| Permit No. | Date | Document ID No. |
|---|---|---|
| **44-01** | **August 14, 2009** | **8265** |

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***Transmitted via email to:***
***allen.gaither@ncdenr.gov***

August 5, 2009

Mr. Allen Gaither
Division of Waste Management
Solid Waste Section
Asheville Regional Office
2090 US Highway 70
Swannanoa, NC 28778

Subject: Response to Request for Additional Information
Environmental and Geotechnical Investigation
Proposed Livestock Market and Events Center
Closed International Paper Company Landfill 5C
Permit #44-01, Canton, NC

Dear Mr. Gaither,

Thank you for your recent review of the proposed feasibility investigation of the closed International Paper Company Landfill 5C (landfill) submitted to your office on July 9, 2009. On behalf of International Paper Company, Western North Carolina Regional Livestock Center, LLC, and Altamont Environmental, Inc. (Altamont) would like to provide you with the additional information that you requested in your letter dated July 31, 2009. This letter re-states your requests (numbered and in bold) included in that letter and provides the additional information below.

## GEOTECHNICAL EVALUATION

1. ***All proposed boring locations must be indicated on a site plan including labels for the borings proposed for LFG monitoring.***

The attached Figure 1 shows the locations of the proposed boring locations and labels for the proposed landfill gas (LFG) monitoring locations.

2. ***A disposal plan for all waste material removed during boring activities must be presented.***

Waste material that is removed during the boring activities will be collected at each boring location and disposed of at the former Blue Ridge Paper, currently Evergreen Packaging Company Landfill 6D (Landfill 6D). Landfill 6D is an operating industrial landfill permitted to accept similar wastes that were produced from the same paper mill under different ownership. Landfill 6D operates under Permit #44-06. A loader will accompany the drill rig at each boring location. Drill cuttings will be shoveled as they emerge from the borehole into the loader bucket. When the loader bucket becomes full it will be covered and transported to a covered dump truck that will remain on site and stored until all borings proposed for the project are completed. It is not anticipated that the volume of drill cuttings will exceed the volume of

the dump truck (13 cubic yards). After drilling is complete the waste will be hauled in the covered dump truck to Landfill 6D.

3. ***Verify a volume of pure bentonite will be used at the bottom of each borehole including those planned as landfill gas probes.***

The bottom of each borehole will be filled with pure bentonite to a minimum depth of two feet above the bottom of the boring. Therefore, the bottom of each borehole will have a minimum of 1.3 gallons of pure bentonite added following the installation of each borehole. Additionally, borings that will not be converted into LFG probes will be abandoned entirely with bentonite. The volume of bentonite used to abandon non-LFG probe borings will vary depending on location and depth of the boring. Bentonite will be properly hydrated following placement in the borehole.

## LANDFILL GAS MONITORING

4. ***The proposed number of landfill gas monitoring probes is insufficient to monitor an approximate 30.4 acre area. Please install additional monitoring probes, with a concentration of wells positioned along the leachate force main shown on the western side of the property boundary area. Pipelines or trenches existing nearby can serve as potential conduits for landfill gas migration. If there are other known pipelines, trenches, or subsurface utility lines in the area, please install landfill gas monitoring probes in adjacent locations. Gas monitoring in on-site structures also needs to be implemented, with accumulation in gases likely occurring in corners along floors, ceilings, and at cracks in the floor.***

Figure 1 shows the locations of the landfill gas (LFG) monitoring probes. In an effort to address the recent concerns regarding landfill gas monitoring associated with the closure permit for the site (Landfill 5C) and the adjacent closed landfill (Landfill 5B), a total of fourteen landfill gas monitoring wells are proposed for both Landfill areas 5C and 5B. Four of these LFG monitoring wells are within the original 30.4 acres of investigation area shown in the July 9, 2009 letter (Note: approximately 10.4 acres of the 30.4 acre investigation area contains covered waste). The locations of these LFG monitoring wells are spaced between 250 and 500 feet from one to the other.

Figure 1 included with the July 9, 2009 letter included an overlay of a 1980 "Construction Plan" for the landfill. This overlay was used to show the locations of each cell within the landfill. The "Construction Plan" also showed a leachate force main that was never constructed. Currently, the leachate leaves the landfilled area at the northwest side of the landfill slope and connects to a gravity sewerline adjacent to the north side of Beaverdam Creek. The leachate line and sewerline are shown in Figure 1 that accompanies this response.

