



Sherry



GUILFORD COUNTY
PLANNING AND DEVELOPMENT DEPARTMENT

DOC 1 D 15207
34-06
9-21-11 DW

December 17, 1997

Mr. John G. Wolfe, III
Attorney at Law
Wolfe & Collins, P.A.
101 South Main Street
Kernersville, N.C. 27284

Re: Proposed Franchise Application for Piedmont Landfill and Recycling Center (PLRC)

Dear Mr. Wolfe:

In regards to PLRC Franchise Application and comments from your previous letters, additional information or clarification is needed as follows:

1. a.) Regarding '....description of volume, source and characteristics of the waste stream...'

Provide a list, origin and specific makeup of the waste to be processed at the PLRC site. You have advised that a large part of the waste comes from transfer stations in Virginia, but where does the waste originate? Where does it come from before it is transferred at the transfer station?

b.) Regarding '....jurisdictions served....'

Your letter of September 19, 1997 made reference to 12 counties in Virginia and you listed them along with the state of North Carolina. Your letter of November 24 refers to only 37 counties in North Carolina along with the 12 in Virginia. Please list all the counties this landfill will serve. Also, where transfer stations are involved, list the points of origin of waste prior to transfer station.

c.) Regarding '....10% recycling efforts...'

The use of recycled tires in the landfill is an excellent form of reuse, but, it does not constitute recycling. PLRC needs to remove or divert 10% of the gate tonnage. Tires are not a gate tonnage as tires are prohibited by law from landfills.

2. Regarding '....fee schedule....'

Section c (2) of the Guilford County Franchise Ordinance provides..."The Board of Commissioners shall approve all fees to be charged by the applicant or operator of a sanitary landfill subject to a franchise....". Please provide a list of fees to be charged by PLRC for all waste regardless of the source of the waste. Future changes to the fees are also required to be approved in advance by the Board.

3. Regarding '....liability insurance....'

Section (b) (9) of the Guilford County Franchise Ordinance requires the applicant for a Solid Waste (Non Hazardous) Landfill to provide with the application complete, clear and accurate information regarding liability insurance policies carried by the applicant. These policies must be good and sufficient to insure payment for damages resulting from injury to property arising out of the collection, transportation or disposal of solid waste by the franchisee or its agent. Said policies shall contain a "hold harmless clause" indemnifying the county with respect to claims made against the franchise or county.

The information which you submitted on September 19, 1997 and which you subsequently discussed in your letter of November 24, 1997 is not adequate nor sufficient as required by the Guilford County Franchise Ordinance. Please provide the liability insurance information required by the franchise ordinance.

Other issues (closure cost, land options) addressed in your November 24th letter are sufficient per the ordinance. The County will seek "written confirmation on closure cost" from NCDEHNR/Solid Waste Section.

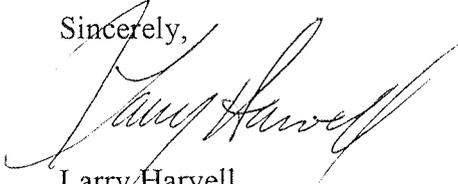
In view of the partial responses contained in correspondence over a period of time, the County requires that PLRC submit a single consolidated franchise application containing all elements into one final document addressing Guilford County Franchise requirements. The current array of documentation is simply too confusing to present to the Board.



Please make every effort to comply with the express terms of the ordinance. Also note that provision of false or misleading information may result in revocation of a franchise as the ordinance provides.

We look forward to receiving further information and clarification on issues addressed above .

Sincerely,



Larry Harvell
Planning and Development

cc: Roger Cotten, County Manager
Jim Elza, Director, Planning and Development
Jonathan Maxwell, County Attorney
Mul Wyman, Director, Planning Division
Betty Garrett, Chief, Community Services
✓ Sherry Coghill, DEHNR



Triad

B

BUSINESS

■ The governor touts Smart Start in the Triad. B6

Landfill expansion denied after 300 debate

● Proponents and critics of a private landfill expansion into Guilford County lobby hard before planning officials turn it down.

BY NANCY H. MCLAUGHLIN
Staff Writer

Guilford Planning Board members late Wednesday denied Waste Management a permit to expand its landfill into western Guilford County.

The vote came after 3½ hours of testimony from residents against the landfill expansion proposal.

Waste Management likely will appeal the planing board decision to the Guilford County Board of Commissioners, said attorney Henry Isaacson, who represented the company.

The Guilford County Planning Board denied the request 5 to 2. Board chairman Ken Mayer and member David Teague were in favor of granting the permit.

"I find credible evidence that it should be denied," board Vice Chairman Robert

Davis said in making the motion to deny the proposal.

Alan Hawkes, an alternate member of the planning board who is not allowed to vote, spoke for the minority: "I sympathize with them, but the landfill has to go somewhere."

Waste Management of the Carolinas Inc. was seeking a special-use permit to extend the Piedmont Landfill across the Forsyth/Guilford county line, onto a 370-acre site in Guilford between Stokesdale and Oak Ridge. Company officials will now have to take their arguments to the Guil-

ford County Board of Commissioners.

Opponents to the plan pressed their case late into the night Wednesday.

W.H. Long, who runs a trucking company that hauls solid waste and lives in the area, was the only other person besides Isaacson and his experts to stand in support of the expansion.

"We can all agree that today we live in a throw-a-way society," Long said. "About everything we buy comes in a throw-a-way container. It's cheaper to throw away an appliance than to fix it. We need some place to take it. I think the Piedmont

Landfill provides a necessary service, and they try hard to be a good neighbor."

Landfill opponents claimed it would be a noisy, smelly nuisance that would lower the value of their homes and destroy their quality of life. They were organized in their opposition, having formed a task force and a hotline to rally others behind their cause and to share information. The majority of the more than 300 people who showed up for the planning board meeting stood in opposition to the plan.

Please see **FILL**, Page B2

Upset local educators get a dose of ABCs

● North Carolina officials explain aspects of the new plan

He has a way with words



Restaurants may change sanitation grade systems

not
 3
 it do not count
 performance
 course tests (Algebra II,
 chemistry, physical
 or project

News & Record

to fix some problems.
 e proposals: The ABCs
 later include more tests
 juniors and seniors, and
 ils will get partial credit
 "a I test results taken by
 hen they were in middle

Johnson, an associate
 action superintendent, re-
 e audience that state law-
 expect every North
 public school student to
 uality teaching and to
 subjects. There should
 eptions, he said.

re groups you single out,
 e saying that all students
 taught in a quality man-
 hat all students cannot
 2 subject matter," John-
 I think that is an indefen-
 ion."

ng Eury, principal of
 wan High School near
 said principals worry
 ng their jobs when stu-
 r high school unable to
 rite. He compared the
 1 to industry, which can
 re raw materials it uses.
 ry can control its re-
 let better than I can,"
 as audience members

FILL

Continued from page B1

"It's a public health issue," in-
 sisted critic Danny Beeson, who
 lives near the proposed site in Ker-
 nersville.

