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September 30, 2011

North Carolina Department of Environment and Natural Resources  
Division of Waste Management - Solid Waste Section  
1646 Mail Service Center  
Raleigh, North Carolina 27699

Attention: Ms. Elizabeth Werner

Reference: **Water Quality Monitor Plan Modification**  
Davie County Landfill  
360 Dalton Road  
Mocksville, Davie County, North Carolina  
S&ME Project No. 1584-03-109A



Dear Ms. Werner:

S&ME, Inc., (S&ME), was pleased to have the opportunity to meet with Ms. Elizabeth Werner with North Carolina Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section (NCDENR-SWS), Mr. John Grey and Mrs. Joy Howard with Grey Engineering, and Mr. Jim Stockard with Davie County on August 3, 2011 to review the status of the Nature and Extent Study (NES) and to discuss modification of the post closure Water Quality Monitoring Plan for the Davie County Landfill. The meeting also included visual review of the landfill, compliance wells, and each of the NES wells.

The Davie County, Construction and Demolition (C&D) landfill operated under Permit No. 30-03 and it has been closed. It is our understanding that the Compliance Boundary for this closed unit is established 250 feet from the limits of waste, or 50 feet from the property line; whichever is closest to the limits of waste.

During the meeting agreement was reached that the Municipal Solid Waste (MSW) landfill unit operated under Permit No. 30-01 was closed under the requirements defined in 15A NCAC 13B Section .0500. This finding establishes the Compliance Boundary for the MSW unit 500 feet from the limits of waste, or at the property boundary; whichever is closest to the limits of waste. **Figure 1** depicts the waste boundary and Compliance Boundary for the closed MSW unit and closed C&D unit.

A detailed review of the existing monitoring well network, the waste boundaries, and associated Compliance Boundaries has revealed that some of the existing post-closure compliance monitor wells are located too close to the waste boundary to be relevant points for post-closure monitoring. Based on this finding, modification of the post-closure monitoring plan is appropriate.

During the August 3, 2011 meeting and site visit, the following modifications were discussed and Ms. Werner requested the submittal of a letter to NCDENR-SWS outlining the proposed changes to the Facility's Water Quality Monitoring Plan. The following summarizes the recommended changes.

#### **MSW Landfill (Permit No. 30-01)**

- Monitor well MW-1 is located near the toe of the limits of waste. As such, we recommend removal of monitoring well MW-1 from post-closure monitoring. A stream is located approximately half way between MW-1 and the Compliance Boundary due south. Based on topography, shallow groundwater flow should be to the southeast, toward monitoring well MW-21. We recommend monitoring well MW-21 as the replacement post-closure compliance well.
- Monitor well MW-5 is located between the MSW and C&D units, is close to the limits of waste, and in an area of overlapping Compliance Boundaries. We recommend removal of monitoring well MW-5 from post-closure monitoring.
- Monitor well MW-14 monitors a pre-regulation landfill east of the MSW unit. The monitor well is located on the other side of a creek that separates it from the MSW unit. We recommend removal of monitoring well MW-14 from post-closure monitoring.
- Monitor well MW-15 is located in close proximity to the limits of waste. We recommend removal of monitor well MW-15 from post-closure monitoring. Monitor well MW-18 is located directly down-gradient and behind the Compliance Boundary; therefore, we recommend monitoring well MW-18 as the replacement post-closure compliance well.
- NES monitor wells MW-19S and MW-19D will be monitored semi-annually during the routine post-closure monitoring events. Monitoring well MW-22 located on the opposite side of Leonard's Creek will be monitored annually. These wells will be monitored only as part of the on-going Nature and Extent Study, with the proposed monitoring focused on gathering data regarding potential changes in groundwater contaminant concentrations over time. This data will be used to determine the need, if any, for additional assessment and/or corrective measures.

#### **C&D Landfill (Permit No. 30-03)**

- Monitor well MW-8 is located beyond the Compliance Boundary; therefore, we recommend removal of monitor well MW-8 from post-closure monitoring. We recommend installing a replacement monitor well, MW-8A, to be installed up-gradient of MW-8, at a point behind the Compliance Boundary (see Figure 1). The replacement well shall be installed to monitor the upper most prevalent aquifer in this area of the C&D unit.
- Monitor well MW-10 is located in close proximity of the limits of waste. We recommend removal of well MW-10 from post-closure monitoring and replacing it with NES monitor well MW-20, which is located down-gradient of MW-10. Well MW-20 would serve as the replacement post-closure compliance well.

- Monitor well MW-12 is located between the MSW and C&D units, close to the limits of waste, and in an area of overlapping Compliance Boundaries. We recommend removal of monitoring well MW-12 from post-closure monitoring.

**Table 1** summarizes the above outlined well removal and replacement plan and provides relevant well construction details. **Figure 1** depicts the limits of waste, the location of existing monitoring wells, and an approximate location for the proposed monitoring well.