Altamont conducted a landfill gas (methane) screening event as a precautionary measure at Landfill 5B to address health and safety concerns at the site that were brought up during a landfill audit conducted by Ms. Andrea Keller of the NCDENR-Solid Waste Section (SWS). The results of that screening event are attached for your information. Methane was detected at four of the 38 screening locations (please refer to the attached Figure 2). The maximum detection was measured at screening location 25 (Figure 2), a stormwater inlet, and showed a concentration of 0.7% methane which is 14% of the Lower Explosive

Limit (LEL) for that compound. As a proactive precautionary measure IP constructed a six-foot high, ungated, 20-foot by 30-foot, chain-link fence around the stormwater inlet where the 0.7% methane detection was recorded.

5. ***Please describe equipment used to monitor the landfill gas monitoring probes.***

Gas concentrations will be measured with a Landtec GEM 500 or Landtec GEM 2000 portable landfill gas meter.

6. ***Please describe the frequency of landfill gas monitoring. Subtitle D regulations require quarterly monitoring of methane.***

Landfill gas monitoring will be conducted at a quarterly sampling frequency and will include monitoring of LFG probes and screening of structures located on the 5B area similar to screening that was conducted in the aforementioned LFG screening event. In addition to the proposed LFG monitoring wells on Figure 1, LFG will also be measured at existing groundwater monitoring wells that are adjacent to existing underground utilities. For example, Figure 2 shows groundwater monitoring wells MW-5B2, MW-5C3, and MW-5C2 that will be used as additional sampling locations for LFG. If three consecutive sampling events indicate that the LFG levels are significantly below 25% the LEL, then Altamont will formally request that the SWS approve a modification or discontinuation of the sampling protocol.

7. ***Landfill gas probes are installed above the watering table using construction techniques similar to those methods used for installation of groundwater monitoring wells. It was unclear from the diagram provided whether the screen intersects the water table. Please clarify that the screen in the landfill gas monitoring probe is positioned above the water table.***

Landfill gas monitoring probes will be positioned above the water table as shown in the attached modified figure of a typical LFG probe diagram.

