

NC DENR  
Division of Waste Management - Solid Waste

**Environmental Monitoring  
Reporting Form**

**Notice:** This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

**Instructions:**

- Prepare one form for each individually monitored unit.
- Please type or print legibly.
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i)).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

**Solid Waste Monitoring Data Submittal Information**

Name of entity submitting data (laboratory, consultant, facility owner):

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:

Name: Dennis F. Tyndall, P.G. Phone: (704) 336-5454  
E-mail: Dennis.Tyndall@mecklenburgcountync.gov

| Facility name:         | Facility Address:   | Facility Permit # | NC Landfill Rule:<br>(.0500 or .1600) | Actual sampling dates (e.g.,<br>October 20-24, 2006) |
|------------------------|---------------------|-------------------|---------------------------------------|--|
| Holbrooks Rd. Landfill | 15401 Holbrooks Rd. | 60-02             | .0500                                 | 3/9/2009 & 3/11/2009                                 |

**Environmental Status: (Check all that apply)**

- Initial/Background Monitoring  Detection Monitoring  Assessment Monitoring  Corrective Action

**Type of data submitted: (Check all that apply)**

- Groundwater monitoring data from monitoring wells  Methane gas monitoring data  
 Groundwater monitoring data from private water supply wells  Corrective action data (specify) \_\_\_\_\_  
 Leachate monitoring data  Other(specify) \_\_\_\_\_  
 Surface water monitoring data

**Notification attached?**

- No. No groundwater or surface water standards or explosive methane gas limits were exceeded.  
 Yes, a notification of values exceeding a groundwater or surface water standard is attached. It includes a list of groundwater and surface water monitoring points, dates, analytical values, NC 2L groundwater standard, NC 2B surface water standard or NC Solid Waste GWPS and preliminary analysis of the cause and significance of any concentration.  
 Yes, a notification of values exceeding an explosive methane gas limit is attached. It includes the methane monitoring points, dates, sample values and explosive methane gas limits.

**Certification**

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Dennis F. Tyndall, P.G. Hydrogeologist (704) 336-5454  
 Facility Representative Name (Print) \_\_\_\_\_ Title \_\_\_\_\_ (Area Code) Telephone Number \_\_\_\_\_  
 Signature \_\_\_\_\_ Date 28 April 2009 Affix NC Licensed/Professional Geologist Seal





## MECKLENBURG COUNTY

Land Use and Environmental Services Agency

April 28, 2009

Jaclyne Drummond  
North Carolina Department of Environment  
and Natural Resources  
Division of Waste Management  
Groundwater Compliance Unit  
Mail Service Center 1646  
Raleigh, NC 27699-1646

Subject: Holbrooks Road Landfill Permit 60-02  
Semi-annual Monitoring Results

Dear Ms. Drummond:

Mecklenburg County conducted semi-annual water quality monitoring at the closed Holbrooks Road Landfill in March 2009 in accordance with the approved sample and analysis plan dated March 27, 2003. This report details the results of that monitoring event. Laboratory analytical data, field-measured data a table of values exceeding 2L standards and landfill gas monitoring data is contained on the electronic data deliverable submittal.

Samples were collected from eleven (11) monitoring wells (HRW-7, HRW-8, HRW-9, HRW-10, HRW-11R, HRW-13, HRW-16, HRW-18, HRW-19, HRW-20 and HRW-21) and three (3) surface-water sampling locations (HRSW-2, HRSW-3 and HRSW-4). Samples were analyzed for metals and volatile organic compounds ("VOCs") listed in Appendix I of 40 CFR Part 258.54 "Detection monitoring program". Field measurements of temperature, pH, and specific conductivity were made at each sampling location using a calibrated instrument. Additionally, measurements of dissolved oxygen were made at each surface-water sampling location.

The electronic data deliverable package containing the monitoring data is labeled to reflect the units used for reporting. Surface water standards listed are the water quality standards established for freshwater classification for aquatic life as outlined in 15A NCAC 2B "Classification and Water Quality Standards Applicable to Surface Waters of North Carolina". Groundwater standards listed are the standards outlined in 15A NCAC 2L "Classification of Water Quality Standards applicable to the Groundwaters of North Carolina". If the sample is reported in parts per billion, then the standard is also reported in parts per billion.

