

**ALTAMONT ENVIRONMENTAL, INC.**

ENGINEERING & HYDROGEOLOGY

231 HAYWOOD STREET, ASHEVILLE, NC 28801

TEL. 828.281.3350 FAC. 828.281.3351

WWW.ALTAMONTENVIRONMENTAL.COM

May 13, 2011

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



Subject: Corrective Action Permit Modification Application  
Jackson County Landfill  
Permit #50-02

Dear Ms. Drummond:

On behalf of Jackson County, Altamont Environmental, Inc. (Altamont) is submitting this Corrective Action Permit Modification Application for the above referenced site. This application is based on the formal approval of the selected remedy by the Jackson County Board of Commissioners on May 2, 2011. The selected remedy is Leachate Removal. Upon approval of the selected remedy by the Solid Waste Section (SWS), Altamont will submit a Corrective Action Plan (CAP).

With respect to item number 5 on the Corrective Action Permit Modification Application, according to Mr. Keith Haynes of the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Surface Water Protection Section, Asheville Regional Office, the Tuckasegee Water and Sewer Authority (TWSA) is not required to issue a permit to discharge. Altamont has contacted TWSA regarding discharging leachate to their treatment facility and is awaiting confirmation for approval to discharge without a permit.

Ms. Jaclynne Drummond  
May 13, 2011  
Page 2 of 2

Please feel free to call or respond with any questions or comments related to this project.

Sincerely,

ALTAMONT ENVIRONMENTAL, INC.



Christopher F. Gilbert, P.E.

- Enclosures:
- Corrective Action Permit Modification Application
  - Jackson County Public Meeting Documentation
  - Jackson County Approval of Selected Remedy May 2, 2011
  - Figures
  - Jackson County Municipal Solid Waste Landfill, Permit #50-02 Permit for Closure
  - Local Government Financial Test

**CORRECTIVE ACTION PERMIT MODIFICATION  
APPLICATION**





**North Carolina Department of Environment and Natural Resources  
Division of Waste Management  
Solid Waste Section**

**North Carolina Solid Waste Groundwater Corrective Action Permit Modification Application**

Pursuant to 15A NCAC 13B .1636, "Within 14 days of selecting a remedy, the permittee shall submit an application to modify the permit describing the selected remedy to the Division for evaluation and approval." The application shall include the demonstrations necessary to comply with the financial assurance requirements set forth in Paragraph (d) of Rule .1628.

Please attach the following: (1) a copy of the minutes from the public meeting discussing the Assessment of Corrective Measures, (2) a signed resolution/proclamation/document adopting the remedy, (3) a site map designating locations of groundwater monitoring wells and surface water monitoring locations that will be impacted by the remedy, (4) any draft conceptual schematics/figures/plans relating to the selected remedy, (5) a list of any required registrations, permits, and approvals, (6) a copy of most recent permit issued by the Solid Waste Section, and (7) an amendment to the Financial Assurance Mechanism, including a break-down of the cost estimates for closure, post-closure and corrective action.

Send the application and attachments to NCDENR-DWM, Solid Waste Section, Compliance Unit, 1646 Mail Service Center, Raleigh, NC 27699-1646. This application and any documents attached to this application 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).

Please type or print all information legibly.

**I. Site Identification**

Permit Number: 50-02  
 Solid Waste Rule Designation (.0500 or .1600): .1600  
 Facility Name: Jackson County Municipal Solid Waste Landfill  
 Facility Physical Address: Old Dillsboro Road  
 City: Dillsboro  
 Zip: 28725  
 County: Jackson  
 Waste Type: Municipal Solid Waste

**II. Owner and Operator Information**

Check box, if owner and operator are the same.

**Owner**

Name: Jackson County Solid Waste Department  
 Address: 401 Grindstaff Cove Road Sylva, NC 28779  
 Phone Number: (828) 586-7577

**Operator**

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_

**III. Groundwater Corrective Action**

Selected remedy (include addition lines if needed):

(1) Leachate Extraction from Landfill Gas Wells \_\_\_\_\_

(2) Monitored Natural Attenuation \_\_\_\_\_

(3) \_\_\_\_\_

Contingency Plan A: In Situ Chemical Oxidation \_\_\_\_\_

Contingency Plan B: Installation of Additional Landfill Gas and Leachate Extraction Wells \_\_\_\_\_

**IV. Financial Assurance**

Financial Assurance Mechanism: Local Government Financial Test \_\_\_\_\_

Total Cost Estimate for 30 Years (based upon ACM): \$ 1,495,995.30 \_\_\_\_\_

**V. Project Schedule (upon Division approval)**

Approximate Date of Remedy Construction Completion (if applicable): \_\_\_\_\_

Approximate Date of Implementation of Remedy: July 1, 2011 \_\_\_\_\_

Approximate Date of Baseline Sampling Completion (if applicable): \_\_\_\_\_

Approximate Date of First Remedy Performance and Effectiveness Report Submittal: July 1, 2016 \_\_\_\_\_

**VI. Environmental Consultant**

Consulting Company: Altamont Environmental, Inc. \_\_\_\_\_

Address: 231 Haywood Street Asheville, NC 28801 \_\_\_\_\_

Phone Number: (828) 281-3350 \_\_\_\_\_

**VII. Signatures**

To the best of my knowledge, the information reported and statements made in this North Carolina Solid Waste Groundwater Corrective Action Permit Modification Application are true and correct. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of fine and imprisonment.

If Owner and Operator are the same, please sign for Owner and type or write SAME for Operator.