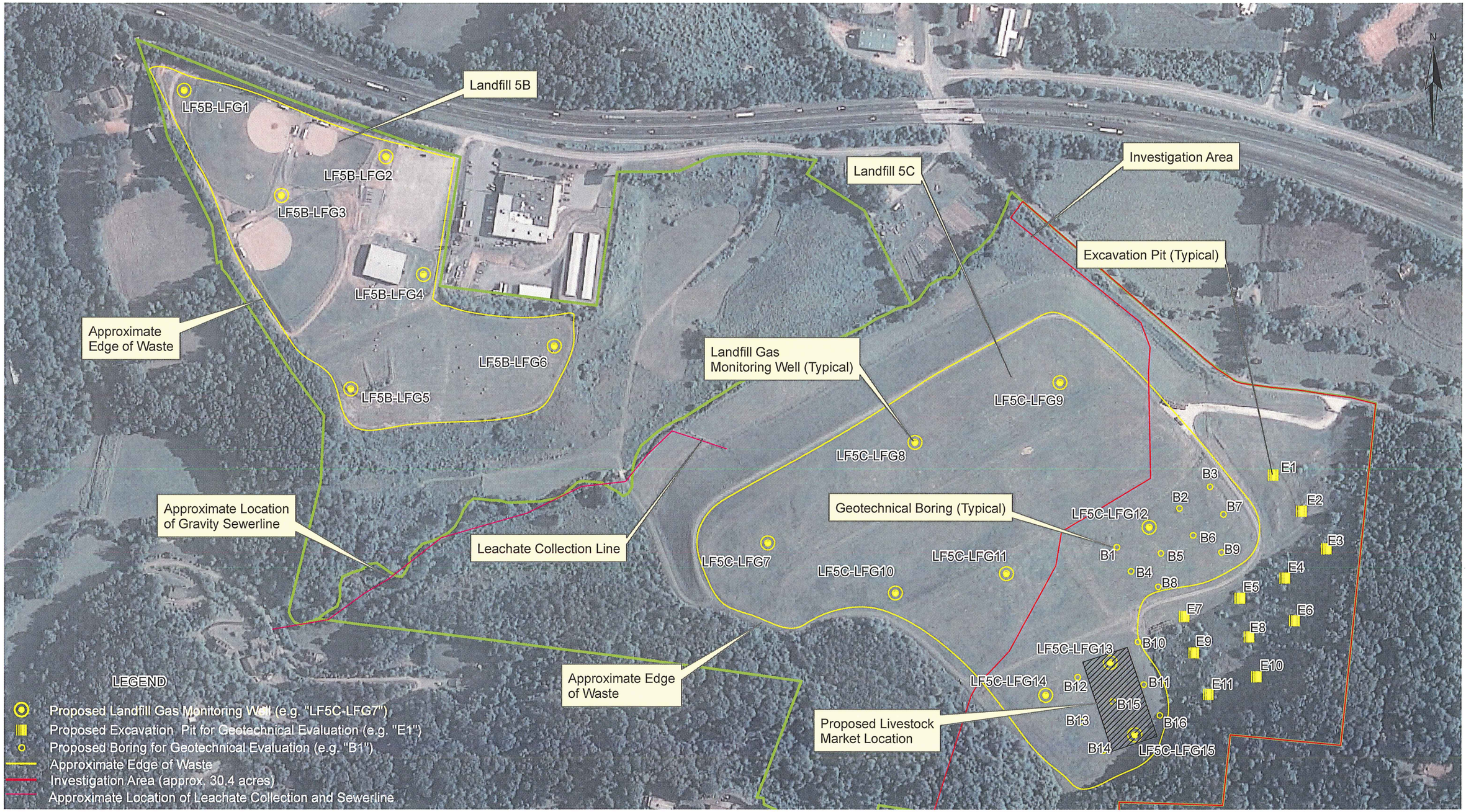
Altamont, on behalf of International Paper Company and Western North Carolina Regional Livestock Center, LLC, appreciates your assistance with this project and hopes this information is responsive to your needs. We look forward to approval of the investigation plan. If you have any questions or would like additional information, please contact the undersigned at (828) 281-3350.

Sincerely,

**ALTAMONT ENVIRONMENTAL, INC.**

Paul Dow, P.E.

Enclosures: Figure 1–Investigation Plan Area and Landfill Gas Monitoring Well Locations
Figure 2–Landfill Gas Investigation, July 2009
Figure 3–Landfill Gas Probe (Typical)
Landfill Gas Measurements, July 2009




Source:
Haywood County
2008 Color Orthophotography

| REV. | DATE | DESCRIPTION | BY | CHK | APV |
|---|---|---|---|---|---|
| | | | | | |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DRAWN BY: PAUL DOW
PROJECT MANAGER: JOEL LENK
CLIENT: INTERNATIONAL PAPER CO.
DATE: 8/5/09

