

January 19, 2016

Mr. Ming-Tai Chao, P.E., Engineer

**North Carolina DENR, Division of Waste Management**

217 West Jones Street

Raleigh, North Carolina 27603

RE: **Construction Record – Wayne County Landfill  
2015 Gas Collection System Modifications  
Unit 1/Unit 3, Phase I & Phase 3**

Dear Mr. Chao:

Smith + Gardner (S+G) is submitting this response to your comments to the record report of the modification of the landfill gas collection and control system (GCCS) at Unit 1/Unit 3 Phase 1 & Phase 3 of the Wayne County Landfill. Comments are shown verbatim in *italics* as numbered in the comments letter received on November 16, 2015. Responses are shown in plain text.

1. *According to well completion logs in Attachment B & the Report, six-inch-diameter HDPE pipe is used for each gas well installed in this 2015 project. However, Figures 2 & 3, and the well detail - Detail 1 of D4 on Figure 4, Attachment E of the Report, which is the same as the Detail 1 of D4 on Sheet No. 9/Drawing No. D2 4 of the approved work plan (DIN17085), show the well should be an 8-inch diameter, schedule 80 PVC pipe. Please explain the discrepancy.*

The developer initially proposed to install well casings using 8-inch schedule 80 PVC piping. However, during construction the developer decided to complete well casings using 6-inch SDR 11 HDPE pipe, as documented in the well completion logs previously submitted. It is our opinion that this is an acceptable alternative in this application.

2. *Please provide the survey coordinates for the new gas well (1GCW25) and re-drill gas wells (RD1GCW16 & RD1GCW17) at the landfill Unit 1 area. If the final gas well locations at the landfill Unit 3 area are modified/different from the proposed ones on Figure 3, Attachment E of the Report, please also provide those gas well final coordinates. In fact, the SWS prefers to have a table summarized the final gas well schedule [the ones are in the September 2012 Construction Record Report for the LFGCCs project at Wayne County Landfill (DIN17163)] including well IDs, survey coordinates, depths, the synthetic liner elevations (for Unit 3 area only), and other related information.*

Please refer to the **Attached** Landfill Gas Well Completion Record Table for surveyed installed well coordinates, surface elevations, and associated approximate liner elevations (Area 3 wells).

**Mr. Ming-Tai Chao, P.E., Engineer**

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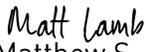
- 3. *Please provide the status of the gas well 5. The Attachment B – Boring Logs & Attachment C –As-built Drawings of the Report don't provide the information of the re-drilled gas well 5 at the landfill Unit 3 area; but this gas well was originally proposed in the project scope in Attachment E.*

The developer initially proposed to install re-drill gas well 5 in the original project scope. However, during construction the developer chose not to install this well.

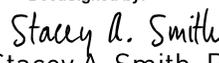
Should you have any questions or require clarification, please contact us at (919) 828-0577 or by email below.

Sincerely,

**SMITH GARDNER, INC.**

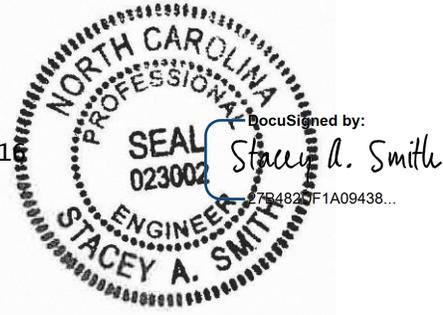
DocuSigned by:  
  
 Matthew S. Lamb

Project Manager ext. 121  
[matt@smithgardnerinc.com](mailto:matt@smithgardnerinc.com)

DocuSigned by:  
  
 Stacey A. Smith, P.E.