Laboratory analysis of the groundwater samples collected during post-closure monitoring will remain the same and include Appendix I volatile organic compounds (VOCs) and 8 RCRA metals with the inclusion of tetrahydrofurans for compliance wells monitoring the C&D landfill. The proposed modifications outlined herein do not affect the surface water quality portions of the monitoring plan. The compliance sampling frequency will not change.

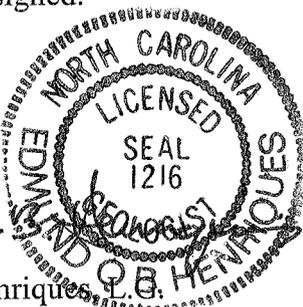
Please call S&ME should you need additional details to complete your review of the proposed changes to the Davie County Landfill post-closure water quality monitoring plan. If possible, we would like to implement the requested modification during the fall 2011 monitoring event. If you have any questions concerning this document please contact the undersigned.

Sincerely,

S&ME, Inc.



Edmund Q.B. Henriques  
Environmental Department Manager



Lisa Ennis  
Staff Professional

#### Attachments

- Table 1 – Proposed Monitoring Well Network Changes – 2011
- Figure 1 – Monitoring Well Network Map

**TABLE 1**  
**PROPOSED MONITORING WELL NETWORK CHANGES - 2011**  
**DAVIE COUNTY LANDFILL**  
**S&ME PROJECT NO. 1584-03-109**

<b>MSW Landfill - Permit # 30-01</b>					
<b>Well No.</b>	<b>Type</b>	<b>Compliance Monitoring</b>	<b>Date Installed</b>	<b>Depth of Well (feet)</b>	<b>Comments</b>
MW-1	Compliance	delete	record not found	39.30	To close to waste, replace with MW-21
MW-2	Compliance	retain	record not found	22.10	
MW-3	Compliance	retain	record not found	36.75	
MW-4	Compliance	retain	record not found	30.30	
MW-5	Compliance	delete	2/20/1995	83.60	Remove, to close to waste
MW-13A	Background	retain	8/10/2010	47.00	
MW-14	Compliance	delete	5/29/1997	17.70	Remove, monitors pre-regulation landfill
MW-15	Compliance	delete	6/18/1997	55.10	To close to waste, replace with MW-18
MW-16 S	Compliance/NES	retain	12/6/2003	25.65	
MW-16 D	Compliance/NES	retain	12/6/2003	58.65	
MW-17	Compliance/NES	retain	12/6/2003	59.10	
MW-18	Compliance/NES	retain	12/6/2003	35.65	Use to replaces MW-15
MW-19S	NES	retain	8/9/2010	21.00	Not included in compliance monitoring*
MW-19D	NES	retain	3/18/2011	70.00	Not included in compliance monitoring*
MW-21	NES	retain	8/10/2010	23.00	Use to replace MW-1
MW-22	NES	retain	5/17/2011	47.00	Not included in compliance monitoring*

\* To be sampled as part of the Nature and Extent Study evaluations.