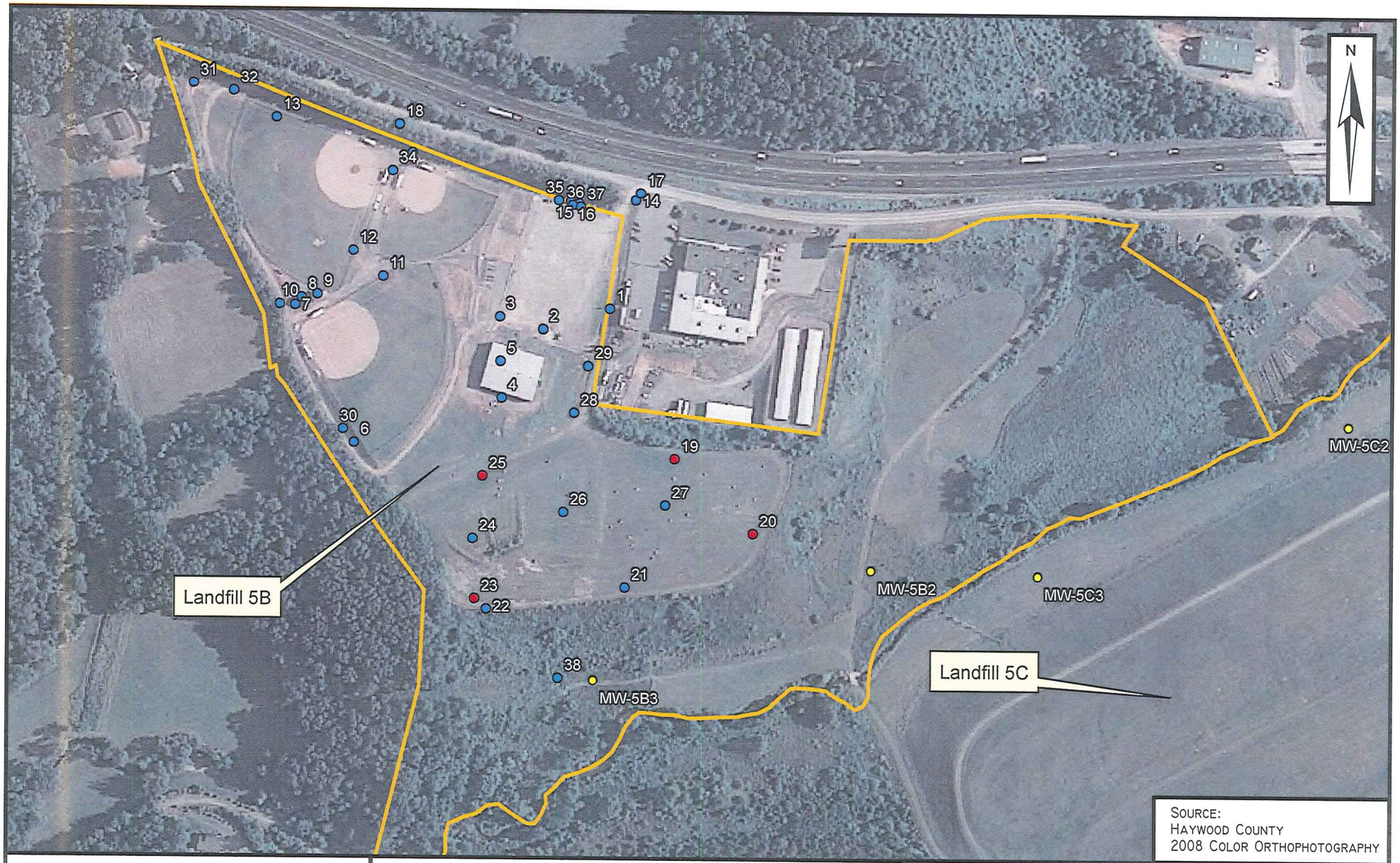
SCALE
Feet
150 75 0 150 300

# INVESTIGATION PLAN AREA AND LANDFILL GAS MONITORING WELL LOCATIONS

LANDFILLS 5B AND 5C
CLOSED INTERNATIONAL PAPER LANDFILL
CANTON, NORTH CAROLINA

FIGURE 1

P:\IP\LF 5\Livestock...\Figures\DENR_RAI_FIG_1_08-5-09.MXD




LEGEND

**Landfill Gas Investigation Locations**

**Methane**

- No Detection
- Detection
- LF 5 PARCEL BOUNDARY
- LF 5 MONITORING WELLS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www.altamontenvironmental.com