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700 N. Tryon Street ● Suite 205 ● Charlotte, NC 28202-2236 ● (704) 336-5500 ● FAX (704) 336-4391  
[www.co.mecklenburg.nc.us/coenv](http://www.co.mecklenburg.nc.us/coenv)

**Surface-water samples:**

No VOCs were detected in any of the samples collected from the three surface-water sampling locations (HRSW-2, HRSW-4 and HRSW-3). Copper was detected at 2 ug/l in the sample collected from HRSW-3. This is the only metal detected in any surface water sample. All field-measured parameters were within the established regulatory limits. The following table summarizes field-measured parameters for surface water samples.

| Sample Location   | Temp. °C | pH S.U. | Specific Conductivity ms/cm | Dissolved Oxygen mg/l |
|-------------------|----------|---------|-----------------------------|-----------------------|
| HRSW-2 upstream   | 14.4     | 6.93    | 0.183                       | 9.44                  |
| HRSW-4 mid-stream | 14.3     | 6.68    | 0.179                       | 9.45                  |
| HRSW-3 downstream | 14.5     | 7.76    | 0.196                       | 10.16                 |

**Groundwater samples:**

Cadmium was detected above the 2L standard in the sample collected from HRW-7. Barium, Chromium, Cobalt Copper, Lead, Nickel, Selenium, Vanadium and Zinc were detected below the respective 2L standards. The following table summarizes metals detection for groundwater samples.

| Well ID | Ba ug/l | Cd ug/l   | Cr ug/l | Co ug/l | Cu ug/l | Pb ug/l | Ni ug/l | Se ug/l | Vn ug/l | Zn ug/l |
|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| HRW-7   | 330     | <b>65</b> | -----   | 8.2     | 28      | -----   | 7.6     | -----   | 22      | 75      |
| HRW-8   | -----   | -----     | 7.4     | -----   | 12      | -----   | 3.3     | -----   | 22      | 17      |
| HRW-9   | 270     | -----     | -----   | -----   | 6.0     | -----   | 5.2     | -----   | 7.0     | -----   |
| HRW-10  | 160     | -----     | -----   | 9.1     | 12      | -----   | 18      | 8.1     | 18      | 11      |
| HRW-11R | 100     | -----     | 5.9     | -----   | 10      | -----   | 6.8     | -----   | 14      | 15      |
| HRW-13  | 250     | -----     | 32      | 13      | 53      | 7.4     | 22      | -----   | 72      | 62      |
| HRW-16  | 180     | -----     | 18      | 8.1     | 36      | -----   | 8.1     | -----   | 67      | 34      |
| HRW-18  | 270     | -----     | -----   | -----   | -----   | -----   | 12      | -----   | -----   | -----   |
| HRW-19  | -----   | -----     | -----   | -----   | 3.0     | -----   | -----   | -----   | -----   | -----   |
| HRW-20  | -----   | -----     | -----   | -----   | -----   | -----   | -----   | -----   | 7.8     | -----   |
| HRW-21  | -----   | -----     | -----   | -----   | -----   | -----   | -----   | -----   | 5.4     | -----   |
| 2L Std. | 2,000   | 1.75      | 50      | -----   | 1,000   | 15      | 100     | 50      | -----   | 1,050   |

Note: Results shown in bold exceed the 2L standard.

VOCs were detected in four monitoring wells; HRW-7, HRW-9, HRW-18 and HRW-20. The following table summarizes VOC detections.

