From:	Madden, Melissa
To:	"henry.norris@citrusbocc.com"
Cc:	"Ray Oates"; "Carol Sawyer"; Morris, John R.; Morgan, Steve (Steve.Morgan@dep.state.fl.us); "thayes@jonesedmunds.com"; Steven Tafuni (Steven.Tafuni@dep.state.fl.us)
Subject:	RE: Citrus County Central Landfill-Landfill Gas Assessment and Groundwater Delineation
Date:	Thursday, May 4, 2017 9:42:00 AM
Attachments:	2017.03.22_LTR_JMorris_LFG and GW.PDF image001.png

Mr. Norris,

The Department has reviewed the Citrus County Central Landfill, *Landfill Gas Assessment and Groundwater Delineation Plan* ("Plan"), prepared by Troy Hays, PG, Jones Edmunds and Associates, and received by the Department on March 27, 2017 and is providing the following comments which need additional information:

1. Landfill Gas Monitoring Probes.
   a. **Map:** The Department requests a single figure which includes all the existing and proposed monitoring points, including gas vents, gas monitoring probes, piezometers and groundwater monitoring wells.

   b. **Routine Sampling:** Please revise the Plan to indicate that the County will also continue to include the monitor wells and piezometers in the quarterly landfill gas monitoring events.

2. Landfill Gas Monitoring Network. During the February 22, 2017 inspection, Department staff observed potential damage to GP-3 (hit by mower) and GP-18 (cap/valve damaged). Please verify that the integrity of GP-3 has been investigated and that it is functioning properly. It is the Department's expectation that the caps and valves on all probes will be replaced as part of the proposed retrofit.

3. East Property Boundary.
   a. **GP-21:** It appears the construction details for proposed GP-21 provided in Table 3 (length of solid pipe and screened pipe) are not consistent with the total well depth. Please revise as appropriate.

   b. **Sampling Procedures:** Please provide a description of the proposed sampling procedures for the new deep gas probes. It is the Department's expectation that tubing will be placed in the probe to collect a sample at depth, just above the water table.

   c. **MW-3:** Based on the high concentrations of landfill gas present in MW-3, additional gas delineation is required outbound of this location to verify that gas is not migrating beyond the property boundary. The Department requests a deep gas probe be paired with GP-15 constructed similar to proposed GP-20, or as appropriate based on land surface and groundwater elevations.

4. North Property Boundary.
   a. **MW-2:** Since this Plan was prepared, new information was provided to the Department which indicates the presence of landfill gas in MW-2. Since there are no additional gas probes in the vicinity, this location will be considered to be the compliance point and continued exceedances of the lower explosive limit (LEL) in this area may require remediation to prevent offsite migration of landfill gas. **This comment is for information purposes only, and does not necessarily require a response at this time.**

   b. **GP-4:** In order to delineate the areas west of MW-10/19 and north of PZ-1, which has recently reported presence of elevated gas, the Department also requests new

clustered locations adjacent to GP-4 constructed similar to those proposed for GP-1 through GP-3.

5. Groundwater Delineation Wells. It was the Department's understanding during the on-site meeting that three new wells would be installed, but that a deep delineation well adjacent to MW-21 was not necessary at this time. However, it was discussed that an even deeper delineation well would be paired with MW-19 (to be named MW-19D) so that the vertical extent could be established. Our notes from these discussion indicate that this well was proposed to be installed at a total depth of 160 ft BLS, with a discreet screened interval of ~5 ft, from 155-160ft. There are no objections to the proposed location and construction details of the vertical delineation well associated with MW-18 (MW-18D) or horizontal ZOD (compliance) well (MW-22).

Additionally, recent detections of Benzene, which appear to be increasing in trend, have been reported at MW-17. As landfill gas measurements at MW-17 have been reported at relatively low concentrations, an alternative source of potential impacts to groundwater quality may need to be investigated. **This comment is for information purposes only, and does not necessarily require a response at this time.**

Please provide a revised Plan which addresses the comments noted above and includes a schedule for installation of the new probes/wells and retrofit of the existing probes within 30 days of this letter. Once the new wells/probes have been installed and the extent of impacts fully delineated, a meeting should be scheduled to discuss the County's proposed methods and timeframes for remediation of migrating landfill gas.

Please feel free to contact me with any questions or concerns.

Thanks, Melissa

Melissa Madden
Environmental Consultant – Solid Waste
Florida Department of Environmental Protection, Southwest District
13051 N Telecom Parkway, Suite 101, Temple Terrace, FL 33637 NEW!
(813) 470-5795 Phone | (813) 470-5995 Fax
melissa.madden@dep.state.fl.us

From: Troy Hays [mailto:thayes@jonesedmunds.com]
Sent: Monday, March 27, 2017 4:00 PM
To: Morris, John R. <John.R.Morris@dep.state.fl.us>
Cc: Madden, Melissa <Melissa.Madden@dep.state.fl.us>; Henry C. Norris (Henry.Norris@citrusbocc.com) <Henry.Norris@citrusbocc.com>; Ray Oates (ray.oates@citrusbocc.com) <ray.oates@citrusbocc.com>; Carol Sawyer <CSawyer@jonesedmunds.com>
Subject: Citrus County Central Landfill-Landfill Gas Assessment and Groundwater Delineation

Good Afternoon John,

Attached is the Citrus County Central Landfill-Landfill Gas Assessment and Groundwater Delineation

Plan that was discussed at our meeting in February. Please call me at 352-258-9520 with any questions or comments.

Thanks,

Troy D. Hays, PG
Senior Manager / Vice President

JONES EDMUNDS

INTEGRITY | KNOWLEDGE | SERVICE

Jones Edmunds & Associates, Inc.
730 NE Waldo Road | Gainesville, FL 32641
352.377.5821 ext. 1480 | Cell: 352.258.9520
www.jonesedmunds.com
FOLLOW US ON:

The information contained in this message including any attachment is confidential. It is intended for the private use of the intended addressee only. If you are not the intended addressee, please immediately notify the sender by reply email and destroy the original transmission and any attachment. E-mail transmission of information cannot be guaranteed to be free of error or other defect. If verification is required, request a hard-copy version. The sender disclaims liability for any defects in this message caused by e-mail transmission including a virus. It is the responsibility of the recipient to ensure that this message is virus free.