DRAWN BY: ANNA SAYLOR
PROJECT MANAGER: JOEL LENK
CLIENT: INTERNATIONAL PAPER CO.
DATE: 07/17/2009

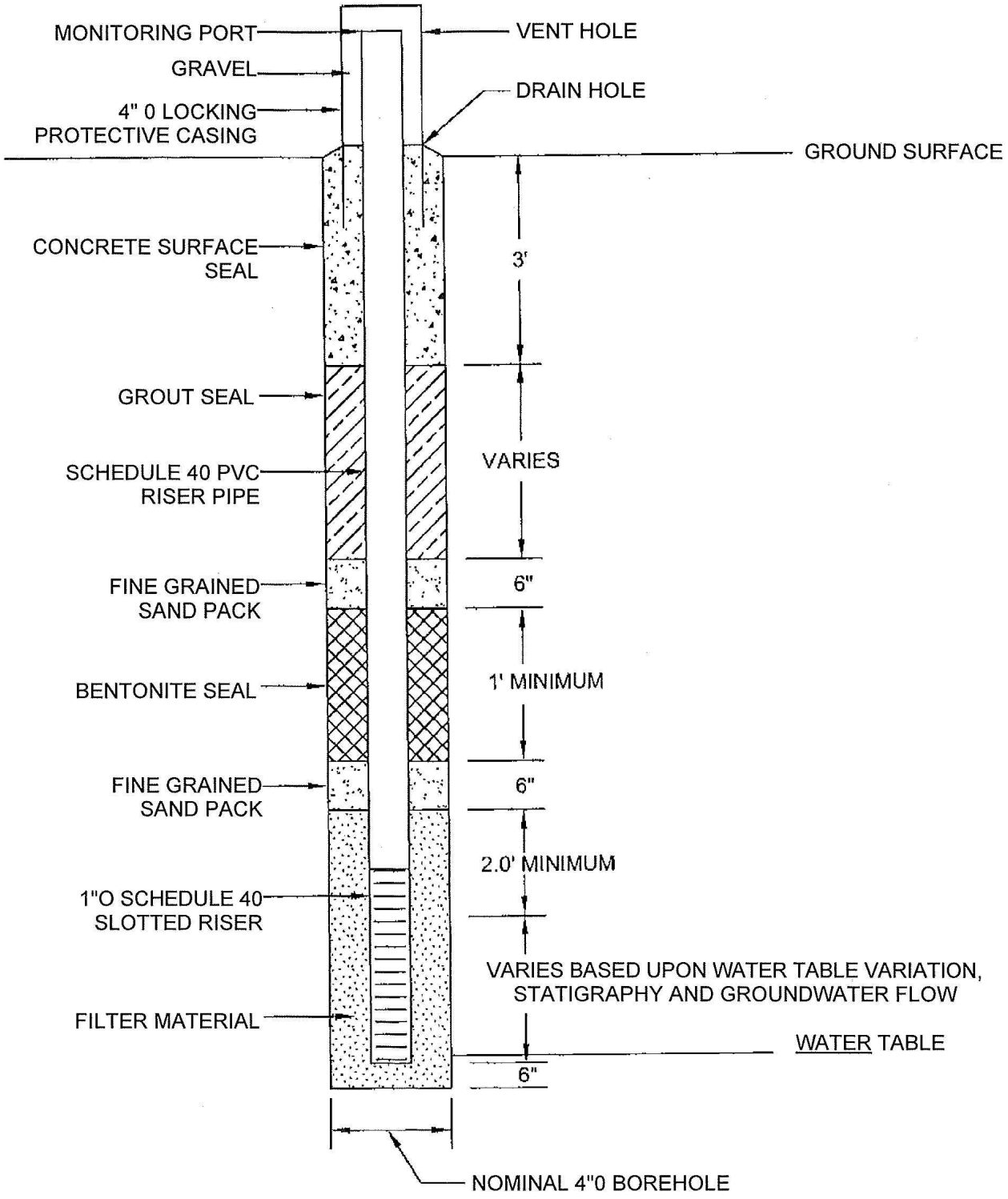
SCALE
0 75 150 300
FEET

# LANDFILL GAS INVESTIGATION JULY 2009

LANDFILL 5B
CLOSED INTERNATIONAL PAPER LANDFILL
CANTON, NORTH CAROLINA

FIGURE
2

P:\IP\LF 5\LANDFILL GAS INVESTIGATION\FIGURES\LF5B LANDFILL GAS INVESTIGATION LOCATIONS.MXD




NOTE: LANDFILL GAS PROBES WILL BE INSTALLED ABOVE THE WATER TABLE USING CONSTRUCTION TECHNIQUES SIMILAR TO THOSE METHODS USED FOR INSTALLATION OF GROUNDWATER MONITORING WELLS.