Beeson showed members of the
 Guilford County Planning Board a
 videotape and pictures of garbage
 trucks and into the trees outside
 the gates of the current landfill
 facility. The videotape also showed
 what Beeson said were syringes
 and medical gloves in homeowners'
 yards. A woman told of how her son
 was almost hit by a truck on his
 way to his school bus.

"They are not a mom-and-pop
 operation worried about our con-

cerns," said Thomas Brown, an-
 other critic who lives near the pro-
 posed area.

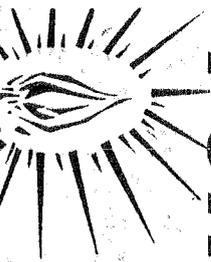
Waste Management owns or has
 options to buy the 370 acres in
 Guilford County.

Their plan is to increase the
 landfill site from 102 to 472 acres,
 with 159 acres to be used for the
 landfill itself, according to a Waste
 Management map submitted to the

Guilford planning department.
 The rest of the land would be
 used as a buffer and for buildings
 related to the landfill operation.

Isaacson, who was surrounded
 by his own transportation and solid
 waste experts, said that in the com-
 pany's eight years of running the
 Piedmont Landfill it has never
 been cited by federal, state or local
 governments.

LIGHT A CANDLE FOR CHRISTMAS!



Lakeview candlelight for those
 family members with loved ones
 entrusted to our care at
 Lakeview, we encourage you to
 come to the cemetery to receive
 a luminary that you may light
 and place on the grave on
 Saturday December 13, when
 our annual luminary event will
 take place. Hurry! Luminary
 supplies are limited!

LAKEVIEW MEMORIAL PARK



Columbia
 Sportswear Company

- Interchange Parkas
- MTR® Fleece
- Rugged Sportswear



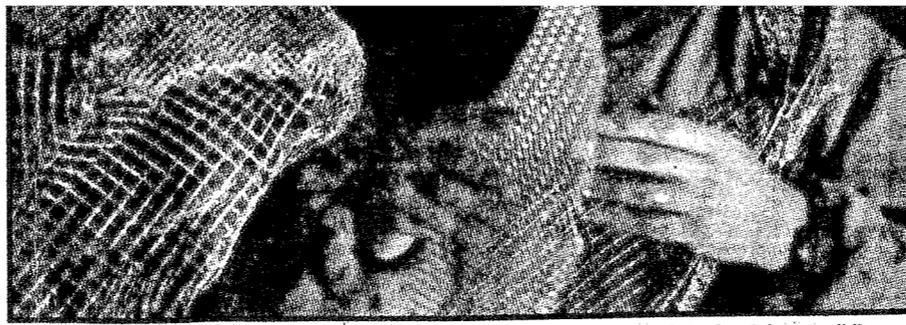
Great Outdoor Provision Co.

BY KERRY HALL
Staff Writer

Years ago, the grassy knoll at the intersection of Best and Julian streets was overrun with prostitutes and drug pushers and littered with trash. Today, the streets have new names, nearby residences are refurbished, and picnic benches and charcoal grills dot the gently sloping hill. Soon, residents of this largely African American neighborhood

section of John Dimrey Drive and Benjamin Benson Street. Well, they probably won't be face to face, since one of the two figures in the sculpture is 10 feet tall. The artwork, titled "Two Paths to Freedom," commemorates two men, Benjamin Benson and John "Moses" Dimrey, and the means with which they fought their way out of slavery.

Please see **HONOR**, Page **B2**



Lewis' steel sculpture was commissioned by Project Homestead, Greensboro's largest nonprofit home builder.

Jerry Wolford/News & Record

our plans." Mark Clack, the NAACP's field secretary for branches, who reviews and rules on such complaints, dismissed the charges in a letter to Alston opponent Terry Belk of Charlotte, dated Dec. 2 but not released until Dec. 9. Clack did not return telephone calls to his office in Atlanta on Monday and Tuesday.

Please see **ALSTON**, Page **B2**

12/10/97 News & Record

Landfill proposal comes before county board

The Guilford planning board must decide whether a company meets the county's qualifications to expand its landfill.

BY BEN FELLER
Staff Writer

The Guilford County Planning Board is expected to decide tonight whether to grant a permit

that would allow a private landfill to expand from Forsyth County onto a 370-acre site in Guilford. Waste Management of Carolinas Inc. is seeking a special-use permit to extend the Piedmont Landfill across the county line to an area between Stokesdale and Oak Ridge. Though it is just one step in the lengthy government approval process that a landfill requires, the granting of a special-use permit is essential if the project is to proceed. And no matter what the planning board decides

tonight, its decision is almost sure to be appealed to the Board of Commissioners by proponents or critics of the landfill.

The proposed expansion would increase the total landfill site from 102 to 472 acres, with 159 acres to be used for the landfill itself, according to a Waste Management map submitted to the Guilford planning department. The rest of the land

Please see **BOARD**, Page **B5**

WANT TO GO?

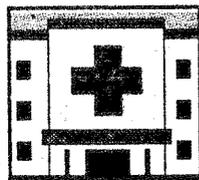
What: Guilford County Planning Board meeting, including a public hearing on whether the board should grant a special-use permit for a landfill expansion.

When: 7 tonight.

Where: Old County Courthouse, 301 W. Market St., Greensboro.

NEWS TO USE

Drive will help mammography unit



The Annie Penn Hospital Foundation hopes to raise \$25,000 by Thursday in the hospital's annual fund-raising campaign. The money raised will be used to buy a second mammography unit at the hospital's Womankind Center.

The campaign ends Thursday, and volunteers will be calling donors until then. Last year's campaign raised \$26,000. For more information, call 634-4552.

Stocking fund needs volunteers

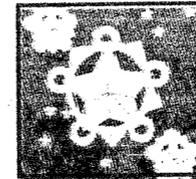


The Empty Stocking Fund needs volunteers to help give out the stockings at the Greensboro Farmers Curb Market at 501 Yanceyville Street.

Distribution hours are 8 a.m. to 8 p.m. today. Volunteers will also be needed to load leftover boxes after 10 a.m. on Thursday.