**Owner**

Owner Name (Printed or Typed): GEORGE W. WOOTEN

Owner Signature: *[Handwritten Signature]*

Date: 5/12/11

**Operator**

Operator Name (Printed or Typed): SAME

Operator Signature: \_\_\_\_\_

Date: \_\_\_\_\_

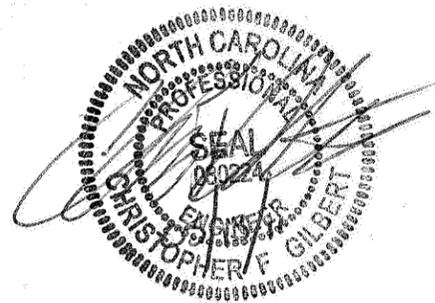
**NC Professional Geologist or NC Professional Engineer**

Name (Printed or Typed): CHRISTOPHER F. GILBERT

Signature: *[Handwritten Signature]*

Date: 05/13/11

Affix NC Professional Geologist/Engineer Seal:



**JACKSON COUNTY PUBLIC MEETING  
DOCUMENTATION**

Posted: \_\_\_\_\_  
Time Posted: \_\_\_\_\_  
Posted By: Evelyn Baker  
Witnessed By: \_\_\_\_\_

**MINUTES OF A PUBLIC HEARING  
OF THE JACKSON COUNTY  
BOARD OF COMMISSIONERS  
HELD ON  
FEBRUARY 7, 2011**

The Jackson County Board of Commissioners held a Public Hearing on February 7, 2011 at 1:30 p.m., Room A201, Justice & Administration Building, 401 Grindstaff Cove Road, Sylva, North Carolina.

Present: Jack Debnam, Chairman  
Doug Cody, Vice Chair  
Charles Elders, Commissioner  
Mark Jones, Commissioner  
Joe Cowan, Commissioner

Chuck Wooten, Interim Co. Mgr.  
Evelyn Baker, Clerk to the Board

Chairman Debnam called the public hearing to order and stated the purpose is to receive public input on the Assessment of Corrective Measures for the closed Jackson County Landfill Permit #50-02.

Chris Gilbert of Altamont Environmental, Inc. stated the county has been performing semiannual surface water and groundwater quality monitoring since at least 1999. No detections or exceedences of the constituents of concern in the surface water samples from the Tuckasegee River. There have been consistent low-level organic compounds detected in the groundwater over the years and are slightly above the state water quality standards; however, there are no exceedences present in the down gradient bedrock monitoring wells or drinking water wells of nearby property owners that were sampled. The report lists four alternatives:

(a) Monitor Natural Attenuation which allows for natural degradation of constituents in the groundwater and monitoring of those constituents to make sure they degrade over time.

(b) Monitor Natural Attenuation and Institutional Controls which includes monitoring of attenuation and collection of samples to make sure no one is being impacted over time with an additional control such as a county ordinance that would increase the required distance between new drinking water wells and the landfill.

(c) Leachate Removal involves using the wells that were installed as a part of the landfill gas extraction system to withdraw leachate and prevent it from infiltrating into the groundwater.

(d) In Situ Treatment which involves injecting a solution in to the fractures of the bedrock to facilitate degradation of contaminants. Injection wells would need to be installed into the fractured bedrock.

**Public Comments: None**

There being no public comments, Commissioner Jones moved to adjourn the public hearing. Commissioner Elders seconded the Motion. Motion carried by unanimous vote and the hearing adjourned.

Attest:

Approved:

\_\_\_\_\_  
Evelyn B. Baker, Clerk

\_\_\_\_\_  
W. J. Debnam, Chairman

**JACKSON COUNTY APPROVAL OF SELECTED REMEDY  
MAY 2, 2011**



**A RESOLUTION  
Of the  
Jackson County Board of Commissioners**

**Dillsboro Landfill  
Assessment of Corrective Measures**

**WHEREAS**, corrective action at the Dillsboro Landfill will help protect public health and the environment; and

**WHEREAS**, the remedy selected must meet the requirements listed in the NC Solid Waste Management Rules and Laws 15A NCAC 13B Sections .1635 through .1636 and classifications and Water Quality Standards applicable to the Groundwaters of North Carolina 15A NCAC Subchapter 2L ; and

