

[illegible]

(A)

3/10/2017

JED

After e-mail

① Considered done

- probes replaced (R) ~2011
- previous ones were had water most of time
- 6/2012
- was approved a permit minor mod

② Report submitted / dated 12/31/13

- in Oculus
- diffusion not source
- think LFG migration
- stopped recirculating leachate Jan 2016; still in permit

③

submit summary

- new cells - up slope areas
- flip to stop migration outside cell

- Operational

Calls 6, 9, 10

- Curious exposed geomembrane over intermediate core
- reduce water inflow
- increase LFG to energy

permit mod in 2015

(B)

③

submit description

- operational changes

- temp membrane on toe to stop seeps cells 5, 7, 8
- another way to collect gas at toe

- put in more extraction wells; do dewatering

→ Kirk does not remember document that describes operational changes plus some new (exposed geomembrane + temporary membranes)

④ - Permit mod in 2016 for dedicated force main for condensate

expect  
- Notify B. Cant  
submit  
notified  
CCL

- pneumatic pumps in SS wells
- By Cell 9 has install storage container - then force main to storage
- permitted
- doing construction doing
- install by end 2017

(C)

- done
- ⑤ Completed; Corner town did review of Golden design
- kept in terminal
  - concluded design was acceptable

- Expect CCC
- ⑥ Installation Complete
- notified DOP start of work Oct 2016
  - Did additional wells at top of waste cells 5 & 7
  - wrapping up construction
  - Expect CCC w/in 60 days

- Expect report whether good
- ⑦ Did not do new installation
- Evaluating the current
  - are they problem?
  - productive
  - can gas be influenced to move to other wells
  - Tell us results end of July

- Expect report
- ⑧
- GP-<sup>21</sup>~~22~~R has had benzene since installed; before waste
  - expect future submittal After TR - maybe July
  - Different consultant working on TR due May

(D)

- Shuned report dated 4/14/2011 to Mike Kaise
- TOC Soil Sampling
- Mike to DOP 4/14/2011 status report

- Composite membrane directly to anchor trench
- gas could follow
- design changed twice since then
- did see benzene decrease after closure when top membrane sealed to composite
- Benzene decreased w/ distance

(E)

- New MPIS
  - now has compliance wells
- Benzene - looking at preliminary graphs
  - seems to decrease after closure
- Cell 7 (Nov 11) + Cell 9 (Nov 13)
  - not seeing benzene in MW
  - indicates design? changes work?

## Lubozynski, Tom

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**From:** Rainey, Allen  
**Sent:** Tuesday, February 21, 2017 9:22 AM  
**To:** 'Craig Browne'  
**Cc:** kirk.wills@wasteconnections.com; Matt Wissler  
**Subject:** RE: J.E.D. Facility - meeting to discuss groundwater and gas migration monitoring

Thank you for contacting us to request a meeting. Below are the proposed meeting dates and times. Please pick one and send out a meeting invitation. Be prepared to discuss the proposed corrective actions listed below, in addition to any other proposals you may have.

3/8/17 – 1:30 pm to 3:30 pm  
3/9/17 – 9:00 am – 11:00 am  
3/10/17 – 9:00 am – 11:00 am  
3/13/17 – 9:00 am – 11:00 am or 1:30 pm to 3:30 pm  
3/15/17 – 1:30 pm to 3:30 pm  
3/16/17 – 9:00 am – 11:00 am  
3/17/17 – 9:00 am – 11:00 am or 1:30 pm to 3:30 pm

<b>Date</b>	<b>Correspondence</b>	<b>Proposed Corrective Action</b>
① 6/17/10	Golder Associates	Determine if a new gas monitoring probe system or technique should be proposed
② 8/6/13	Facility Letter	Investigate whether benzene diffusion through the primary and secondary geomembrane liners could be the source of benzene detected in the shallow water quality monitoring wells
③ 8/6/13	Facility Letter	Consider design alternatives & operational practices for leachate seeps at toe area of landfill boundary
④ 5/5/16	Facility Letter	Design, permitting and installation of a permanent GCCS dewatering maintenance system, including pneumatic pumps, air supply and forcemain piping (completion estimated by end of Dec. 2016)
⑤ 5/5/16	Facility Letter	Completion of a 3rd party GCCS system evaluation with recommendations for design and operational improvements (completion estimated by the end of July 2016)
⑥ 5/5/16	Facility Letter	Installation of new vertical gas extraction wells in the sideslope areas of Cells 9 & 10 and top deck area of Cells 5, 6 & 7 (completion estimated by the end of September 2016)
⑦ 5/5/16	Facility Letter	Installation of replacement vertical gas extraction wells along the 2 <sup>nd</sup> tier bench in the closed area of Cells 1 through 4 (completion estimated by the end of September 2016)
⑧ 5/5/16	Facility Letter	Solicit further assistance from a 3 <sup>rd</sup> party engineering consultant to evaluate and propose additional options in remediating benzene in the "A" zone water quality monitoring wells (communication and meeting requests will be made with the Department as the consultant becomes engaged in the work)