Volunteers can come directly to the Yanceyville Street location or call the Greensboro Jaycees at 379-1570 for information. This year's Empty Stocking Fund will provide more than 5,000 Christmas stockings for area children ages 12 and younger.

We want to know about your closings



This winter, The Depot@greensboro.com will have a weather closings list — from day cares to large companies — on the Internet at www.greensboro.com when bad weather strikes. Triad organizations, club or businesses need to sign up in advance so they can be included in the closings during bad weather.

To sign up, send a letter on company letterhead by Dec. 25 to Rod Overton, News & Record, P.O. Box 20848, Greensboro, N.C. 27420-0848 or fax to 373-7182.

BOARD

Continued from page B1

would be used as a buffer and for buildings related to the landfill's operation.

Waste Management owns or has bought 370 acres in Guilford County. Company officials say the expansion would extend the landfill's life into the next century and would provide needed space for communities to get rid of garbage.

But residents of northwest Guilford towns say the landfill would be a noisy, smelly nuisance that would lower the value of their homes and destroy their quality of life. They are organized in their opposition, having formed a task force and a hotline to rally others behind their cause and to share information.

When the Guilford commissioners had a hearing on the landfill in April, more than 300 people packed the Old County Courthouse. The overwhelming majority came to oppose the project.

The seven-member planning board is expected to have a large audience of its own. The board will have a hearing to consider evidence about the landfill's impact. It must then make its decision on the permit based on findings of fact.

To approve the permit, the planning board must determine that the landfill expansion:

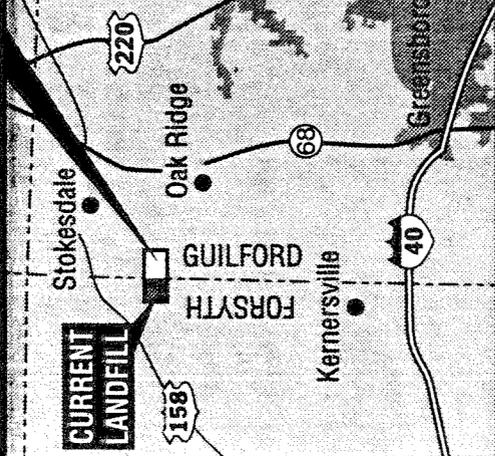
- will not endanger the public health or safety if developed as proposed.
 - will meet conditions of the county's development ordinance and others that are added by the company or county officials.
 - will not substantially harm the value of adjoining property or will meet a public necessity.
 - will be in harmony with the area in which it is to be developed.
- The county planning staff has not recommended that the planning board approve or deny the permit. In its written comments to the board, however, the staff says that Waste Management has not provided information to prove it meets some of the conditions.

"We try to point the board toward things that it needs to look at," said Mark Kirstner, the county's zoning administrator. "It's up to the board to determine if (Waste Management) met the criteria. It's not supposed to be an emotional decision."

Henry Isaacson, a Greensboro lawyer hired to represent Waste Management in its pursuit of a special-use permit, said the company will show tonight that it does qualify for the permit.

"Our government has got to address the question of solid waste management, just like it addresses questions about water and other

PROPOSED PIEDMONT LANDFILL FACILITY EXPANSION



News & Record

community needs and problems," Isaacson said.

"This is not just a local issue. It affects the entire county. And so I hope that the decision-makers will look beyond just the people who would come out and oppose this and will address the need."

Waste Management of Carolinas Inc. is a subsidiary of Waste Management Inc., a \$10 billion corporation that runs 140 landfills around the country. Opponents of the local landfill expansion offer criticism not just of the project but of the parent company, which they consider to be untrustworthy and uncommitted to the public's health.

Waste Management says it will accept garbage only from North Carolina and Virginia at the Guilford site. But Bill Parrish, a leader of the landfill opposition, says he and his neighbors believe garbage will be shipped in from New York.

Last year, a consultant advised the Guilford commissioners not to contract with Piedmont Landfill because of the expense and the uncertainty surrounding the landfill's expansion efforts.

Instead, the consultant recommended that the commissioners promote the expansion of two city-owned landfills and find a site for a third public landfill. The commissioners have expressed interest in forming a solid waste authority to tackle the issue.

"That very clearly points out to Waste Management that they're not needed in the county, and the people are going to be telling them that they're not wanted," Parrish said.

In addition to the special-use permit for the landfill, Waste Management must gain a county franchise, county and state approval to relocate Water Oak Road and a state landfill permit.

The proposed landfill site is zoned for agricultural uses. Though the county commissioners voted last summer to disallow landfills in the agricultural zone, that does not apply to Waste Management's proposal because the change came after the company began its permit quest.

THE FAMILY OF MAI
stone of Flint Street
Nov. 25, 1997, wish to
be sent to Arthritis
3200 Beech Leaf Ct
27604.

Hanes Lineberry
is assisting the fam-

GRACE L. WILEY
Mrs. Grace L. Wiley
parted this life on Feb.
1997, at High Point
hospital.

The funeral
will be held at 3
p.m. Wednes-
day, Dec. 10,
1997, at Brown's
Funeral Home.
Burial will fol-
low at Piedmont
Memorial Park.

She is sur-
vived by her husban
iel Graves; four chil-
dren: M. Wiley; M.
Graves; Mr. D. Jer-
ms. LaDonna A. C.
Greensboro; one da-
Mrs. Vickie Graves
boro; four sisters,
Hicks of Denver, Co
Lee Hammer of C
Yvonne Beatty of
Mrs. Gladys Black
eight grandchildren
nieces and nephews
relatives.

The family will re-
will meet at 2105 Ec-

TERRANCE HARR
Mr. Terrance Har-
Monday, Dec. 8, 1997
Funeral arrange-
pending at Brown
Home.

C. MONROE JO
HIGH POINT —
Jones, 59, died Mon-
1997.

The funeral will
Thursday, Dec. 11, 1997,
Archdale Chapel.

ANNE CAROLYN HARR
Anne Carolyn Har-
63, a resident of 5007
Drive, died Monday,
at her daugh-
ter's home.

The funeral
will be held at 1
p.m. Friday,
Dec. 12, 1997, at
Hargett Memo-
rial Chapel. In-
terment will fol-
low at Piedmont
Memorial Park.