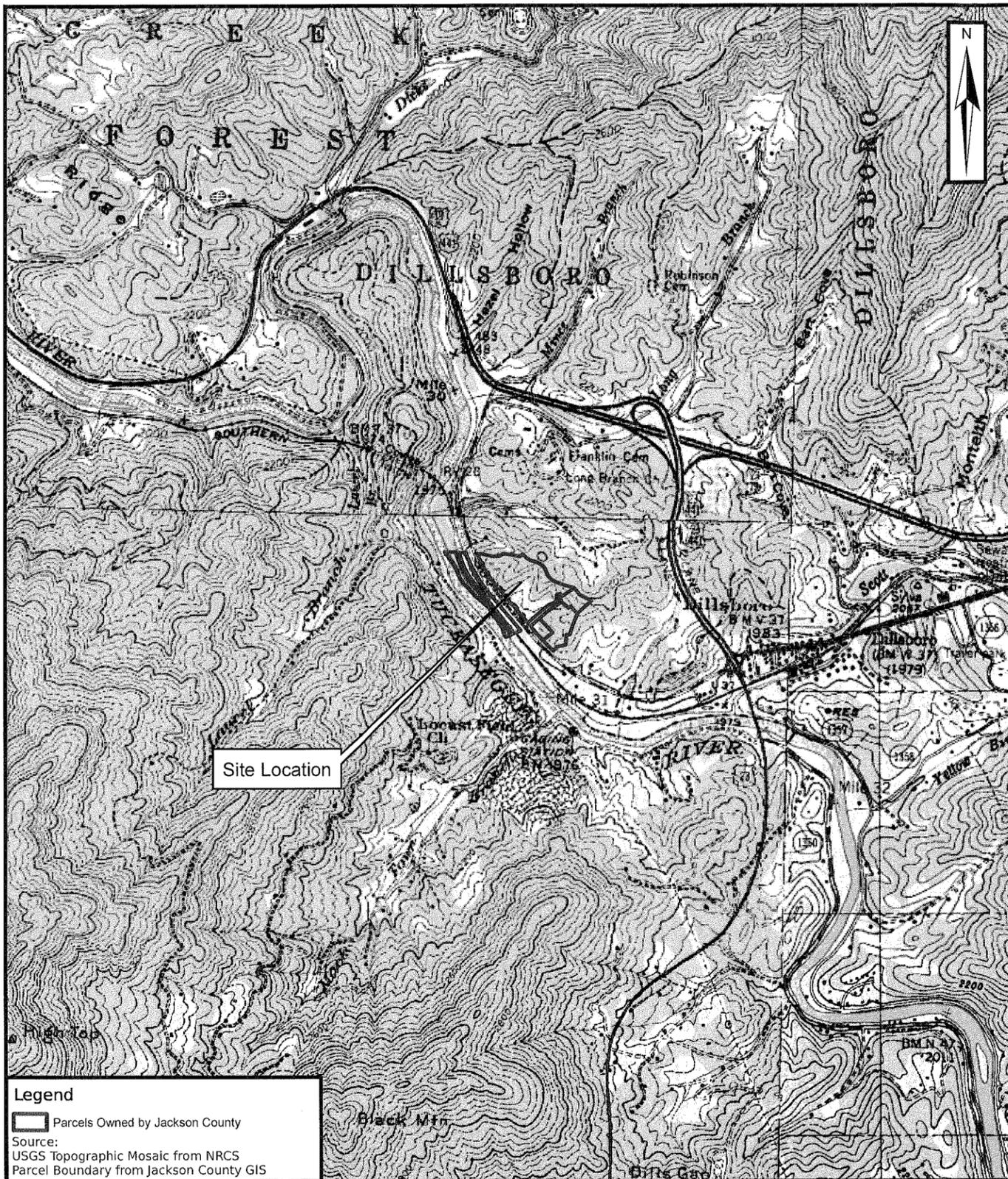
**NOW, THEREFORE, BE IT RESOLVED**, Jackson County, North Carolina will implement "Alternative 3" and following a five-year performance review (to be conducted in July 2016) may potentially implement "Alternative 4" as described in the Assessment of Corrective Measures Report dated December 7, 2010 prepared by Altamont Environmental, Inc. As described in the Assessment of Corrective Measures Report, Alternative 3 encompasses groundwater monitoring and pumping leachate from the Green Energy Park's Landfill Gas (LFG) extraction wells to reduce the volume of leachate available to transport contaminants from the landfill down to the groundwater. If Alternative 3 does not prove successful at reducing contaminant concentrations by July 2016 then Alternative 4 may be implemented. Alternative 4 encompasses injecting a solution into the fractures of the bedrock to facilitate degradation of the contaminants.

**ADOPTED**, this 2<sup>nd</sup> day of May 2011.

  
W. J. Debnam, Chairman



## FIGURES



**Legend**  
 [ ] Parcels Owned by Jackson County  
 Source:  
 USGS Topographic Mosaic from NRCS  
 Parcel Boundary from Jackson County GIS

**ALTAMONT ENVIRONMENTAL, INC.**  
 ENGINEERING & HYDROGEOLOGY  
 231 HAYWOOD STREET, ASHEVILLE, NC 28801  
 TEL. 828.281.3350 FAC. 828.281.3351  
 WWW.ALTAMONTENVIRONMENTAL.COM

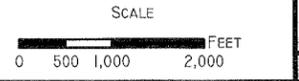
**SITE LOCATION MAP**

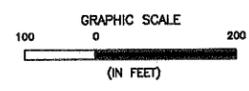
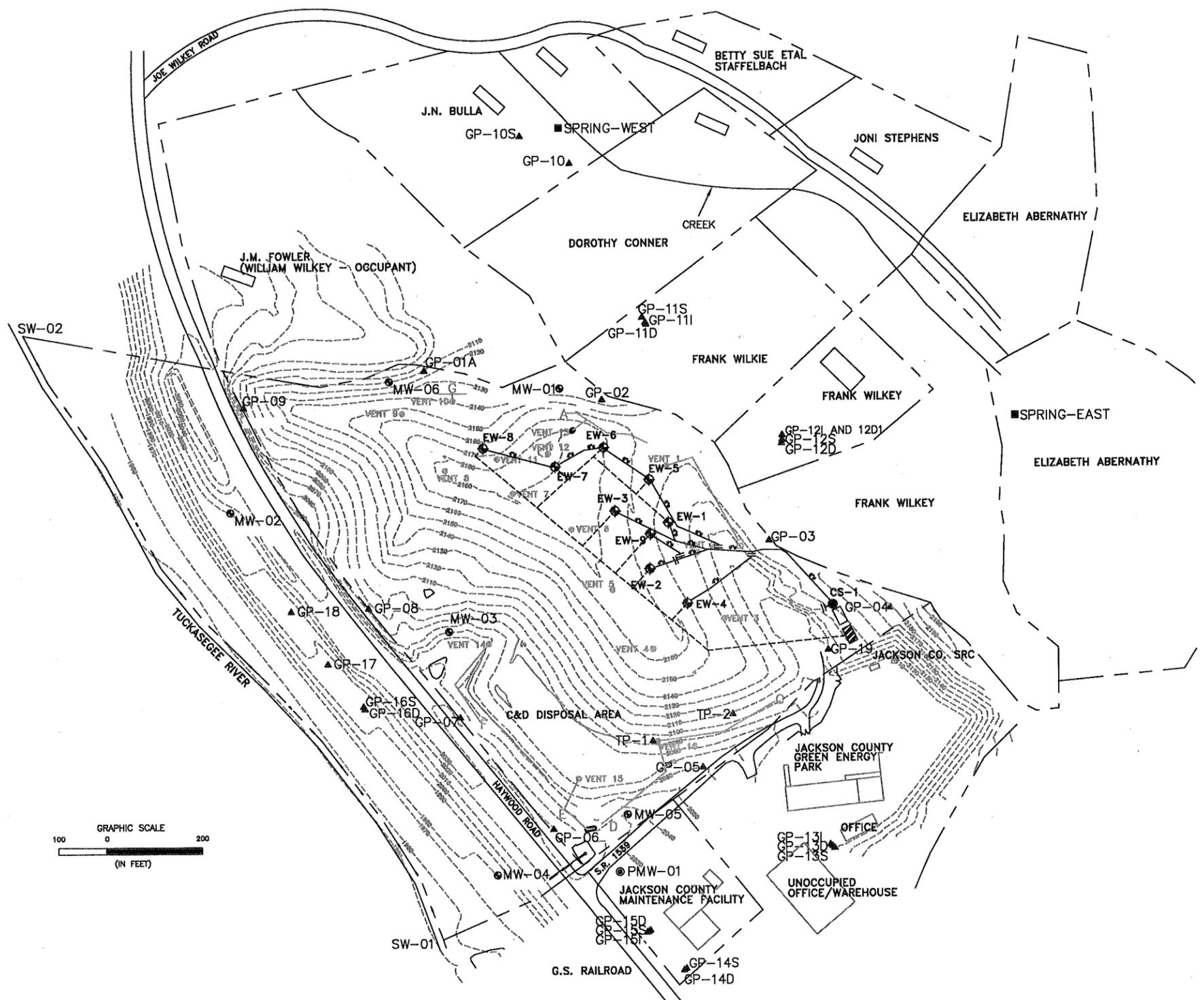
CLOSED DILLSBORO LANDFILL  
 JACKSON COUNTY  
 NORTH CAROLINA