6/17/10 Letter from Golder Associates

[https://depdms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&\[guid=8.87782.1\]&\[profile=Discovey Compliance\]](https://depdms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&[guid=8.87782.1]&[profile=Discovey%20Compliance])

8/6/13 Letter from Facility

[https://depdms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&\[guid=8.184422.1\]&\[profile=Discovery\\_Compliance\]](https://depdms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&[guid=8.184422.1]&[profile=Discovery_Compliance])

**5/5/16 Letter from Facility**

[https://depdms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&\[guid=8.246813.1\]&\[profile=Discovery\\_Compliance\]](https://depdms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&[guid=8.246813.1]&[profile=Discovery_Compliance])

Allen Rainey  
Environmental Specialist  
Waste, Air, & Stormwater Programs  
Florida Department of Environmental Protection  
Central District  
3319 Maguire Blvd., Suite 232  
Orlando, FL 32803-3767  
[allen.rainey@dep.state.fl.us](mailto:allen.rainey@dep.state.fl.us)  
407-897-2929

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**From:** Craig Browne [mailto:CBrowne@Geosyntec.com]  
**Sent:** Thursday, February 16, 2017 3:13 PM  
**To:** Rainey, Allen <Allen.Rainey@dep.state.fl.us>  
**Cc:** kirk.wills@wasteconnections.com; Matt Wissler <MWissler@Geosyntec.com>  
**Subject:** J.E.D. Facility - meeting to discuss groundwater and gas migration monitoring

Allan,

I caught up with Kirk Wills today regarding the groundwater and gas migration monitoring results for the J.E.D. Solid Waste Management Facility (WACS ID #89544). He asked me to reach out to you to set up a meeting in the next couple weeks to discuss the data and recent correspondence. If you could let us know what days and times work best, I'll go ahead and send out a meeting invite accordingly.

Regards,  
Craig

**Craig R. Browne, P.E.**  
**Senior Engineer**  
**Geosyntec Consultants, Inc.**  
13101 Telecom Drive, Suite 120  
Temple Terrace, FL 33637  
Phone: 813.558.0990 Mobile: 813.220.4559

GEOSYNTEC | MMI ENGINEERING | SIREM | SAVRON | GREEN HARBOR ENERGY



1099 Miller Drive, Altamonte Springs, FL 34702

May 5, 2016

Mr. F. Thomas Lubozynski, P.E.  
Environmental Administrator, Permitting and WCU  
Waste, Air & Storm Water Permitting  
Florida Department of Environmental Protection, Central District  
3319 Maguire Boulevard, Suite 232  
Orlando, Florida 32803-3767

Subject: Status Update and Further Proposed Action  
Water Quality and Methane Gas Migration Remediation  
JED Solid Waste Management Facility  
Osceola County, Florida  
Permit Nos. SO49-0199726-022  
WACS Facility ID 89544

Dear Mr. Lubozynski:

Omni Waste of Osceola County, LLC (Omni) is submitting the enclosed written correspondence as follow-up to our February 24, 2016 meeting with your Department regarding the status of the water quality and gas migration compliance issues at our JED Solid Waste Management Facility (JED facility). During the meeting we discussed the status of the additional proposed remediation efforts Omni had outlined in a letter to your Department dated August 6, 2013, and historical trends of methane detections in the temporary and permanent perimeter soil gas monitoring probes and benzene detections in the "A" zone groundwater monitoring wells. In general it was agreed that improvements have been observed in detected levels of methane in several perimeter and temporary gas monitoring probes over the past few years of monitoring. However, the detected levels of benzene in the "A" zone groundwater monitoring wells have generally not established any pattern of a downward trend. Therefore, the Department has requested that Omni provide a follow-up written explanation of the status of ongoing tasks and further planned actions for remediation and water quality protection. The below questions were specifically requested by Mr. Allen Rainy in an e-mail correspondence dated April 18, 2016 in his review and comment on the 1<sup>st</sup> Quarter Perimeter Gas Monitoring Probe Report (dated April 12, 2016) for the JED facility:

- What actions have been completed and what remain to be completed as proposed in the August 6, 2013 letter and further proposed actions to remediate the few remaining gas monitoring probes and water quality monitoring wells.
- Have all the promised corrective actions been accomplished (for example, the actions described in your 8/6/2013 letter)? If not, what remains to be done and when will it be accomplished?
- Which actions have eliminated or reduced landfill gas migration in most of the soil monitoring probes, as indicated by decreasing trend in all but GP-21? (As of 4/18/16, methane concentrations in GP-21 remain erratic.)
- What additional actions are proposed to:
  - a. Reduce the landfill gas concentration at GP-21?
  - b. Reduce the benzene concentration in the water monitoring wells currently indicating an exceedance?
  - c. Reduce the landfill gas migration in temporary gas probes?