Anne Carolyn, as she
tionately called by her
tended the Green
School System and
from James B. Du-
High in 1951. She la-
Fisk University in
Tenn. She enjoyed oil
was an avid organist



GUILFORD COUNTY
PLANNING AND DEVELOPMENT DEPARTMENT

September 24, 1997

CERTIFIED MAIL

Honorable William L. Meyer, Director
North Carolina Department of Environment,
Health and Natural Resources
P. O. Box 27687
Raleigh, North Carolina 27611-7687

**Re: CONSISTENCY DETERMINATION FOR PROPOSED
OPERATION OF SANITARY LANDFILL (SOLID WASTE
DISPOSAL - NONHAZARDOUS) BY WASTE MANAGEMENT
OF CAROLINAS, INC. IN GUILFORD COUNTY**

Dear Mr. Meyer:

This response is submitted to the attached September 15, 1997 request for consistency determination under N.C. G.S. 130A-294(b1)(4). As the September 15 request states, no permit application accompanied the request.

1. Guilford County has jurisdiction over the land on which the proposed facility is proposed to be located.
2. Guilford County held the general public interest hearing pursuant to N.C.G.S. 130A-294(b1)(2) on the state site study application on April 13, 1997. No action was required. The minutes of that hearing were sent to DEHNR on April 29, 1997.
3. The site study prepared for the proposed facility and submitted to the Solid Waste Section appears to be incomplete: (a) the Guilford County Board of Commissioners has not approved the site pursuant to 15A NCAC 13B.1618 (C)(5)(A) nor submitted its approval to DEHNR/Solid Waste Section; (b) Guilford County has not made a determination pursuant to 15A NCAC 13B.1618(C)(5)(C) that the proposed facility is consistent with the county's Solid Waste Management Plan. (See number 7 below.)

4. Guilford County has not approved a site plan, a special use permit, a road closing, or a franchise for this facility, but Guilford County does have in effect ordinances and/or procedures requiring and governing such approvals. In addition, NCDOT has not approved abandonment or relocation of Water Oak Road, and FEMA has not approved the Water Oak Road CLOMR.
5. Effective July 1, 1997 Guilford County has a requirement that this proposed use is allowed only in an HI (Heavy Industrial) zone. This proposed use (solid waste disposal-nonhazardous) is located in an AG zone. However, since this HI rezoning requirement was not in place for 90 days before the request for consistency determination, this requirement cannot be applied to the property, as provided by N.C.G.S. 130A-294(b1(4)). However, a special use permit must be obtained in accordance with the procedures in the Development Ordinance.
6. At this time the proposed facility is not consistent with the Guilford County Development Ordinance, including zoning and land use, the County Solid Waste Franchise Ordinance, or road closing (N.C.G.S. 153A-241) (after abandonment by the State). No franchise has been issued. No special use permit has been issued. No site plan has been approved. As the September 15 request points out, the site plan is a basic document for securing a special use permit, and it must show how erosion control and other land use requirements will be met. Building, plumbing, grading, electrical and similar permits would be required during the construction phase, as provided by the Development Ordinance and state law. These have previously been discussed with the applicant in some detail.
7. N.C.G.S. 153A-136 requires a public hearing by the board of commissioners whereby the board shall consider alternative sites and socioeconomic and demographic data prior to approving a new sanitary landfill site in this situation.

Honorable William L. Meyer, Director
September 24, 1997
Page 3

8. In the letter of 9/15/97 it is stated that PLRC "has applied to NCDEHNR for a permit to operate a Sanitary Landfill within Guilford County." PLRC may have meant an application to construct. Based on our understanding of 15A NCAC 13B.1618(a), NCDEHNR/Solid Waste Section must first consider a site study pursuant to construction of a proposed facility. If NCDEHNR/Solid Waste Section finds the site is suitable, the applicant is authorized to prepare an application for a permit to construct the proposed facility. A permit to operate the proposed facility may be subsequently issued by NCDEHNR/Solid Waste Section only after all requirements are met.

Each of the above local governmental approvals stands on its own. We enclose copies of ordinances containing the local government approval requirements. We are also providing a copy with attachments herewith to the applicant. If the applicant disagrees with an interpretation of a local ordinance requirement contained herein, it may appeal to the Board of Adjustment under Sections 9-5.2 and 9-8 of the Development Ordinance.

Sincerely yours,

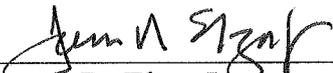


James D. Elza, Jr., AICP
Director, Department of Planning
and Development

Honorable William L. Meyer, Director
September 24, 1997
Page 4

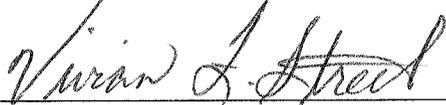
VERIFICATION

The undersigned Guilford County Planning and Development Director hereby certifies that he is the Enforcement Officer as provided by the Guilford County Development Ordinance as adopted by the Board of County Commissioners and that the above determination is correct to the best of his knowledge and belief, as required by N.C.G.S. 130A-294(b1)(4).



James D. Elza, Jr.
Director, Planning and Development

Sworn to and subscribed before me this
the 24th day of September, 1997.



NOTARY PUBLIC

My Commission Expires: 11-19-99

Attachments: 1-Development Ordinance
2-Franchise Ordinance
3-September 15, 1997 Request

cc: Mul Wyman, Director of Planning
Jonathan Maxwell, County Attorney
Ken Knust, Inspections Director
Mark Kirstner, Chief, Zoning Section
Jim Morrison, Chief, Planning Section

Larry Harvell, Community Services
Piedmont Landfill and Recycling Center
(with attachments)
Federal Emergency Management Agency
John Wolfe, Attorney

WOLFE AND COLLINS
A PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELLORS AT LAW
—
KERNERSVILLE, NORTH CAROLINA 27284

JOHN G. WOLFE, III
A.L. COLLINS
JOHN H. BAIN

101 SOUTH MAIN STREET
TELEPHONE (910) 996-3231
TELECOPIER (910) 996-1162

September 15, 1997

HAND DELIVERY

Ms. Norma H. Bodsford
Clerk, Guilford County Board of Commissioners
301 W. Market Street
P. O. Box 3247
Greensboro, NC 27402

**Re: Guilford County Consistency Determination
Waste Management of Carolinas, Inc./
Piedmont Landfill and Recycling Center
Sanitary Landfill Permit Application**

Dear Ms. Bodsford:

The following is submitted in accordance with the requirements of N.C.G.S. 130A-294 b1(4).

Waste Management of Carolinas, Inc./Piedmont Landfill and Recycling Center owns and/or has options upon certain properties within Guilford County upon which it proposes to operate a Sanitary Landfill. A Site Plan has previously been submitted to the Guilford County Planning Department, reference to which should be made for a more particular description of the same.