SOURCE: WASTE MANAGEMENT, INC. - LANDFILL GAS PROBE CONSTRUCTION - HIGH ACRES LANDFILL AND RECYCLING

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# LANDFILL GAS PROBE (TYPICAL)

INTERNATIONAL PAPER LANDFILL 5C
PERMIT# 44-01
HAYWOOD COUNTY, NORTH CAROLINA

FIGURE 3

DRAWN BY: PAUL DOW
PROJECT MANAGER: JOEL LENK
CLIENT: IP / WNCC, LLC
DATE: 07/08/09

NOT TO SCALE

P:\IP\LF 5\LIVESTOCK..\DENR...\FIGURE 2-INVESTIGATION LTR.DWG

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## Landfill Gas Measurements Field Worksheet

| | | | | | |
|---|---|---|---|---|---|
| **Name of Person Taking Readings:** | A. Saylor | | | **Date:** | 7/15/2009 |
| **Weather Conditions:** | Overcast, Warm | | | **Ambient Temperature:** | 84 °F |
| **Gas Monitoring Equipment:** | GEM 500 | **Serial Number** | **Calibration Date:** | | E1022 7/8/2009 |
| **Atmospheric Pressure:** | Not Recorded | | | | |
| **Site Location:** | International Paper Closed Landfill 5B | | | | |

### Gas Readings Field Worksheet

| Location | Readings | Time | % LEL | % $CH_4$ | % $CO_2$ | % $O_2$ | Notes |
|---|---|---|---|---|---|---|---|
| 1 | Maximum | 15:09 | 0 | 0.0 | 0.0 | 20.6 | 3rd power pole near |
| | Stable | | 0 | 0.0 | 0.0 | 20.6 | electric box |
| 2 | Maximum | 15:15 | 0 | 0.0 | 0.0 | 20.4 | Cinder block vault near |
| | Stable | | 0 | 0.0 | 0.0 | 20.4 | corrugated metal building |
| 3 | Maximum | 15:16 | 0 | 0.0 | 0.0 | 20.6 | Outfall culvert in NW |
| | Stable | | 0 | 0.0 | 0.0 | 20.2 | corner of metal building |
| 4 | Maximum | 15:18 | 0 | 0.0 | 0.0 | 20.2 | Ambient outside of metal |
| | Stable | | 0 | 0.0 | 0.0 | 20.3 | building |
| 5 | Maximum | 15:20 | 0 | 0.0 | 0.0 | 20.4 | Inside metal building under |
| | Stable | | 0 | 0.0 | 0.0 | 20.4 | palate |
| 6 | Maximum | 15:34 | 0 | 0.0 | 0.0 | 20.4 | Blue outfall from french |
| | Stable | | 0 | 0.0 | 0.0 | 20.2 | drain from south ball field |
| 7 | Maximum | 15:40 | 0 | 0.0 | 0.0 | 20.6 | Men's bathroom back right |
| | Stable | | 0 | 0.0 | 0.0 | 20.6 | corner |
| 8 | Maximum | 15:42 | 0 | 0.0 | 0.0 | 20.4 | Concession stand under |
| | Stable | | 0 | 0.0 | 0.0 | 20.2 | right counter |
| 9 | Maximum | 15:49 | 0 | 0.0 | 0.3 | 19.9 | Water meter vault near |
| | Stable | | 0 | 0.0 | 0.0 | 19.9 | concession stand |
| 10 | Maximum | 15:52 | 0 | 0.0 | 0.0 | 19.9 | Fence post gate opening |
| | Stable | | 0 | 0.0 | 0.0 | 19.9 | near restrooms |
| 11 | Maximum | 15:56 | 0 | 0.0 | 0.0 | 20.3 | Fence post gate opening |
| | Stable | | 0 | 0.0 | 0.0 | 20.2 | b/w all 3 ball fields |
| 12 | Maximum | 15:59 | 0 | 0.0 | 0.0 | 20.3 | Fence post gate opening |
| | Stable | | 0 | 0.0 | 0.0 | 20.2 | near 3rd base at NW field |
| 13 | Maximum | 16:04 | 0 | 0.0 | 0.0 | 20.3 | Drain in NW corner |
| | Stable | | 0 | 0.0 | 0.0 | 20.2 | on NW ball field |

Notes: Ambient Reading at vehicles near main entrance upon arrival showed no methane, or carbon dioxide, and oxygen was 20.6%. Pump was turned on while approaching test location for approximately 10 seconds, reading was recorded at 60+ seconds.