**Proposed changes to MSW compliance well network = Delete 4 wells, install no new wells**

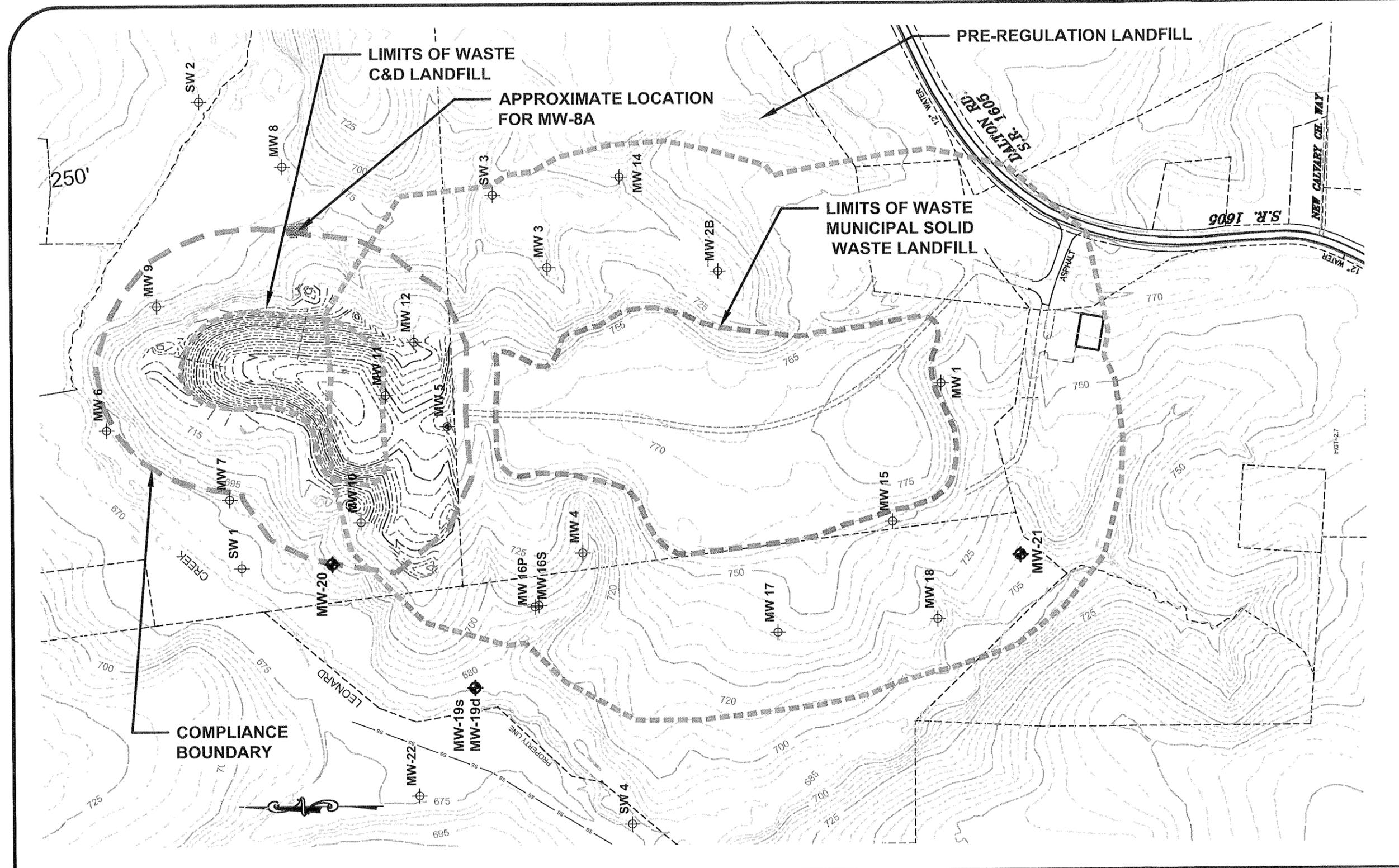
<b>C&amp;D Landfill - Permit # 30-03</b>					
<b>Well No.</b>	<b>Type</b>	<b>Compliance Monitoring</b>	<b>Date Installed</b>	<b>Depth of Well (feet)</b>	<b>Comments</b>
MW-6	Compliance	retain	record not found	15.35	
MW-7	Compliance	retain	record not found	20.67	
MW-8	Compliance	delete	record not found	14.15	Remove, beyond compliance boundary
MW-8A	Compliance	add to network	proposed	40.00	To be installed to replaces MW-8
MW-9	Compliance	retain	record not found	17.55	
MW-10	Compliance	delete	record not found	57.60	To close to waste, replace with MW-20
MW-11	Compliance	deleted	record not found	unknown	Previously removed from compliance monitoring
MW-12	Compliance	delete	record not found	54.62	Remove, to close to waste
MW-20	NES	add to network	8/9/2010	50.00	Use to replace MW-10

**Proposed changes to C&D well network = Delete 3 wells and install 1 new well**

Notes:

NES = Monitoring wells installed as part of a Nature and Extent Study (NES)

All well depths are feet below ground surface



- GENERAL NOTES:**
1. NORTH IS BASED ON NATIONAL GEODETIC SURVEY 'NORTH CAROLINA GEOID 2009'.
  2. EXISTING WELL LOCATIONS 1 THROUGH 15, SW1 THROUGH SW4, FROM KUHN CONSTRUCTION SURVEYS, DAVIE COUNTY LANDFILL SURVEY, JOB 089-L, DWG 1997-4+; 10-97. ELEVATION ADJUSTED TO GEOID 2009.
  3. NEW WELL NO'S 16S, 16P, 17, AND 18 SURVEYED BY GREY ENGINEERING, 12/11/03. INSTALLED DEC 2003.
  4. TOPOGRAPHY AND ROAD LOCATIONS ARE APPROXIMATE. TOPOGRAPHY FROM MOCKSVILLE NC QUADRANGLE, USGS 7.5 MINUTE TOPOGRAPHIC SERIES, 1994.
  5. ELEVATIONS SHOWN AT TIME OF SAMPLING

- LEGEND**
- ⊕ SAMPLE LOCATIONS
  - MW MONITORING WELL NO. & ELEV.
  - SW SURFACE WATER
  - 740 --- TOPOGRAPHIC CONTOUR LINE

**DAVIE COUNTY LANDFILL**  
**MOCKSVILLE, NORTH CAROLINA**

**SITE MAP**  
**APRIL 2011**

**GREY ENGINEERING, INC.**  
 greyengineering.com Mocksville, N.C. (336)751-2110

**MONITORING WELL NETWORK**  
 DAVIS COUNTY LANDFILL  
 DAVIE COUNTY NORTH CAROLINA

SCALE: AS SHOWN  
 DRAWN BY: RDM  
 CHECKED BY: EQBH

JOB NO. 1584-03-109  
 DATE: SEPTEMBER 2011  
 FIGURE NO. 1

3718 OLD BATTLEGROUND ROAD  
 GREENSBORO, NC 27410  
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