| Well ID | Volatile Constituent          | Concentration (ug/l) | 2L Standard (ug/l) |
|---------|-------------------------------|----------------------|--------------------|
| HRW-7   | Acetone                       | 150                  | 700                |
|         | Cis-1,2-Dichloroethene        | 11                   | 70                 |
|         | <b>Trichloroethene</b>        | <b>7</b>             | <b>2.8</b>         |
| HRW-9   | <b>Cis-1,2 Dichloroethene</b> | <b>81</b>            | <b>70</b>          |
|         | <b>Methylene Chloride</b>     | <b>11</b>            | <b>4.6</b>         |
|         | <b>Tetrachloroethene</b>      | <b>6</b>             | <b>0.7</b>         |
|         | <b>Trichloroethene</b>        | <b>11</b>            | <b>2.8</b>         |
|         | Trichlorofluoromethane        | 10                   | 2,100              |
|         | <b>Vinyl Chloride</b>         | <b>9</b>             | <b>0.015</b>       |
|         | 1,2-Dichlorobenzene           | 6                    | 24                 |
|         | <b>1,4-Dichlorobenzene</b>    | <b>6</b>             | <b>1.4</b>         |
|         | 1,1-Dichloroethane            | 34                   | 70                 |
| HRW-18  | <b>Benzene</b>                | <b>12</b>            | <b>1</b>           |
|         | Chloroethane                  | 12                   | 2,800              |
|         | Toluene                       | 5                    | 1,000              |
|         | Trichlorofluoromethane        | 15                   | 2,100              |
|         | 1,1 Dichloroethane            | 46                   | 70                 |
|         | <b>1,4 Dichlorobenzene</b>    | <b>3</b>             | <b>1.4</b>         |
|         | <b>Vinyl Chloride</b>         | <b>27</b>            | <b>0.015</b>       |
| HRW-20  | 1,1-Dichloroethane            | 5                    | 70                 |

Note: Results shown in bold exceed the 2L standard.

Measurements of pH were more acidic than the 2L standard range of 6.5 to 8.5 standard units at locations HRW-7, HRW-9, HRW-10, HRW-11R, HRW-16, HRW-18, HRW-19 HRW-20 and background well HRW-21. Field-measured parameters for groundwater samples are summarized in the following table.

| Sample Location | Temp. °C | PH          | Specific Conductivity ms/cm |
|-----------------|----------|-------------|-----------------------------|
| HRW-7           | 18.8     | <b>6.03</b> | 0.562                       |
| HRW-8           | 10.4     | 6.68        | 0.081                       |
| HRW-9           | 14.7     | <b>5.90</b> | 0.769                       |
| HRW-10          | 12.0     | <b>6.29</b> | 0.902                       |
| HRW-11R         | 10.8     | <b>5.81</b> | 0.278                       |
| HRW-13          | 11.4     | 7.08        | 0.107                       |
| HRW-16          | 10.8     | <b>6.08</b> | 0.085                       |
| HRW-18          | 16.5     | <b>6.41</b> | 1.224                       |
| HRW-19          | 15.6     | <b>6.35</b> | 0.274                       |
| HRW-20          | 15.5     | <b>6.31</b> | 0.249                       |
| HRW-21          | 16.2     | <b>6.10</b> | 0.494                       |

Note: Results shown in bold are outside of the 2L standard range of 6.5 - 8.5 S.U.

Please call me at (704) 336-5454 if you have any questions regarding this report.



Sincerely,

Dennis F. Tyndall, P.G.  
Hydrogeologist  
Groundwater Program

cc: Amber Lindon, P.G., Mecklenburg County LUESA, Solid Waste

| Sample ID | Temp. °C | pH   | Specific Conductivity (µmhos/cm) |
|-----------|----------|------|----------------------------------|
| HW-1      | 12.8     | 6.83 | 0.302                            |
| HW-2      | 10.4     | 6.54 | 0.181                            |
| HW-3      | 14.3     | 6.94 | 0.189                            |
| HW-10     | 13.0     | 6.39 | 1.902                            |
| HW-15     | 10.8     | 6.11 | 0.178                            |
| HW-17     | 11.4     | 7.08 | 0.102                            |
| HW-18     | 10.4     | 6.88 | 0.082                            |
| HW-19     | 14.3     | 6.81 | 1.021                            |
| HW-20     | 14.3     | 6.34 | 0.374                            |
| HW-21     | 14.3     | 6.31 | 0.219                            |
| HW-22     | 14.3     | 6.10 | 0.404                            |



**LEGEND**

- Y Methane Probe
- Y Methane Vent
- Z Monitor Well
- Surface Water
- Methane Intercept Trench
- 10 Foot Contour
- Creeks
- Mecklenburg County-Owned Parcel

Note:  
Aerial Taken March of 2004