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## Landfill Gas Measurements Field Worksheet

| | | | | | |
|---|---|---|---|---|---|
| **Name of Person Taking Readings:** | A. Saylor | | | **Date:** | 7/15/2009 |
| **Weather Conditions:** | Overcast, Warm | | | **Ambient Temperature:** | 84 °F |
| **Gas Monitoring Equipment:** | GEM 500 | **Serial Number** | **Calibration Date:** | | E1022 7/8/2009 |
| **Atmospheric Pressure:** | Not Recorded | | | | |
| **Site Location:** | International Paper Closed Landfill 5B | | | | |

### Gas Readings Field Worksheet

| Location | Readings | Time | % LEL | % $CH_4$ | % $CO_2$ | % $O_2$ | Notes |
|---|---|---|---|---|---|---|---|
| 14 | Maximum | 16:11 | 0 | 0.0 | 6.4 | 19.9 | Fence post at main |
| | Stable | | 0 | 0.0 | 6.4 | 13.5 | entrance |
| 15 | Maximum | 16:23 | 0 | 0.0 | 0.0 | 20.4 | Back right corner of |
| | Stable | | 0 | 0.0 | 0.0 | 20.3 | maintenance storage shed |
| 16 | Maximum | 16:29 | 0 | 0.0 | 0.0 | 20.7 | Back left corner of middle |
| | Stable | | 0 | 0.0 | 0.0 | 20.6 | baseball storage shed |
| 17 | Maximum | 16:32 | 0 | 0.0 | 0.2 | 20.6 | Water meter vault near |
| | Stable | | 0 | 0.0 | 0.2 | 20.2 | main entrance |
| 18 | Maximum | 16:41 | 0 | 0.0 | 6.4 | 20.1 | Water main along pine |
| | Stable | | 0 | 0.0 | 3.5 | 17.5 | trees on north boundary rd |
| | Maximum | | | | | | |
| | Stable | | | | | | |
| | Maximum | | | | | | |
| | Stable | | | | | | |
| | Maximum | | | | | | |
| | Stable | | | | | | |
| | Maximum | | | | | | |
| | Stable | | | | | | |
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| | Maximum | | | | | | |
| | Stable | | | | | | |
| | Maximum | | | | | | |
| | Stable | | | | | | |
| | Maximum | | | | | | |
| | Stable | | | | | | |
| | Maximum | | | | | | |
| | Stable | | | | | | |

Notes: Offsite at 17:00. Will continue with landfill gas investigation 7/16/2009.

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**Landfill Gas Measurements Field Worksheet**

| | | | | | |
|---|---|---|---|---|---|
| **Name of Person Taking Readings:** | A. Saylor | | | **Date:** | 7/16/2009 |
| **Weather Conditions:** | Hot, Partly Cloudy | | | **Ambient Temperature:** | 86 °F |
| **Gas Monitoring Equipment:** | GEM 500 | **Serial Number** | **Calibration Date:** | | E1022 7/8/2009 |
| **Atmospheric Pressure:** | Not Recorded | | | | |
| **Site Location:** | International Paper Closed Landfill 5B | | | | |