FIGURE

1

DRAWN BY: ANNA SAYLOR  
 PROJECT MANAGER: ALEC MACBETH  
 CLIENT: JACKSON COUNTY  
 DATE: 09/07/2010





**NOTES:**

1. BASED ON A METHANE GAS VENTING SITE PLAN BY MCGILL AND ASSOCIATES DATED FEB. 1999 AND A SURVEY COMPLETED BY HUTCHISON-BIGGS & ASSOC. MARCH 6, 2002.
2. ORIGINAL TOPOGRAPHY BASED ON USGS QUADRANGLE MAPS.

**LEGEND:**

- MONITORING WELL LOCATION
- ▲ GAS PROBE LOCATION
- PROPERTY BOUNDARY
- PASSIVE LANDFILL GAS VENTS
- △ LANDFILL GAS TRENCH (APPROX)
- ▭ BUILDING/STRUCTURE
- CURRENT TOPOGRAPHY
- SPRING-EAST
- PRIVATE MONITORING WELL
- LFG HEADER/LATERAL PIPING
- ⊕ EW-2 LFG VERTICAL WELL
- CS-1 CONDENSATE SUMP
- || BLIND FLANGE
- ▭ LANDFILL GAS EXTRACTION/FLARE
- ▨ WET WELL/AIR COMPRESSOR
- LEACHATE PIPING

REV.	DATE	DESCRIPTION	BY	CHK	APV

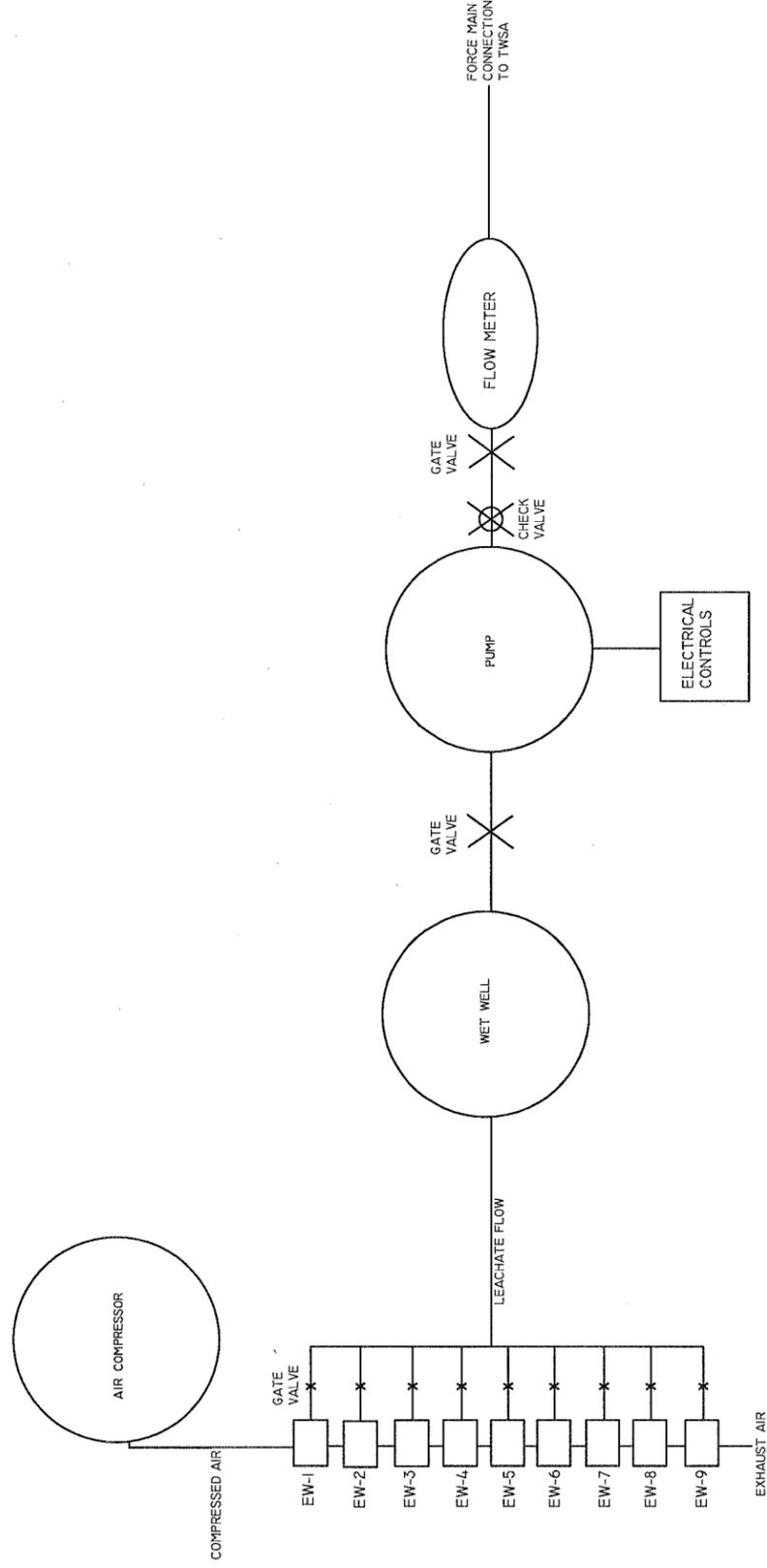
**ALTAMONT ENVIRONMENTAL, INC.**  
 ENGINEERING & HYDROGEOLOGY  
 231 HAYWOOD STREET, ASHEVILLE, NC 28801  
 TEL. 828.281.3350 FAC. 828.281.3351  
 WWW.ALTAMONTENVIRONMENTAL.COM