Senior Engineer, ext. 127  
[stacey@smithgardnerinc.com](mailto:stacey@smithgardnerinc.com)

1/20/2016



Attachments:

CC: Tim Rogers, Wayne County  
 Steve Laliberty, Biogas Energy Solutions  
 Wes Hare, NCDENR

File



DATE: 1/19/16  
 BY: MSL  
 CHECKED BY: SAS

Landfill Gas Collection System Expansion  
 BES/MP Wayne, LLC - Wayne County Landfill Facility  
 LANDFILL GAS WELL COMPLETION RECORD TABLE - FIELD SURVEY PERFORMED MARCH 4, 2014

<i>Well Name (Note 1)</i>	<i>Staked Point Reference (written on back of stake) (Note 2)</i>	<i>As-built Surveyed Well Location ID No. (Note 5)</i>	<i>Staked Northing (Note 2)</i>	<i>As-built Surveyed Northing (Note 5)</i>	<i>Staked Easting (Note 2)</i>	<i>As-built Surveyed Easting (Note 5)</i>	<i>Staked Ground Elev (FT) (Note 2)</i>	<i>As-built Surveyed Ground Elev. (FT) (Note 5)</i>	<i>Base/ Groundwater Elev (FT) (Note 3)</i>	<i>Maximum Boring Depth (FT) (Note 4)</i>	<i>Installed Boring Depth (FT) (Note 6)</i>
UNIT 3 WELLS											
RD-WELL-1	D30	B42	563672.43	563668.22	2276542.82	2276539.70	181.43	181.22	151.85	20	19
RD-WELL-2	D28	B55	563811.85	563814.39	2276682.42	2276687.57	185.05	184.72	154.47	21	21
RD-WELL3	D27	B53	563997.41	563994.16	2276763.11	2276760.41	184.44	185.62	154.16	20	20
RD-WELL-7	D25	B51	563869.64	563873.62	2276917.13	2276921.04	186.61	186.73	158.14	18	18
RD-WELL-8	D26	B57	564000.27	563996.53	2276992.20	2276988.20	184.53	184.72	157.77	17	17
RD-WELL-10	D22	B14	563904.71	563911.34	2277172.96	2277173.23	186.71	186.37	161.75	15	15
RD-WELL-11	D24	B23	563671.13	563672.08	2277050.90	2277055.31	186.58	187.02	158.37	18	18
RD-WELL-12	D21	B13	563765.26	563769.66	2277319.58	2277314.79	185.78	185.78	159.33	16	17
NW-A1GCW-15	D31	B33	563475.29	563475.50	2276653.87	2276653.97	178.00	178.65	150.40	18	18
NW-A1GCW-16	D29	B44	563737.51	563736.02	2276778.75	2276778.14	185.13	185.17	155.51	20	20
NW-A1GCW-17	D23	B16	563778.34	563779.03	2277110.53	2277110.16	186.19	186.60	160.73	15	15
UNIT 1 WELLS											
RD-1GCW-16	D20	B11	561800.66	561783.75	2276445.51	2276461.38	190.83	190.78	136.51	44	49
RD-1GCW-21	D18	B2	562073.88	562077.09	2276805.51	2276794.28	187.86	189.67	137.68	40	33
RD1GCW-25	D19	B3	561971.21	561970.79	2276625.65	2276626.87	190.74	191.06	136.94	44	44

Note 1: Well coordinates and well names as provided by MP Wayne, LLC on drawings entitled "Wayne County Landfill Gas Collection System Modification Unit 1, Unit 1 Proposed Wells, dated October 2014, Sheet 1" (Unit 1), and "Existing Well Rehab, dated October 2014, Sheet 2" (Unit 3).

Note 2: Staked point reference and existing ground surface elevations from survey performed on December 1, 2014 by Dwayne Kroeze, L-3911.

Note 3: Unit 3 base elevations from drawings entitled "As-Built of Leachate Collection System, Cells 1 and 2, Municipal Solid Waste Landfill Facility, Wayne County, North Carolina", dated November 19, 1998, Surveyed by Millard T. Owen, III RLS L-1498. Unit 1 groundwater elevations from drawings entitled "Potentiometric Map of Uppermost Aquifer, Active C& and Closed MSW Landfill Facility (Dudley), Wayne County, NC", dated March 24, 2014, Prepared by Municipal Engineering Services Company.

Note 4: Boring depth is calculated by subtracting the base/groundwater elevation plus 10 feet from the ground elevation. No additional footage for benching is included.

Note 5: As-built surveyed well locations and existing ground surface elevations from survey performed March 4, 2015 by Dwayne Kroeze, L-3911.

Note 6: Installed well depth from boring logs dated January 30, 31, and February 2, 2015.