**What actions have been completed and what remain to be completed as proposed in the August 6, 2013 letter and further proposed actions to remediate the few remaining gas monitoring probes and water quality monitoring wells.**

To the best of my understanding all of the proposed actions in the August 6, 2013 letter were completed except those listed below. An explanation is provided for the status of those remaining actions.

1. Further investigate whether the detected levels of benzene in the JED facility leachate is typical of levels in other Florida and regional municipal solid waste landfills, and whether the receipt of benzene contaminated soils could be a significant contributing factor in the levels of benzene detected in the leachate.

Omni evaluated methods of reviewing other Florida facility leachate records and the JED facility contaminated soil special waste manifests and analytical data and determined there was not an effective way to compile, review and draw any type of conclusion from the large amount of contaminated soil and leachate data available for review. Therefore no further action was completed or planned for this effort.

2. Further investigate whether benzene levels are significantly different in aerated or non-aerated leachate for the purposes of recirculation operations.

Omni reviewed the JED facility leachate analytical records and noted benzene levels in aerated leachate were typically all non-detect and various levels above non-detect in non-treated leachate. For purposes of leachate recirculation, Omni's practice was to recirculate only aerated leachate. Please note that as of January 2016 Omni has temporarily discontinued the practice of leachate recirculation due to watered-in conditions at various landfill gas extraction wells. Leachate recirculation may resume once the issues with watered-in wells is remedied.

3. Continue to install and expand the gas collection and control system (GCCS) ahead of regulatory timelines, including installation of additional gas extraction wells near



the vertical sumps risers at Cells 1 through 4 and installation of additional vertical and horizontal gas extraction wells in active disposal areas.

Omni has continued to expand and operate the gas collection system on an annual basis since August 2013 as listed below:

1. Installation of gas extraction wells at the Cell 1 through 5 sump areas/vertical manhole leachate risers.
2. Expansion of the landfill gas header piping and horizontal well connections in Cells 9 & 10.
3. Installation of 4 new horizontal gas collection wells in Cells 9 & 10.
4. Installation of 18 new vertical gas extraction wells in Cells 4-8.
5. Installation of 11 replacement vertical gas extraction wells in the closed area of Cells 1 through 4.
6. Installation of approximately 50 temporary vertical gas well dewatering pumps and associated air supply and forcemain piping.
7. Installation of a new blower motor skid, fan cooler, sulfur treatment system, condensate knockout treatment system, one new landfill gas flare (Flare #2), relocation of one existing landfill gas flare (Flare #1), interconnect piping and sumps at the equipment location, and a 36-inch and 28-inch diameter landfill gas conveyance pipeline with condensate knockout sumps. These installations were in support of the Landfill Gas to Energy Project recently completed at the facility.

Please note Omni is finalizing the Construction Certification Report including survey as-built documents for the new and replacement vertical extraction wells, new horizontal extraction wells, and header expansion listed above. Omni anticipates a final report will be submitted to the Department in May 2016.

**Which actions have eliminated or reduced landfill gas migration in most of the soil monitoring probes, as indicated by decreasing trend in all but GP-21? (As of 4/18/16, methane concentrations in GP-21 remain erratic.)**

Omni believes all of the actions taken over the past few years, including the GCCS expansions listed above and base liner design changes permitted through the Department, most likely have contributed to a reduction in landfill gas migration at the soil monitoring probes. Base liner design changes included installation of a geomembrane flap at the outer perimeter and intercell berms to help drive landfill gas migration back into the waste mass and away from the anchor trench area.

**What additional actions are proposed to: a. Reduce the landfill gas concentration at GP-21?; b. Reduce the benzene concentration in the water monitoring wells currently indicating an exceedance?; c. Reduce the landfill gas migration in temporary gas probes?**

Further to our discussion on February 24, 2016, Omni requests the Department's authorization to discontinue use of perimeter gas probe GP-21R as an indicator of landfill gas migration in the area of that probe. GP-21R is located along the outer storm water

containment berm on the eastern side of the waste boundary limits between perimeter gas probes GP-20R and GP-22R (refer to the attached location figure). As shown on the attached methane monitoring trend graphs for the permanent and temporary monitoring probes, historical methane monitoring results for GP-20R and GP-22R have not exceeded the lower explosive limit and generally have been non-detect even prior to start-up of waste filling activities in adjacent Cells 6, 9 & 10. Omni cannot provide an explanation of why methane is being detected in GP-21R and not in adjacent probes GP-20R and GP-22R and requests the detections be considered an anomalous situation until a probable explanation can be considered.

