discussed previously, the NO<sub>x</sub> CEMS requirements would add considerable economic burden to OLI, which has not been imposed on any other landfill gas turbines. The initial and annual compliance test requirements for NO<sub>x</sub> have been presented in Condition Nos. 13 and 14.

- 30. Page 19 of 21, Section III, Subsection D, Condition 9, Emission Standards. "The following standards are at least as stringent as the Subpart KKKK limits described in ....."**

Comments: Please remove the CEMS-based average emission limits from the table. Please also remove footnote "g" and revise footnote "c" to remove references to the NO<sub>x</sub> CEMS.

- 31. Page 20 of 21, Section III, Subsection D, Condition 12, Excess Emissions Calculations. a. NO<sub>x</sub> Emissions. "Excess NO<sub>x</sub> emissions based on a 4 hour block average standard shall be calculated in accordance with the NSPS Subpart KKKK provisions."**

Comments: Please remove the condition as a CEMS should not be required for the Solar C-40 CTGs.

32. **Page 21 of 21, Section III, Subsection D, Condition 17, CEMS. "The permittee shall install, calibrate, maintain, and operate CEMS and a diluents monitor to measure and record the emissions of NO<sub>x</sub> from the CTG in a manner ....."**

Comments: Please remove the condition as a CEMS is not required for the Solar C-40 CTGs.

Thank you for considering the above comments on the draft permit. If you have any questions, please do not hesitate to call me at (352) 336-5600.

Sincerely,

**GOLDER ASSOCIATES INC.**



David A. Buff, P.E., Q.E.P.  
Principal Engineer

cc: D. Thorley, WM  
M. Lersch, WM  
J. Christiansen, WM

DB/SKM/tlc