

## Ritter, Christine

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**From:** Ritter, Christine  
**Sent:** Thursday, March 17, 2016 12:46 PM  
**To:** 'Daniel Girdner'; Bobby Darden (bdarden@crswma.com)  
**Cc:** Chao, Ming-tai  
**Subject:** RE: CRSWMA Updated Landfill Gas Monitoring Plan

Mr.  
Darden:

DIN25780

The revised December 2015 Landfill Gas Monitoring Plan is approved for the Coastal Regional Solid Waste Management Authority Tuscarora Landfill Permit Numbers 25-04 and 25-09. As the Solid Waste Rules only require 1) the concentration of methane gas generated by the facility to not exceed 25 percent of the lower explosive limit for methane in facility structures and 2) the concentration of methane gas not exceed the lower explosive limit for methane at the property boundary, the NC SWS will allow monitoring of permanent gas probe GP-8 in place of landfill gas monitoring points LFG-MW-02, LFG-MW-03, LFG-MW-04 and LFG-MW-05 which are located immediately adjacent to the waste cell. As those discontinued monitoring points have historically yielded methane detections and exceedances, it is the facility's responsibility to ensure human health and safety in areas where methane is known to be present even if methane has not yet migrated off-site.

If you have any questions, please do not hesitate contacting me.  
Thank you,

**Christine Ritter**  
Hydrogeologist  
Solid Waste Section  
Division of Waste Management  
NC Dept of Environmental Quality

919 707 8254 office  
christine.ritter@ncdenr.gov

Mailing address:  
1646 Mail Service Center  
Raleigh, North Carolina 27699-1646

Physical address:  
217 West Jones Street  
Raleigh, NC 27603



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**From:** Daniel Girdner [mailto:dgirdner@joyceengineering.com]  
**Sent:** Monday, February 29, 2016 2:46 PM

**To:** Ritter, Christine <christine.ritter@ncdenr.gov>

**Subject:** RE: CRSWMA Updated Landfill Gas Monitoring Plan - 2015 LFG results and combined map

Plan size drawings are being sent to your mail address, from below, today.

**Best Regards,  
Dan Girdner**

Daniel S. Girdner | *Staff Consultant* |

**JOYCE ENGINEERING**

Richmond, VA - Greensboro, NC - Charlotte, NC - Charleston, SC | 2211 W. Meadowview Rd., Ste. 101, Greensboro, NC 27407 |  
tel: (336) 323-0092 | direct: (336) 790-2197 | mobile: (336) 339-3091 | [JoyceEngineering.com](http://JoyceEngineering.com)

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**From:** Ritter, Christine [<mailto:christine.ritter@ncdenr.gov>]

**Sent:** Thursday, February 25, 2016 8:51 AM

**To:** Daniel Girdner

**Subject:** RE: CRSWMA Updated Landfill Gas Monitoring Plan - 2015 LFG results and combined map

Dan-

I need a paper copy of Figure 1 and Figure 2 from the Landfill Gas Monitoring Plan that is a minimum of 11" x 17" (larger if possible, but ok if not) to assist in my review.

Thank you,  
Christine

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**From:** Daniel Girdner [<mailto:dgirdner@joyceengineering.com>]

**Sent:** Wednesday, February 24, 2016 7:31 PM

**To:** Ritter, Christine <[christine.ritter@ncdenr.gov](mailto:christine.ritter@ncdenr.gov)>

**Cc:** Alex Everhart <[aeverhart@joyceengineering.com](mailto:aeverhart@joyceengineering.com)>; Bobby Darden <[bdarden@crswma.com](mailto:bdarden@crswma.com)>; Mousa A. Maimoun <[mmaimoun@joyceengineering.com](mailto:mmaimoun@joyceengineering.com)>; Chao, Ming-tai <[ming.chao@ncdenr.gov](mailto:ming.chao@ncdenr.gov)>

**Subject:** FW: CRSWMA Updated Landfill Gas Monitoring Plan - 2015 LFG results and combined map

**Importance:** High

Hello Christine;

In response to your requests;

Please find the attached Quarterly LFG Monitoring Logs from 2015.