Piedmont Landfill and Recycling Center has applied by submission of Site Plan Application to the North Carolina Department of Environment Health and Natural Resources (DEHNR) for a permit to operate a Sanitary Landfill within Guilford County.

Per requirement of State Statutes, we have previously hand-delivered to you a copy of the Permit Application which has also previously been forwarded to the North Carolina Department of Environment Health and Natural Resources (DEHNR).

N.C.G.S. 130A-294 b1(4) provides that a request shall be made of each local government having jurisdiction over these properties for "determination as to whether the local government has in effect a franchise, zoning, subdivision, or land-use planning ordinance applicable to the sanitary landfill and whether the proposed sanitary landfill would be consistent with the applicable ordinances."

Request is hereby made to provide information pertaining to all requirements of Guilford County which would lead to a Determination of Consistency with Guilford County Ordinances.

Piedmont Landfill and Recycling Center has to date:

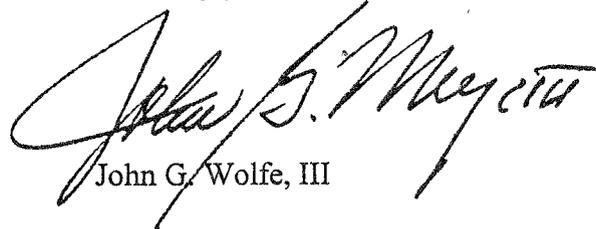
- Filed with the North Carolina DEHNR a Site Plan Application.
- Filed with Guilford County an Application for Franchise to operate a Sanitary Landfill. That Application will be amended to respond to inquiries and comments contained in correspondence from Mr. James D. Elza April 25, 1997.
- Filed with Guilford County Planning Department a Site Plan for review by the Technical Review Committee (September 23, 1997), preceding Special Use Permit Application.
- Filed with Guilford County Planning Department and FEMA the required Flood Plain Plans.
- Filed with Guilford County Health Department the required application for Wells and Septic Tank approval.
- Applied for and received from the United States Army Corps of Engineers a "Nationwide 26 Permit" (NWP26) for the filling of Jurisdictional Wetlands.
- Filed with the North Carolina Department of Cultural Resources required Historical and Archeological Studies and has received concurrence of said department that there would be "no impact" arising from the proposed use. Biological and Ecological studies have also been filed with the said Department of Cultural Resources.
- Filed with the North Carolina Department of Transportation a petition for abandonment of maintenance of Water Oak Road and a portion of Goodwill Church Road.

Piedmont Landfill and Recycling Center proposes to expand its present facilities to utilize property either now owned and/or under option. As a part of such expansion proposal there would be a relocation of Water Oak Road and a portion of Goodwill Church Road. It is understood that both State Statutes and County Ordinances must be followed in such Relocation. State approved plans for the relocation have, at this time, been submitted to Guilford County Planning. Piedmont Landfill and Recycling Center will, at the appropriate time, also file applications for Grading and Erosion Control Permits with Guilford County for the relocation of White Oak Road and Goodwill Church Road and with the State of North Carolina for the operation of the Sanitary Landfill.

Please advise as to any other approvals which must be obtained prior to a final Determination of Consistency with Guilford County Ordinances. It is my understanding that in order for DEHNR to take into consideration the applicable Guilford County Ordinances in DEHNR's action upon the aforementioned Permit Application, response by Guilford County is necessary within fifteen (15) days of your receipt of this request for consistency determination.

I look forward to hearing from you.

Sincerely yours,



John G. Wolfe, III

JGW:mpp

cc: Mr. Jonathan V. Maxwell
Mr. James E. Elza, Jr.

GUILFORD COUNTY CODE

Sec. 15.5-5. Franchise required [for sanitary landfill].

(a) Grant of franchise required. It shall be unlawful for any person or applicant for a sanitary landfill permit from the State of North Carolina to operate a sanitary landfill (as defined in N.C.G.S. 130A-290, as amended) in unincorporated Guilford County without having been granted a non-exclusive franchise by the Guilford County Board of Commissioners to do so. This franchise shall be in addition to other approvals required by law, including but not limited to land use approvals. "Person" means an individual, corporation, company, association, partnership, unit of local government, state agency, federal agency, or other legal entity. Where applicable and unless a different meaning is required by the context, the words included herein and defined in N.C.G.S. 130A-290 or N.C.G.S. 130A-294 shall have the meaning stated in that statute.

(b) Information required. An applicant for a franchise must provide with the application complete, clear and accurate information regarding:

- (1) A statement of the population to be served, including a description of the geographic area;
- (2) A description of the volume, source and characteristics of the waste stream;
- (3) A projection on the useful life of the landfill, an accurate estimate of any closure costs, and an undertaking in amount and form approved by the County Manager or his designee securing the full cost of said closure;
- (4) Number of employees the applicant expects to use in the business;
- (5) Name and address of the applicant and whether a sole proprietorship, corporation, or partnership, with disclosure of ownership interests;
- (6) A list of equipment possessed, available to, or to be obtained by the applicant;
- (7) The fee schedule for fees charged at the landfill;
- (8) Property description and site plan of the landfill; and
- (9) Liability insurance policies carried by the applicant. Said policies shall be good and sufficient, in the opinion of the County Manager or his designee, to insure payment for damages resulting from injury to property arising out of the collection, transportation or disposal of solid waste by

(f) Enforcement and revocation. Failure to comply with franchise requirements or applicable laws shall subject franchisee to revocation of the franchise, following notice and opportunity to be heard, and/or cause the franchisee to be subject to any other enforcement method or penalty allowed by law, including the Guilford County Code.

(Ord. of 5-4-95)



North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

August 11, 1997

Richard Harper
Rust Environment and Infrastructure
5510 Six Forks Road, Suite 200
Raleigh, NC 27609

Re: Archaeological survey report, Piedmont Landfill
Expansion, Guilford County, ER 96-8153, ER 97-
9357, ER 98-7159

Dear Mr. Harper:

We have received a letter dated July 18, 1997, from Tracy Millis of TRC Garrow and Associates transmitting his archaeological report for the above project .

For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that the following property is not eligible for the National Register of Historic Places under Criterion D:

31GF379. This isolated prehistoric artifact lacks sufficient integrity to yield important information.

No additional investigation at this site is warranted.

In general the report meets our office's guidelines and those of the Secretary of the Interior.