DRAWN BY: EVAN YURKOVICH  
 PROJECT MANAGER: CHRIS GILBERT  
 CLIENT: JACKSON COUNTY  
 DATE: 5/12/2011

SCALE AS SHOWN

**LEACHATE  
 EXTRACTION LINE**  
 CLOSED DILLSBORO LANDFILL  
 JACKSON COUNTY  
 NORTH CAROLINA

FIGURE  
**2**



**ALTAMONT ENVIRONMENTAL, INC.**  
**ENGINEERING & HYDROGEOLOGY**

231 HAYWOOD STREET, ASHEVILLE, NC 28801  
 TEL. 828.281.3350 FAC. 828.281.3351  
 WWW.ALTAMONTENVIRONMENTAL.COM

DRAWN BY: EVAN YURKOVICH  
 PROJECT MANAGER: CHRIS GILBERT  
 CLIENT: JACKSON COUNTY  
 DATE: 5/13/2011

NOT TO SCALE

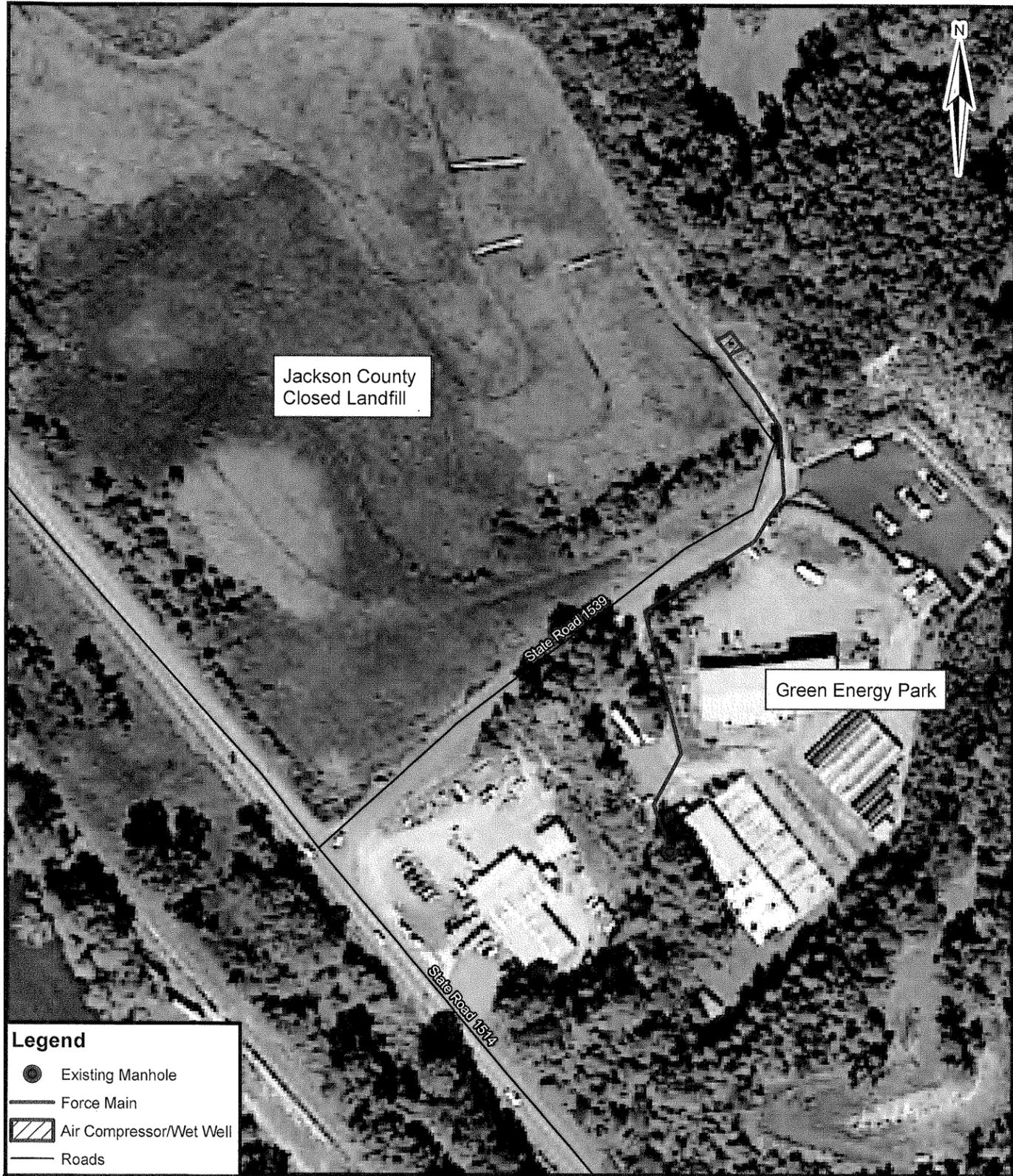
**PROCESS FLOW DIAGRAM**

CLOSED DILLSBORO LANDFILL  
 JACKSON COUNTY  
 NORTH CAROLINA

FIGURE

**3**

P:\JACKSON COUNTY\DILLSBORO GW\FIGURES\CAD\CAP\LEACHATE FLOW



**Legend**

- Existing Manhole
- Force Main
- ▨ Air Compressor/Wet Well
- == Roads

**ALTAMONT ENVIRONMENTAL, INC.**  
ENGINEERING & HYDROGEOLOGY  
 231 HAYWOOD STREET, ASHEVILLE, NC 28801  
 Tel. 828.281.3350 Fax. 828.281.3351  
 www.altamontenvironmental.com

**APPROXIMATE FORCE  
 MAIN LOCATION**  
 CLOSED DILLSBORO LANDFILL  
 JACKSON COUNTY  
 NORTH CAROLINA

FIGURE  
**4**

DRAWN BY: EVAN YURKOVICH  
 PROJECT MANAGER: CHRIS GILBERT  
 CLIENT: JACKSON COUNTY  
 DATE: 5/12/2011

SCALE  
 0 90 180  
 Feet

P:\Jackson\Dillsboro\_GW\Figures\GIS\Fig-ForceMain.mxd

JACKSON COUNTY MUNICIPAL SOLID WASTE  
LANDFILL, PERMIT #50-02  
PERMIT FOR CLOSURE



Facility Permit No: 50-02  
Jackson County  
PERMIT FOR CLOSURE  
April 11, 2006  
Page 1 of 8

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL  
RESOURCES

Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor  
William G. Ross Jr., Secretary

STATE OF NORTH CAROLINA  
DEPARTMENT OF ENVIRONMENT  
AND NATURAL RESOURCES  
DIVISION OF WASTE MANAGEMENT

**MUNICIPAL SOLID WASTE FACILITY  
PERMIT NO. 50-02**

Jackson County  
is hereby issued

**A  
PERMIT FOR CLOSURE**

For the following MSWLF unit

Located on Old Dillsboro road, Jackson County, North Carolina, in accordance with Article 9, Chapter 130A, of the General Statutes of North Carolina and all rules promulgated thereunder and subject to the conditions set forth in this permit.

Edward F. Mussler III  
CN = Edward F. Mussler III,  
C = US, O = Division of  
Waste Management, OU =  
Solid Waste Section  
I have reviewed this  
document and I am  
approving this document  
2006.04.11 13:20:30 -04'00'

Edward F. Mussler, III, P.E.,  
Permitting Branch Supervisor  
Solid Waste Section

**Jackson County**

**PERMIT FOR CLOSURE**

April 11, 2006

Page 3 of 8

**POST-CLOSURE CONDITIONS  
MUNICIPAL SOLID WASTE LANDFILL (MSWLF)**

**GENERAL CONDITIONS:**

- (1) The owner or operator shall conduct post-closure care for 30 years following the closure certification date of December, 2002, in accordance with the Section .1600 rules, except as provided under Rule .1627(d)(2).