#### **Further Action Items - Gas Migration at Temporary and Permanent Soil Gas Probes**

Omni is presently completing and/or evaluating the below listed further actions with respect to the expansion and operation of the GCCS, which will serve to improve the overall gas collection efficiency and hopefully further reduce landfill gas migration at the perimeter berm and property boundary. Further focus will also be made to evaluate the collection efficiency of extraction wells located in the vicinity of the temporary and permanent monitoring soil gas probes that are still indicating landfill gas migration outside of the waste boundary based on recent quarterly monitoring.

1. Design, permitting and installation of a permanent dewatering maintenance system including pneumatic pumps, air supply and forcemain piping. Completion estimated by the end of December 2016.
2. Completion of a 3<sup>rd</sup> party GCCS system evaluation with recommendations for design and operational improvements. Completion estimated by the end of July 2016.
3. Installation of new vertical gas extraction wells in the sideslope areas of Cells 9 & 10 and top deck area of Cells 5, 6 & 7. Completion estimated by the end of September 2016.
4. Installation of replacement vertical gas extraction wells along the 2nd tier bench in the closed area of Cells 1 through 4. Several of the wells are believed to have pinched or silted in well casing due to waste settlement observed over the past few years or watered-in conditions. Completion estimated by the end of September 2016.
5. General expansion of the header and lateral piping network on an as needed basis to support the overall function of the GCCS. Completion ongoing as needed.

#### **Further Action Items – Benzene Detections in “A” Zone Water Quality Monitoring Wells**

Omni intends to solicit further assistance from a 3<sup>rd</sup> party engineering consultant to evaluate and propose additional options in remediating benzene in the “A” zone water quality monitoring wells. Communication and meeting requests will be made with the Department as the consultant becomes engaged in the work.

I hope the information provided here-in meets with your approval. If you have any questions or require additional information, please contact me at (904) 673-0446 or [michael.kaiser@progressivewaste.com](mailto:michael.kaiser@progressivewaste.com) at your earliest convenience.

Sincerely,

A handwritten signature in black ink that reads "Mike Kaiser". The signature is written in a cursive style with a large, stylized "M" and "K".

Mike Kaiser  
Region Engineer, Progressive Waste Solutions

Rec'd 3/10/2017

## JED Site Development Timeline

Date	Activity	
Jan-04	Cell 1A Construction Complete	
Apr-04	Cell 1B Construction Complete	
May-05	Cell 4 Construction Complete	
Apr-06	Cell 2 Construction Complete	
Oct-06	Cell 3 Construction Complete	
Oct-07	Cell 5 Construction Complete	
→ Apr & May 2008	Initial Installation of Boundary Gas Probes	Geosyntec
Jul-08	Cell 6 Construction Complete	
Dec-08	Phase I GCCS Completed & Flare Startup	
Mar-09	Cell 6 Waste Filling Began	
Dec-09	Partial Closure (Cells 1-4 - Event 1) Complete	Geosyntec CQA
Aug-10	TGP-4 thru -13 installed	
Sep-10	GCCS Phase I Sequence 3A Completed	
Oct-10	First round of gas probe readings with %CH <sub>4</sub> reported (instead of %LEL)	
Nov-10	Cell 7 Construction Complete & FA Cost Estimate Approved	
→ Nov-10	TOC Sampling	Geosyntec
Nov-10	TGP-1 thru -3 Installed	EPS
Dec-10	GCCS Connected to Leachate Sump Manholes and LC Risers (Cells 1-6)	Omni
Nov-11	Cell 7 Waste Filling Began	
Apr-12	SVE System installed	
→ Jun-12	Gas Probes GP-7 thru GP-22 were replaced (GP-7R thru GP-22R)	EPS
Jul-12	Cell 8 Waste Filling Began	
Oct-12	SVE System Installation and Initial Operation Report Submitted to FDEP (by HD HDR)	
Nov-12	Partial Closure (Cells 1-4 - Event 2) Complete	
Dec-12	Two additional Gas Extraction Wells installed near the Cell 5 sump Area	Omni
Mar-13	Three additional Gas Extraction Wells installed near the Cell 5 sump Area	Omni
Oct-13	Removal of SVE System	Omni
Oct-13	Cell 9 Construction Complete	
Nov-13	Cell 9 Waste Filling Began	
Sep-14	Cell 10 Certification of Construction Completion (FDEP approval)	
Oct-15	Cell 11 Waste Filling Began	
Jan-16	Leachate Recirculation stopped	Omni
Jun-16	Cell 13 Construction Complete	
Oct-16	Cell 13 Waste Filling Began	