These comments are made in accord with G.S. 121-12(a) and Executive Order XVI. If you have any questions regarding them, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: Jim Coffey
Solid Waste Section
Division of Waste Management
DENHR

Tracy Millis
TRC Garrow and Associates





GUILFORD COUNTY
PLANNING AND DEVELOPMENT DEPARTMENT

August 1, 1997

John G. Wolfe, III, Attorney
101 S. Main Street
Kernersville, NC 27284

RE: PIEDMONT LANDFILL AND RECYCLING CENTER (PLRC)

Dear Mr. Wolfe:

This is in response to your July 15, 1997 letter.

Piedmont Landfill and Recycling Center site is zoned AG. As your letter states, Guilford County's Development Ordinance was amended June 26, 1997 to exclude sanitary landfills from the AG zone effective July 1, 1997. Such landfills are allowed in the HI zone with a Special Use Permit.

It is my view that Piedmont Landfill and Recycling Center has not requested a consistency determination under NCGS 130A-294(b1)(4) for the proposed sanitary landfill site. The February 11, 1997 letter from the North Carolina Department of Environment, Health and Natural Resources (DEHNR) which we have discussed made that clear. At subsequent meetings Piedmont representatives have agreed with the February 11th letter that no request for determination of consistency has been submitted by Piedmont to the County. Until a request occurs under G.S. 130A-294(b1)(4), I can make no determination whether rezoning of this property would be required.

If PLRC disagrees with this interpretation, it may be appealed within 15 days to the Board of Adjustment under Sections 9-5.2 and 9-8 of the Development Ordinance.

Sincerely,

James D. Elza, Jr., AICP
Director, Planning and Development

/1

cc: Mul Wyman, Director of Planning
~~Sherry~~ Sherry L. Coghill, Environmental Engineer, DEHNR
Jonathan V. Maxwell, County Attorney
Roger C. Cotten, County Manager

Post Office Box 3427 • Greensboro, North Carolina 27402
Telephone: (910) 373-3334



May 22, 1997

Mr. Bobby Lutfy
North Carolina Dept of Environment, Health, and Natural Resources
Division of Waste Management (DWM)
401 Oberlin Road
Raleigh, NC 27611

Re: Planned Changes for the Piedmont Landfill Expansion Property

Dear Mr. Lutfy:

Please consider this as our understanding of the telephone conversation Peter Walls, Bill Lewis and I had with you today concerning our planned changes for the PLFRC expansion Site Study Application (SSA).

HISTORY

In the DWM's response to our Site Study Application (your letter dated March 27, 1997), it was stated that borrow activities were not allowed in the buffer area associated with the landfill facility boundary (LFB). We have since revised our landfill scheme to reflect the following major changes: moving the landfill footprint out of the FEMA defined floodplain, no stream relocation, revising the location of internal roadways and maintenance facility (placing it in the western LFB), and the relocation of Water Oak Road to the eastern property line.

We showed these new changes to Ms. Sherri Coghill a few weeks ago and requested the DWM to make a determination concerning the following requests: that the maintenance facility be allowed to remain in the western buffer since it was adjoining the existing landfill, for a buffer size determination along Goodwill Church Road, and a buffer size determination along the southeast LFB. It is our understanding that the DWM's decision was as follows: the maintenance facility could stay, a 200 foot buffer would be required from the northern right-of-way of Goodwill Church Road, and 100 foot buffer from the southeast LFB. Upon reviewing this decision, Ms Coghill suggested a more suitable LFB, i.e. move the LFB from the southeast corner to the western right of way of the newly relocated Water Oak Road. This would mean, however, that additional revisions to the SSA would be required to include a subsurface investigation. This is what caused our phone conversation today.

SITE STUDY REVISIONS

Based upon our phone conversation it is our understanding that: If we are going to change the LFB to the above mentioned configuration, the following must be performed:

Mr. Bobby Lutfy
May 22, 1997
Page 2

- Ensure that all location restriction studies (15A NCAC 13B .1622) are adjusted accordingly for this new additional area.
- If the PLFRC believes that a further subsurface investigation (as per 15A NCAC 13B .1623(a)) could be postponed to the design hydrogeologic phase (as per 15A NCAC 13B .1623(b)), and, provided that there are no plans for landfilling this area at this time, then further justification is needed from a NC licensed hydrogeologist.

It is also our understanding that the 100 foot buffer would follow along the new southeast LFB, i.e. the western ROW line of the relocated Water Oak Road, from the intersection of Goodwill Church Road north to the creek.

If this is not in accordance with your understanding of our conversation please let Bill Lewis or I know immediately. Thanks.

