



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

October 17, 2014

Mr. Simon Lobdell, P.E.
City of Durham Department of Water Management
1600 Mist Lake Drive
Durham, NC 27704

Re: Nature and Extent Study
City of Durham Closed Municipal Solid Waste Landfill, Permit #32-01

Dear Mr. Lobdell:

The Solid Waste Section (Section) has reviewed the *Nature and Extent Study* submitted by S&ME, Inc., (S&ME) on behalf of the City of Durham. The nature and extent study (NES) was conducted as a result of consistent detections of volatile organic compounds (VOCs) in exceedance of the 15A NCAC 2L .0202 groundwater standards (2L Standards) in monitor well MW-10. MW-10 is located approximately 25 feet west of the waste boundary and serves as a replacement for MW-6R which was believed to be installed within the waste boundary.

A total of seven piezometers (NES-1 through NES-7) were installed at various distances north, west, and south of MW-10 to delineate the horizontal extent of groundwater contamination. Three stream monitoring gauges (SG-1 through SG-3) were also installed along the banks of the unnamed tributary of Ellerbe Creek to determine if it serves as a hydraulic barrier. Groundwater monitoring results from the piezometers indicated the detection of 11 VOCs at concentrations above laboratory detection limits. Only two constituents, 1,2-dichloropropane and vinyl chloride, were reported at concentrations exceeding the 2L standards. Both 1,2-dichloropropane and vinyl chloride were detected above 2L standards in NES-7 which is located approximately 75 feet west of the waste boundary. Results from the remaining piezometers confirmed that groundwater is not impacted beyond the compliance boundary. Data from the stream gauges and water level elevations from the piezometers were collected from July 2009 to November 2009 to characterize groundwater and surface water interaction in the vicinity of MW-10. The results of the study indicated that groundwater at the site flows radially to the north, south, east, and west. Data from the stream gauges also indicated that the unnamed tributary is a losing stream that does not serve as a consistent hydraulic barrier to groundwater movement.

Based on the results of the NES, S&ME recommended removing MW-10 from the compliance monitoring network and replacing it with NES-3, returning the facility to detection monitoring, and abandoning the piezometers installed during the NES, with the exception of NES-3. The Solid Waste Section will allow removal of MW-10 from the compliance monitoring network and its replacement with NES-3. The facility may return to detection monitoring if VOCs are not reported above 2L Standards in NES-3 during the second 2014 semiannual monitoring event. The City of Durham may also proceed with abandoning the piezometers installed during the NES. Please contact me at (919) 707-8288 or by e-mail at ervin.lane@ncdenr.gov if you have any questions or concerns regarding this letter. Thank you in advance for your cooperation in this matter.

Sincerely,

A handwritten signature in black ink that reads "Ervin Lane". The signature is written in a cursive, flowing style.

Ervin Lane
Compliance Hydrogeologist
Solid Waste Section

cc: Sam Watts, P.G., S&ME, Inc.
Dusty Reedy, P.G., Golder Associates NC, Inc.
Jason Watkins, Field Operations Branch Head
Deb Aja, Western District Supervisor
John Patrone, Environmental Senior Specialist
Solid Waste Central Files