**Gas Readings Field Worksheet**

| Location | Readings | Time | % LEL | % $CH_4$ | % $CO_2$ | % $O_2$ | Notes |
|---|---|---|---|---|---|---|---|
| 19 | Maximum | 14:38 | 2 | 0.1 | 0.0 | 20.5 | Culvert inlet below ball |
| | Stable | | 0 | 0.0 | 0.0 | 20.4 | fields south of NEO |
| 20 | Maximum | 14:48 | 2 | 0.1 | 0.0 | 20.4 | Culvert labeled 5B-1 |
| | Stable | | 0 | 0.0 | 0.0 | 20.3 | |
| 21 | Maximum | 14:51 | 0 | 0.0 | 0.0 | 20.3 | Culvert labeled 5B-2 |
| | Stable | | 0 | 0.0 | 0.0 | 20.2 | |
| 22 | Maximum | 14:58 | 0 | 0.0 | 0.0 | 20.0 | Broken electric conduit |
| | Stable | | 0 | 0.0 | 0.0 | 19.5 | pole # 1190 5-40 |
| 23 | Maximum | 15:04 | 6 | 0.3 | 0.1 | 19.7 | Culvert labeled 5B-3 |
| peak at 300 sec | Stable | | 3 | 0.2 | 0.1 | 19.6 | unidentifiable landfill odor |
| 24 | Maximum | 15:13 | 0 | 0.0 | 0.1 | 19.8 | Boring in west stormwater |
| | Stable | | 0 | 0.0 | 0.0 | 19.7 | catch basin |
| 25 | Maximum | 15:18 | 14 | 0.7 | 0.0 | 20.1 | Culvert labeled 5B-4 |
| peak at 180 sec | Stable | | 0 | 0.0 | 0.0 | 20.0 | |
| 26 | Maximum | 15:25 | 0 | 0.0 | 1.0 | 20.1 | Boring in middle |
| peak at 40 sec | Stable | | 0 | 0.0 | 0.0 | 20.1 | stormwater basin |
| 27 | Maximum | 15:38 | 0 | 0.0 | 0.0 | 20.3 | Boring in eastern |
| | Stable | | 0 | 0.0 | 0.0 | 20.3 | stormwater basin |
| 28 | Maximum | 15:45 | 0 | 0.0 | 0.0 | 20.5 | Culvert inlet at SW corner of NEO |
| | Stable | | 0 | 0.0 | 0.0 | 20.5 | fence, unidentifiable landfill odor |
| 29 | Maximum | 15:49 | 0 | 0.0 | 0.0 | 20.4 | Culvert inlet b/w metal building |
| | Stable | | 0 | 0.0 | 0.0 | 20.4 | and NEO, unidentifiable landfill odor |
| 30 | Maximum | 15:59 | 0 | 0.0 | 0.0 | 20.4 | White outfall pipe from |
| | Stable | | 0 | 0.0 | 0.0 | 20.3 | french drain at SW ball field |
| 31 | Maximum | 16:06 | 0 | 0.0 | 0.0 | 20.8 | White culvert outfall at NW |
| | Stable | | 0 | 0.0 | 0.0 | 20.7 | corner of NW ball field |

Notes: Landfill gas investigation continued from 7/15/2009.

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## Landfill Gas Measurements Field Worksheet

| | | | | | |
|---|---|---|---|---|---|
| **Name of Person Taking Readings:** | A. Saylor | | | **Date:** | 7/16/2009 |
| **Weather Conditions:** | Hot, Partly Cloudy | | | **Ambient Temperature:** | 86 °F |
| **Gas Monitoring Equipment:** | GEM 500 | **Serial Number** | | **Calibration Date:** | E1022 7/8/2009 |
| **Atmospheric Pressure:** | Not Recorded | | | | |
| **Site Location:** | International Paper Closed Landfill 5B | | | | |

### Gas Readings Field Worksheet

| Location | Readings | Time | % LEL | % $CH_4$ | % $CO_2$ | % $O_2$ | Notes |
|---|---|---|---|---|---|---|---|
| 32 | Maximum | 16:11 | 0 | 0.0 | 0.0 | 20.7 | White grate at NW corner |
| | Stable | | 0 | 0.0 | 0.0 | 20.5 | of NW ball field |
| 33 | Maximum | 16:21 | 0 | 0.0 | 0.0 | 20.5 | Metal grate at NW corner |
| | Stable | | 0 | 0.0 | 0.0 | 20.4 | of NE ball field |
| 34 | Maximum | 16:25 | 0 | 0.0 | 0.0 | 20.4 | Metal grate b/w 2 north |
| | Stable | | 0 | 0.0 | 0.0 | 20.3 | ball fields, unidentifiable landfill odor |
| 35 | Maximum | 16:32 | 0 | 0.0 | 0.0 | 20.5 | Under football storage shed |
| | Stable | | 0 | 0.0 | 0.0 | 20.5 | |
| 36 | Maximum | 16:34 | 0 | 0.0 | 0.0 | 20.5 | Under baseball storage |
| | Stable | | 0 | 0.0 | 0.0 | 20.4 | shed |
| 37 | Maximum | 16:37 | 0 | 0.0 | 0.0 | 20.5 | Under maintenance storage |
| | Stable | | 0 | 0.0 | 0.0 | 20.3 | shed |
| 38 | Maximum | 16:50 | 0 | 0.0 | 0.0 | 20.5 | Large creek culvert near |
| | Stable | | 0 | 0.0 | 0.0 | 20.4 | landfill 5C |
| | Maximum | | | | | | |
| | Stable | | | | | | |
| | Maximum | | | | | | |
| | Stable | | | | | | |
| | Maximum | | | | | | |
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Notes: