



June 19, 2013

0839-650612.700

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

**RE: SOIL AND SURFACE WATER ASSESSMENT PLAN
HENDERSON COUNTY SOLID WASTE TRANSFER STATION, PERMIT NO. 45-04T
HENDESONVILLE, NORTH CAROLINA**

Dear Jackie:

On behalf of Henderson County, Golder Associates NC, Inc. (Golder) is submitting the enclosed Soil and Surface Water Assessment Plan in response to the Notice of Violation issued on June 10, 2013, associated with clogged trench drains, resulting in liquid flowing to unpaved areas and into surface drains at the above-referenced facility. Upon approval of this submittal, the County will collect the soil and surface water samples, as specified in the Plan. If you have any questions regarding the NES, please contact the undersigned at (336) 852-4903.

Sincerely,

GOLDER ASSOCIATES NC, INC.

A handwritten signature in blue ink, appearing to read 'Dusty Reedy II'.

David "Dusty" Y. Reedy II, P.G.
Senior Project Hydrogeologist

A handwritten signature in blue ink, appearing to read 'Rachel P. Kirkman' with 'FOR' written below it.

Rachel P. Kirkman, P.G.
Associate and Senior Geologist

Enclosure: Assessment of Corrective Measures, Henderson County Closed Municipal Solid Waste Landfill, Permit No. 45-01

C: Natalie Berry, P.E., Assistant County Engineer, Henderson County, 100 North King Street, Suite 210, Hendersonville, NC 28792. 828-694-6521. nberry@hendersoncountync.org

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Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America



SOIL AND SURFACE WATER ASSESSMENT PLAN

Henderson County Solid Waste Transfer Station,
Permit No. 45-04T

PLAN

Submitted To:



Henderson County Solid Waste Division
191 Transfer Station Drive
Hendersonville, NC 28791

Submitted By: Golder Associates NC, Inc.
5B Oak Branch Drive
Greensboro, NC 27407

June 2013

083-9650612.700





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1.0 INTRODUCTION

The North Carolina Department of the Environment and Natural Resources (NC DENR) performed inspections of the Henderson County Solid Waste Transfer Station (transfer station), Permit No. 45-04T, on May 6 and 10, 2013. During the inspections, it was discovered that trench drains, used to collect water that has contacted waste, were clogged and had overflowed, resulting in liquid flowing to unpaved areas and into surface water drains. NC DENR issued a Notice of Violation (NOV) on June 10, 2013, that requires steps be taken to come into compliance by July 1, 2013. Golder Associates NC, Inc. (Golder) has prepared this *Soil and Surface Water Assessment Plan (Plan)* to address item d) of the compliance schedule of the NOV, which states:

- d) Submit a Plan for review approval to the Section that details a proposed soil and surface water assessment for the regions potentially impacted by the clogged trench drains associated with the lower transfer bays and associated storm drains located outside the two lower loading bays

Golder contacted Jaclynne Drummond of NC DENR on June 12, 2013, for clarification regarding the required components of the *Plan* requested in the NOV. The following *Plan* is based on criteria provided by Jaclynne Drummond and Andrea Keller of NC DENR.

2.0 SOIL AND SURFACE WATER MONITORING PROGRAM

Soil samples and surface water samples will be collected from areas potentially impacted by liquid that escaped from the transfer station collection system due to the clogged trench drains.

2.1 Soil Sampling Locations

Three soil samples will be collected from areas potentially impacted by liquid from the transfer station. The locations are shown on Figure 1. One soil sample location (Soil-2) is located adjacent to the stormwater drain identified as Area 3 in the Facility Compliance Inspection Report (FCIR). The second soil sample location (Soil-3) is adjacent to the stormwater drain identified as Area 4 in the FCIR. The third soil sample location (Soil-4) is in the grassy area downgradient of the stormwater drain in Area 4. Additionally, a background soil sample (Soil-1) will be collected in an area not anticipated to be impacted by the transfer station or landfill activities. The purpose of the background sample is to provide a measurement of the concentration of naturally occurring metals and/or background sources unrelated to the transfer station activities in the area of the investigation.

2.2 Surface Water Sampling Locations

Figure 1 shows the location where the stormwater drains identified in Areas 2, 3, and 4 in the FCIR discharge into a surface water feature. One upstream surface water sample (TSSW-1) will be collected to



measure background surface water quality, and one downgradient surface water sample (TSSW-2) will be collected downstream of the discharge, as shown on Figure 1.

3.0 SOIL AND SURFACE WATER SAMPLING METHODOLOGY

The following sections will describe the methodology of collecting soil and surface water samples.

3.1 Soil Sampling Methodology

Soil samples Soil-1, Soil-2, Soil-3, and Soil-4 will be collected utilizing a decontaminated stainless steel hand auger. Samples will be collected between 1 and 2 feet below ground surface (bgs) and placed into sample containers provided by the laboratory. The background sample (Soil-1) will be sampled first to minimize potential cross-contamination. After collection, the samples will be placed in a cooler on ice, under chain-of-custody control. Sampling logs will be recorded for each sampling location that includes a description of the sampling equipment, sampling location, soil characteristics, sampling method, and field observations.

3.2 Surface Water Sampling Methodology

Surface water samples TSSW-1 and TSSW-2 will be collected by lowering the laboratory-supplied sample containers into the stream flow, taking care to prevent the overflow of the sample containers and to minimize sample-induced turbidity. Measurements of temperature, pH, specific conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity will be recorded during the collection of the surface water samples. The downstream location (TSSW-2) will be sampled first, followed by the upstream location (TSSW-1) to minimize potential impacts to water quality at the sample locations.

After collection, the samples will be placed in a cooler on ice, under chain-of-custody control. Sampling logs will be recorded for each sampling location that includes a description of the sampling equipment, sampling location, sampling method, field observations (e.g., estimated flow), and water quality measurements.

4.0 SOIL AND SURFACE WATER SAMPLE ANALYSIS PROCEDURE

Soil and surface water samples will be shipped to a NC certified laboratory under chain-of-custody control, and samples will be analyzed for parameters required by the NC DENR, as described in detail in the following sections of the *Plan*.

4.1 Chain-of-Custody Program

The chain-of-custody program includes sample labels, sample seal, field logbook, and chain-of-custody record. Legible sample labels, sufficiently durable to remain legible when wet, will contain the following information: Site and sample identification number; date and time of collection; name of collector; parameters to be analyzed; and preservative, if applicable.



The shipping container will be sealed to ensure that the samples have not been disturbed during transport to the laboratory. The seal is labeled with instructions to notify the shipper if the seal is broken prior to receipt at the laboratory. The field logbook (or individual sample logs) will contain documentation of the following: Sample identification; field meter calibration information, if applicable; date and time of collection; sampling sequence; types of sample containers used and sample identification numbers; preservative used; field analysis data and methods, if applicable; field observations; name of collector(s); and climatic conditions including air temperatures and precipitation.

The chain-of-custody record is required for documenting sample possession, from the time of collection to the time of receipt at the laboratory. A chain-of-custody record will accompany each individual shipment. The record will contain the following information: Sample destination and transporter; sample identification numbers; signature of collector; date and time of collection; sample type; number of sample containers in shipping container; parameters requested for analysis; signature of person(s) involved in the chain of possession; inclusive dates of possession; internal temperature of shipping container upon opening in laboratory (noted by the laboratory). A copy of the completed chain-of-custody form will accompany the shipment and will be returned to the shipper after the shipping container reaches its destination. The chain-of-custody record will also be used as the analysis request sheet.

4.2 Soil Sample Analysis Procedure

A laboratory certified by the NC DENR will be utilized for analysis of the soil samples. Analyses will be performed in accordance with USEPA SW-846 methods in accordance with the USEPA guidance document (USEPA, 1997). Soil samples will be analyzed for the NC Appendix I list of parameters plus pH.

4.3 Surface Water Sample Analysis Procedure

A laboratory certified by the NC DENR will be utilized for analysis of the surface water samples. Analyses will be performed in accordance with USEPA SW-846 methods in accordance with the USEPA guidance document (USEPA, 1997). Surface water samples will be analyzed for the NC Appendix I list of parameters. Measurements of temperature, pH, specific conductance, oxidation-reduction potential, dissolved oxygen, and turbidity will be recorded at the time of collection of the surface water samples.

5.0 SOIL AND SURFACE WATER MONITORING RESULTS EVALUATION METHODOLOGY

Soil and surface water sampling results will be evaluated using soil and surface water screening values recommended by the NC DENR for potential solid waste impacts to environmental media. Quantified concentrations of analytes detected in soil will be compared to the Preliminary Residential Health-Based Soil Remediation Goals and/or the Protection of Ground Water Soil Remediation Goals found in the NC DENR Inactive Hazardous Sites Branch *Preliminary Soil Remediation Goals Table* for detected analytes,



when available. If more than one standard is available for a given constituent, the lower standard will be used to evaluate analytical data. Quantified concentrations of analytes detected in surface water samples will be compared to the 15A NCAC 2B Standards for detected analytes, when available.

6.0 CLOSING

Results from the soil and surface water sampling and analysis will be summarized and forwarded to the NC DENR. If one or more analytes (detected at quantified concentrations) exceed available screening values referenced in this *Plan*, the County will contact the NC DENR in order to discuss a recommended, appropriate course of action.

7.0 REFERENCES

NC DENR – Division of Waste Management. June 10, 2013. Notice of Violation. Henderson County Transfer Station, 45-04T.

NC DENR – Division of Waste Management. May, 6 & 10, 2013. Facility Compliance Inspection Report. Henderson County Solid Waste Transfer Facility, Permit No. 45-04T.

NC DENR – Division of Water Quality. May 2007. Surface Water and Wetlands Standards. 15A NCAC 2B Standards.

NC DENR - Inactive Hazardous Sites Branch. February 2013. *Preliminary Soil Remediation Goals Table*

USEPA. June 1997. SW-846 Methods for Evaluating Solid Waste, Physical/Chemical Methods, Final Update III.

FIGURE



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LEGEND

- SOIL SAMPLE LOCATION
- SURFACE WATER SAMPLE LOCATION
- APPROXIMATE STORMWATER DISCHARGE LINE

REFERENCES

1. REFERENCE: AERIAL PHOTOGRAPH, GOOGLE EARTH PRO 2012.

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RW

PROJECT
HENDERSON COUNTY TRANSFER STATION

TITLE
SOIL AND SURFACE WATER ASSESSMENT SAMPLING LOCATION MAP



 Golder Associates GREENSBORO, NC	PROJECT No.	0839650612	FILE No.	
	DESIGN	DYR	6/18/2013	SCALE AS SHOWN
	CADD	LKB	6/18/2013	REV.
	CHECK			
	REVIEW			

FIGURE 1

Established in 1960, Golder Associates is a global, employee-owned organization that helps clients find sustainable solutions to the challenges of finite resources, energy and water supply and management, waste management, urbanization, and climate change. We provide a wide range of independent consulting, design, and construction services in our specialist areas of earth, environment, and energy. By building strong relationships and meeting the needs of clients, our people have created one of the most trusted professional services organizations in the world.

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