- (2) The owner or operator shall maintain the integrity and effectiveness of any cap system, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cap system.
- (3) The owner or operator shall maintain and operate the leachate collection system in accordance with the requirements in Rules .1624 and .1626. The Division may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment.
- (4) The owner or operator shall ensure that the MSWLF units do not violate any applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the U.S. EPA Administrator pursuant to Section 110 of the Clean Air Act, as amended.

**RECORDATION**

- (5) Rule .1627(c)(8) requires that, following closure of the MSWLF unit, the owner or operator record a notation on the deed to the landfill facility property, or some other instrument that is normally examined during title search, and notify the Division that the notation has been recorded and a copy has been placed in the operating record. The notation on the deed shall in perpetuity notify any potential purchaser of the property that:
  - (a) The land has been used as a landfill facility; and
  - (b) Its use is restricted under the closure plan approved by the Division.

The attached certified copy of the Permit for Closure shall be recorded by the Register of Deeds and indexed in the grantor index under the name of the land owner. The certified copy affixed with the Register's seal and the date, book, and page number of the recording shall be returned to the Solid Waste Section.

**Jackson County**

**PERMIT FOR CLOSURE**

April 11, 2006

Page 5 of 8

- (10) Following completion of the post-closure care period for each MSWLF unit, the owner or operator shall notify the Division that a certification, signed by a registered professional engineer, verifying that post-closure care has been completed in accordance with the post-closure plan, has been placed in the operating record.

**ONGOING SOLID WASTE MANAGEMENT ACTIVITIES:**

- (11) Continuing solid waste management activities within the MSWLF facility shall be conducted in accordance with all pertinent requirements and permit conditions and shall not violate any post-closure conditions. Any new solid waste activities must be approved by the Solid Waste Section and included as part of the comprehensive Facility Plan.

**METHANE GAS MONITORING AND REMEDIATION CONDITIONS:**

- (12) The owner or operator shall maintain and operate the gas monitoring system to ensure that:
- (a) The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas control or recovery system components); and
  - (b) The concentration of methane gas does not exceed the lower explosive limit for methane at the facility property boundary.
- (13) If methane gas levels exceeding these limits are detected, the owner or operator must take all steps required in Rule .1626(4)(c). Methane gas remediation plans approved by the Division are described in the List of Approved Documents, Attachment 1, Part C.