Sincerely,



Edward L. Gibson, P.E.
Environmental Engineer

cc: *Bill Lewis*
Peter Walls
Richard Harper
Sherri Coghill

PIEDMONT LANDFILL & RECYCLING CENTER

**9900 FREEMAN ROAD
KERNERSVILLE, NC 27284
(910) 595-6677
FAX (910) 595-9735**

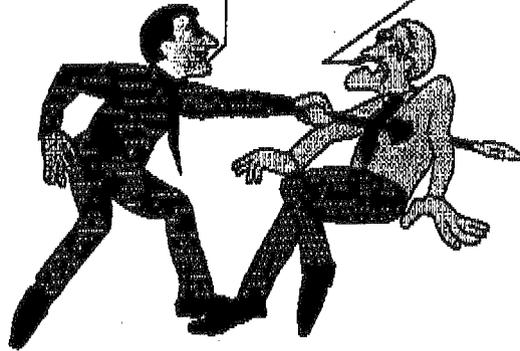
FAX TRANSMISSION COVER SHEET

TO: *Sherri Coghill*

FROM: *Ed Gibson*

DATE: _____ **TIME:** _____

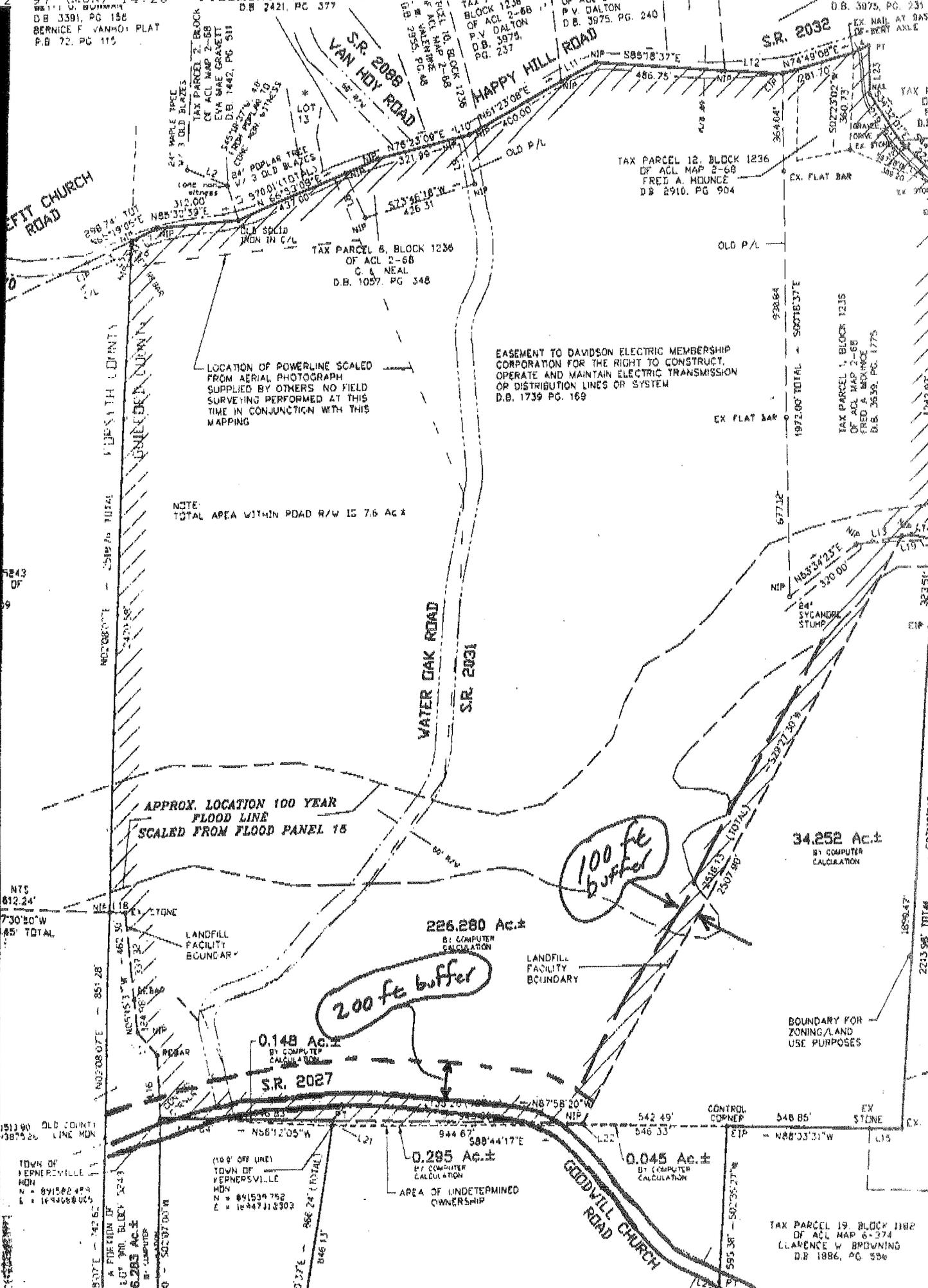
RIGHT TO THE
HEART OF THE
MATTER!!!



HAVE A HEART,
WILL YA?

YOU SHOULD RECEIVE *2* PAGES INCLUDING THIS COVER SHEET. IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (910) 595-6677 IMMEDIATELY. THANK YOU.

COMMENTS: *Is this what you saying? Pls call and let me know. Thanks!*



LOCATION OF POWERLINE SCALED FROM AERIAL PHOTOGRAPH SUPPLIED BY OTHERS NO FIELD SURVEYING PERFORMED AT THIS TIME IN CONJUNCTION WITH THIS MAPPING

EASEMENT TO DAVIDSON ELECTRIC MEMBERSHIP CORPORATION FOR THE RIGHT TO CONSTRUCT, OPERATE AND MAINTAIN ELECTRIC TRANSMISSION OR DISTRIBUTION LINES OR SYSTEM D.B. 1739 PG. 169

NOTE: TOTAL AREA WITHIN ROAD R/W IS 7.6 AC ±

APPROX. LOCATION 100 YEAR FLOOD LINE SCALED FROM FLOOD PANEL 18

100 ft buffer
200 ft buffer

226.280 Ac.±
BY COMPUTER CALCULATION

0.148 Ac.±
BY COMPUTER CALCULATION

S.R. 2027

0.295 Ac.±
BY COMPUTER CALCULATION
AREA OF UNDETERMINED OWNERSHIP

0.045 Ac.±
BY COMPUTER CALCULATION

34.252 Ac.±
BY COMPUTER CALCULATION

TAX PARCEL 13, BLOCK 1182 OF ACL MAP 6-374 CLARENCE V. BROWNING D.B. 1886, PG 536

May 6, 1997

MEMO: To North Carolina Department of Environment, Health
and Natural Resources

RE: Waste Management of Carolinas Inc. plan to expand
landfill into Oak Ridge township of Guilford County

FROM: Faye Ellison
531 Beville Road
Reidsville, NC 27320

My name is Faye Ellison and I grew up in Oak Ridge. My husband is William Byrd Ellison who grew up in Summerfield. He is a United Methodist minister who has been subject to the appointive connectional system since the time of his ordination in the sixties. In a span of thirty years, we have lived in Durham, Greensboro, Charlotte, Reidsville and Winston-Salem.

For several years we have looked forward to the time when we could renovate and restore a house in the northwest corner of Guilford County, located at 8431 Linville Road in Oak Ridge. Our reasons for developing and finalizing these plans are twofold--both by heritage and by choice. The 62 year old Craftsman farm house (my home place) was built by my father and grandfather. With the exception of @ 3 or 4 years when the home was rented, family members have lived in the home.

We have the hope of reclaiming this home as our own residence sometime in the near future. Architectural drawings have been made; plans have been approved by the Historic District Committee; engineering drawings are being made; and we have had preliminary bulldozing and landscaping done.

A few years ago we were informed that the town of Kernersville had purchased land in northeast Forsyth County (adjacent to Guilford County) to expand its landfill. We were not told that it would become a major regional landfill accepting garbage out-of-state. Unfortunately it became apparent, all too quickly, as the numerous garbage trucks began to roll down Linville Road, a residential area, on their way to the landfill @ 2-3 miles from our property.

Faye Ellison

Thanks to the concerted efforts of the neighborhood organization, Neighbors for Environmental Safety and Transportation, eventually much of the traffic was rerouted off some of the more heavily populated areas. This took place after several months of enduring the heavy truck traffic, many meetings of concerned individuals, numerous telephone calls and complaints to elected officials.