Please find attached Drawing 2 with all permanent and bar-hole monitoring locations, improved labels, and the groundwater contour and flow directions super-imposed on top. We have attempted to prevent the PDF drawings from resizing. If you require CADD files or hardcopies, please let us know.

In further response to your questions:

The area directly to the east from BHP-14 and BHP-15 is Sediment Basin-4 and then woods. There are no structures within the wooded area, or within 1,000 feet of the BHPs. The methane detections in BHP-14 and -15 most likely originated from the old Craven County Landfill, which is closer to these points and does not operate an active gas collection system.

While the proposal to discontinue the monitoring of GMW-02, GMW-03, GMW-04, and GMW-05 (also referred to as LFG-MW-# or GMP-# or GP-# in past documents) was submitted with the last Operations Plan and the installation of GP-08, it currently seems unclear if the facility is allowed to discontinue monitoring. Therefore; the facility will continue to

monitor these points as shown on Drawing 2 as part of quarterly monitoring until approval to discontinue from DEQ is clear in the future.

Please feel free to call or contact me with questions.

**Best Regards,  
Dan Girdner**

Daniel S. Girdner | *Staff Consultant* |

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**From:** Ritter, Christine [<mailto:christine.ritter@ncdenr.gov>]

**Sent:** Wednesday, January 27, 2016 4:55 PM

**To:** Alex Everhart

**Cc:** Bobby Darden ([bdarden@crswma.com](mailto:bdarden@crswma.com)); Mousa A. Maimoun; Daniel Girdner; Chao, Ming-tai

**Subject:** RE: CRSWMA Updated Landfill Gas Monitoring Plan

Hi Alex-

I have some additional requests for information regarding the Updated Landfill Gas Monitoring Plan:

The monitoring data for 2015 was not included in the information you submitted. Can you please send me the quarterly landfill gas monitoring data for 2015?

Please submit a plan sheet sized map of the facility with the locations of the formerly sampled landfill gas monitoring points. (MP-1)

Please submit a plan sheet sized map of the facility illustrating the current and proposed bar-hole punch locations. (Figure 2 located in the Updated Landfill Gas Monitoring Plan).

I agree that it makes sense to move the monitoring points away from the edge of waste and closer to the property boundaries, but first I need to get a better idea of the locations of areas with landfill gas problems. For example, it looks like there were some elevated levels of methane reported in BHP-14 and BHP-15 but I cannot tell what the structure is directly east of those bar-hole punch locations.

Please super impose shallow aquifer groundwater flow direction on the above maps and illustrate the locations of the ditches which are referenced in the text of the Landfill Gas Monitoring Plan.

Thank you,

**Christine Ritter**

Hydrogeologist

Solid Waste Section

Division of Waste Management

NC Dept of Environmental Quality

919 707 8254 office

[christine.ritter@ncdenr.gov](mailto:christine.ritter@ncdenr.gov)

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**From:** Alex Everhart [<mailto:aeverhart@joyceengineering.com>]  
**Sent:** Wednesday, December 09, 2015 10:49 PM  
**To:** Ritter, Christine <[christine.ritter@ncdenr.gov](mailto:christine.ritter@ncdenr.gov)>  
**Cc:** Bobby Darden ([bdarden@crswma.com](mailto:bdarden@crswma.com)) <[bdarden@crswma.com](mailto:bdarden@crswma.com)>; Mousa A. Maimoun <[mmaimoun@joyceengineering.com](mailto:mmaimoun@joyceengineering.com)>; Daniel Girdner <[dgirdner@joyceengineering.com](mailto:dgirdner@joyceengineering.com)>  
**Subject:** CRSWMA Updated Landfill Gas Monitoring Plan

Christine-

I have attached the Updated versions of the "Stand Alone" Landfill Gas Monitoring Plan. I also included per your request all of the monitoring data from 2011 to present to assist in your evaluation.

If you have any questions or problems downloading the files just let me know.

Thanks!

Alex Everhart | Project Consultant |  
**JOYCE ENGINEERING**  
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