**GROUND WATER MONITORING AND CORRECTIVE ACTION CONDITIONS:**

- (14) In accordance with .1630(c), once established at a MSWLF unit, ground-water monitoring shall be conducted throughout the post-closure care period for the MSWLF unit in accordance with the requirements of Rules .1631 through .1637. Monitoring of the surface water shall be in accordance with the requirements of Rule .0602.
- (15) Detection monitoring is required at MSWLF units at all ground-water monitoring wells that are part of the detection monitoring system as established in the approved monitoring plan. At a minimum, the detection monitoring program shall include monitoring for the constituents listed in Appendix I of 40 CFR Part 258.
- (16) The monitoring frequency for all Appendix I detection monitoring constituents shall be at least semiannual during the post-closure period. At least one sample from each well (background and down gradient) shall be collected and analyzed during semiannual sampling events.

**CERTIFIED COPY OF THE PERMIT FOR CLOSURE**

I do hereby certify that the attached PERMIT FOR CLOSURE is an exact and true copy of the Permit for Closure for the Jackson County Municipal Solid Waste Landfill, Permit No 50-02

\_\_\_\_\_  
James C. Coffey, Regional Engineer  
Asheville Regional Office  
Solid Waste Section

\_\_\_\_\_ County, North Carolina

I, \_\_\_\_\_, Notary Public for said County and State, do hereby certify that \_\_\_\_\_, of the Solid Waste Section, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal,

this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

OFFICIAL SEAL

\_\_\_\_\_  
NOTARY PUBLIC

**LOCAL GOVERNMENT FINANCIAL TEST**



# JACKSON COUNTY FINANCE OFFICE

401 GRINDSTAFF COVE ROAD, SUITE A-241  
SYLVA, NORTH CAROLINA 28779  
828/ 586-4055 • FAX 828/ 586-7506

May 4, 2011

Mr. Donald Herndon  
Solid Waste Section  
DENR – Division of Waste Management  
1646 Mail Service Center  
Raleigh, NC 27699-1646

Dear Mr. Herndon,

I am the chief financial officer of Jackson County, North Carolina, 401 Grindstaff Cove Road, Suite A-207, Sylva, North Carolina 28779. This letter is in support of this unit of local government's use of the financial test to demonstrate financial assurance, as specified in 15A NCAC 13B .1628(e)(1)(F).

This unit of local government is the owner of the following facilities for which financial assurance for post-closure and corrective action is demonstrated through the financial test specified in 15A NCAC 13B .1628(e)(1)(F). The current post-closure and corrective action cost estimates covered by the test are shown for the following facility:

Jackson County Landfill  
Old Dillsboro Road  
Jackson County, North Carolina  
Permit #50-02

Post-Closure Cost Estimate: \$691,302.56  
Corrective Action Cost Estimate: \$804,692.74  
Total Costs to be Assured: \$1,495,995.30

The fiscal year of the unit of local government ends June 30. The figures for the following items marked with an asterisk are derived from this unit of local government's Annual Financial Information Report (AFIR) for the latest completed fiscal year, ended June 30, 2010.

## RATIO INDICATORS OF FINANCIAL STRENGTH

1.	Sum of current closure, post-closure and corrective cost estimates	\$1,495,995.30
*2.	Sum of cash and investments (AFIR Part 7)	\$33,829,873
*3.	Total Expenditures (AFIR Part 4 Columns a & b and Part 5 for municipalities or Part 5 excluding educational capital outlays for counties)	\$62,653,336
*4.	Annual debt service (AFIR Part 4 Section I)	\$6,513,292

5.	Assured environmental costs to demonstrate financial responsibility in the following amounts under Division rules:	
	MSWLF under 15A NCAC 13B .1600	\$1,495,995.30
	Hazardous waste treatment, storage and disposal Facilities under 15A NCAC 13A .0009 and .0010	\$0
	Petroleum underground storage tanks under 15A NCAC 2N .0100-.0800	\$0
	Underground Injection Control System facilities under 15A NCAC 2D .0400 and 15A NCAC 2C .0200	\$0
	PCB commercial storage facilities under 15A NCAC 20 .0100 and 15A NCAC 2N .0100	\$0
	Total assured environmental costs	\$1,495,995.30
*6.	Total Annual Revenue (AFIR Part 2)	\$68,261,669
7.	Is line 5 divided by line 6 less than or equal to 0.43?	yes
8.	Is line 2 divided by line 3 greater than or equal to 0.05?	yes
9.	Is line 4 divided by line 3 less than or equal to 0.20?	yes

Sincerely,



Darlene Fox  
 Jackson County Finance Director  
 401 Grindstaff Road  
 Sylva, NC 28779



Table 2  
Corrective Action Implementation Cost  
Dillsboro Landfill  
Jackson County, North Carolina  
May 2, 2011

Task	Professional Costs			Lump Sum	Subcontractor Costs		Comments/Assumptions	Cost
	C Pro	Pro II	Tech		Quantity	Cost/Unit		
<b>Task 1 - Plans, Permits, and Bid Documents</b>								
Future Sampling and Analysis Plan	116	90	60					
Health and Safety Plan	0.50	2.00	8.00					
Initial Application to the DEHP/MSA	0.25	1.00	4.00					
Response to Questions from DEHP/MSA	10.00	40.00	6.00					
Bid Documents	5.00	20.00	2.00					
Professional Hours	25.75	93.00	12.00					
Professional Costs	2,987.00	8,370.00	456.00					
Professional Admin Fee	298.70	837.00	45.60					
Professional Costs with Admin Fee	3,285.70	9,207.00	501.60					13,786.30
<b>Task 2 - Extractive System Installation</b>								
Overnight Mileage			60.00					4,500.00
LFS Extraction Well Head Modification								17,042.00
Well Caps				9.00	500.00			4,500.00
Short AP4 Bottom Load Pumps				9.00	1,338.00			12,042.00
AP4 Filtrage				3.00	1,665.00			4,995.00
Conversion Kit for Existing Pump				1.00	25.00			75.00
Short AP4 Bottom Load Pumps				5.00	50.00			30.00
AP4 Filtrage				6.00	2,315.00			14,575.00
Hyvon Tubing Bundle				630.00	6.69			4,218.50
Support Rope				9.00	0.45			283.50
Pump Cycle Counters				9.00	220.00			1,980.00
Mobilization								1,000.00
Trenching on Landfill				1,500.00	9.00			13,500.00
2" SDR 9 HDPE with Yellow Stripe				1,500.00	3.00			4,500.00
2" SDR 11 HDPE				1,500.00	2.00			3,000.00
Air Compressor with Diver								20,000.00
Electrical Subcontractor								1,000.00
Professional Hours	0.00	0.00	80.00					89,440.00
Professional Costs	0.00	0.00	4,800.00					8,344.00
Professional Admin Fee	0.00	0.00	480.00					91,784.00
Professional Costs with Admin Fee	0.00	0.00	5,280.00					93,024.00
<b>Task 3 - Connection to TWSA</b>								
Overnight Mileage			40.00					3,000.00
Mobilization								300.00
Wet Well and Installation								8,000.00
Suction Lift Pump/Vault and Installation								1,000.00
Flow Meter								3,000.00
Flow Meter Vault and Installation								500.00
Force Main Tranching				650.00	13.00			8,450.00
2-inch diameter Schedule 40 PVC				650.00	9.00			5,850.00
Electrical Subcontractor								500.00
Professional Hours	0.00	0.00	40.00					500.00
Professional Costs	0.00	0.00	2,400.00					26,100.00
Professional Admin Fee	0.00	0.00	240.00					28,000.00
Professional Costs with Admin Fee	0.00	0.00	2,640.00					30,910.00
<b>Total Capital Costs = 145,229.30</b>								

Table 3  
Annual Corrective Action System Cost  
Dillsboro Landfill  
Jackson County, North Carolina  
May 2, 2011

Leachate Extraction in Combination with Monitored Natural Attenuation												
Task	C. Pro	Pro. III	Professional Costs	Chemical	Expenses	Lump Sum	Quantity	Subcontractor Costs	Unit	Cost/Unit	Comments/Assumptions	Cost
	116	90	Tech 60 350	38								
<b>Task 1 - Additional Semiannual Sampling Parameters</b>												
Filling Bottles (Professional Hours)											1.75 additional hours per event, 2 events per year	
Aluminum							14.00		each	12.00	7 samples per event, 2 events per year	\$ 168.00
Chloride							14.00		each	32.00	7 samples per event, 2 events per year	\$ 448.00
Ferrous Iron							14.00		each	15.00	7 samples per event, 2 events per year	\$ 210.00
Hydrogen							14.00		each	15.00	7 samples per event, 2 events per year	\$ 210.00
Manganese							14.00		each	15.00	7 samples per event, 2 events per year	\$ 210.00
Mercury							14.00		each	66.00	7 samples per event, 2 events per year	\$ 924.00
Nitrate							14.00		each	36.00	7 samples per event, 2 events per year	\$ 504.00
Sulfate							14.00		each	10.00	7 samples per event, 2 events per year	\$ 140.00
Total Organic Carbon							14.00		each	20.00	7 samples per event, 2 events per year	\$ 280.00
Professional Hours	0.00	0.00	9.50	0.00	NA						Subtotal - Subcontractor Costs	\$ 3,122.00
Professional Costs	0.00	0.00	240.00	0.00	0.00						Subtotal - Markup on Subcontractors	\$ 312.20
Professional Admin Fee	0.00	0.00	21.00	0.00	NA						Subtotal - Subcontractor Costs with Markup	\$ 3,434.20
Professional Costs with Admin Fee	0.00	0.00	261.00	0.00	0.00						Subtotal - Professional Costs with Admin Fee	\$ 231.00
<b>Task 2 - Extraction System Operation and Maintenance</b>												
Monthly Compliance Sampling											4 hours per month	
Compliance Expenses					660.00							
Electrical Costs												
Annual Discharge Gallons per Year							12.00		samples	200.00	1 sample per event, 12 events per year	\$ 2,400.00
Annual Air Compressor Maintenance							1,200,000.00		gallons	655.50	Based on \$0.06 per kilowatt-hour	\$ 784.95
Professional Costs	0.00	0.00	48.00	0.00	NA	2,000.00				0.0041	warranty	\$ 2,000.00
Professional Admin Fee	0.00	0.00	2,860.00	0.00	660.00						Subtotal - Subcontractor Costs	\$ 17,161.95
Professional Costs with Admin Fee	0.00	0.00	288.00	0.00	NA						Subtotal - Markup on Subcontractors	\$ 1,716.20
Professional Costs with Admin Fee	0.00	0.00	3,168.00	0.00	660.00						Subtotal - Subcontractor Costs with Markup	\$ 18,878.15
Professional Costs with Admin Fee	0.00	0.00		0.00	660.00						Subtotal - Tag 2	\$ 3,926.00
											Total Annual Cost	\$ 22,706.15
												\$ 26,577.35

Table 4  
 Twenty-Two Year\* Estimate of Post-Closure and Corrective Action Costs  
 Dillsboro Landfill  
 Jackson County, North Carolina  
 May 2, 2011

Task	Yearly Cost	22 Year Cost	22 Year Cost Including Inflation**
Post-Closure Activities	\$27,644.40	\$608,176.80	\$691,302.56
Extraction System Installation	\$145,225.30	\$145,225.30	\$145,225.30
Extraction System Maintenance	\$26,371.35	\$580,169.70	\$659,467.44
Total		\$1,333,571.80	\$1,495,995.30

\* Based on Permit For Closure

\*\* Assumes 1.2% Inflation