Now, another cloud looms over the horizon. The Guilford County Commissioners, are being asked to approve a permit in order to expand the landfill into Guilford County. And the waste management division of the North Carolina Department of Environment, Health and Natural Resources holds the final authority in allowing this expansion.

Even though we do not presently live in Oak Ridge, we have spent thousands of dollars to purchase adjoining land and to improve our property. We have spent many hours of hard labor to improve the property in this beautiful area. We are by no means the exception. As a matter of fact, the rare exception would be the individual who does nothing to improve his or her property.

Aside from the fact that the increased traffic and pollution are likely to lower property values, there are other issues to be addressed. Safety (or lack of it) is an important concern. This entire area is growing rapidly. The increased truck traffic will inevitably be a threat to safety in residential areas. Why is North Carolina, one of the ten most heavily populated states and one of the fastest growing states in the 50 states, being selected as a dumping ground for garbage from other states? Furthermore, why would it be located near the center of a major metropolitan area within our state? What guarantees do we have that the garbage being transported to the landfill is not hazardous?

We are hoping and trusting that the NC Department of Environment, Health and Natural Resources will have the foresight to see the negative impact of allowing the landfill to come into Guilford County and will not approve such expansion. Otherwise, the "WHYS?" we have been asking will continue to grow until we have an answer.

Faye Ellison

Piedmont Landfill
and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735



A Waste Management Company

May 5, 1997

Ms. Sherri Coghill
North Carolina Dept. of Environment, Health, and Natural Resources
Solid Waste Section (SWS)
401 Oberlin Road
Raleigh, NC 27611

Re: Clarification to the Site Study Application For the Proposed Piedmont Landfill & Recycling Center (PLFRC) Expansion Project, Kernersville, NC.

Dear Ms. Coghill:

The purpose of this letter is to clarify a statement made in **Section 7.3.1** of the above referenced document.

As you know, we submitted the above referenced application to you dated January 17, 1997. In **Section 7.3.1**, we indicated that we anticipated an average monthly rate of 71,500 tons per month and that "... *this rate is expected to increase up to 50% annually to account for growth in the service area of the landfill*". This italicized statement needs clarification.

In the site life calculations, the PLFRC used 3,000 tons per day to determine the life of the proposed landfill. This figure is roughly 50% in excess of our existing, average rate of 2,000 tons per day. By no means were we implying that our intake of waste would increase 50% on an annual basis. Instead, we meant that our calculations were based upon a possible 50 % increase in waste stream over the life of the site.

We hope this helps clarify this sentence. If you would, please insert this letter into the Site Study Application. If you have any questions please do not hesitate to call either myself or Ed Gibson @ (910) 595-6677.

Sincerely,

William R. Lewis, P.E.
Division President and General Manager

cc: Ed Gibson
James Elza
Richard Harper

Piedmont Landfill
and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735



A Waste Management Company

May 1, 1997

Mr. Delacy Wyman, AICP
Planning Director
Guilford County Planning & Development Department
Governmental Center No. 2
Greensboro, NC 27402

Re: Clarification of the Piedmont Landfill & Recycling Center (PLFRC) Extension Site
Plan Application

Dear Mr. Wyman:

The purpose of this letter is to help avoid any confusion the Technical Review Committee (TRC) may have when it begins its review of our recently submitted Site Plan.

To avoid any possible confusion regarding the Site Plan submittal to the Guilford County TRC on April 28, 1997 and the Site Study Application (SSA) submittal made to the North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR) on January 17, 1997, we will attempt to explain what is now pertinent, and delineate the differences in the two plans.

First and foremost, the Site Plan submitted to you on Monday signifies the correct plan for this site. Disregard the scheme shown earlier in the SSA submitted to the NCDEHNR. The PLFRC will immediately amend this previously submitted SSA by submitting the same "Overall Site Plan" that was recently submitted to the TRC (this is sheet number 2, the large colored drawing). This newer site plan will replace Drawing number 7-1, "Site Development Plan" of the original SSA. We will also revise Drawing numbers 7-2 and 7-3 of the SSA to reflect the new changes and submit this also to NCDEHNR.

The differences between the January (NCDEHNR) and April (TRC) submittals are as follows:

- The newer site plan shows that the landfill footprint (where the waste will be placed) has been located out of the FEMA defined floodplain.
- The newer site plan shows a smaller landfill footprint because the January SSA proposed stream relocation has been removed.

Mr. Delacy Wyman

May 1, 1997

Page 2

- The newer site plan again shows that the existing Water Oak Road will be abandoned (just like the January SSA submittal) but that a new Water Oak Road will be relocated east of the proposed landfill footprint. To accommodate this relocation, an additional 1.5 acre parcel has been added to the northeast corner of the properties involved with this project.
- The newer site plan shows a different layout and location of landfill buildings, internal roadways, and waste processing, recycling and borrow areas.

If you have any questions please do not hesitate to call either myself or Ed Gibson at (910) 595-6677.

Sincerely,



William R. Lewis, P.E.

Division President & General Manager

cc: Tom Brown
Henry Isaacson
John Wolfe
Sherri Coghill
Richard Harper



GUILFORD COUNTY
PLANNING AND DEVELOPMENT DEPARTMENT

April 29, 1997

Via Facsimile
(910) 996-1162

Mr. John G. Wolfe, III
Attorney-at-Law
101 S. Main Street
Kernersville, NC 27284

Re: Piedmont Landfill Special Use Permit Application

Dear John:

This is in response to your April 25 letter, about which I have conferred with Mul Wyman and the County Attorney.

As you are aware, the November 18, 1996 meeting was held among you, Henry Isaacson and Mul Wyman. Upon your request we outlined the requirements for proceeding with the request for a proposed expansion of the Piedmont Sanitary Landfill into Guilford County. We also provided you a large amount of material, including DEHNR solid waste management rules, a table summarizing statutory requirements, a copy of our Franchise Ordinance, and a copy of a certificate of determination for sanitary landfill consistency.

At the outset you expressed your desire that the procedure be handled in a manner most satisfactory to the county. Comments from DEHNR and a conditionally approved sanitary landfill site plan was our preference. As we understand it, DEHNR has provided you a comment list, but a site plan has not been submitted to the Technical Review Committee.

You now state that you prefer not to receive State input prior to your filing an application for a special use permit. If you prefer to file the application for a special use permit, including the site plan, without having DEHNR's preliminary comments, we will accept it and process it. Please be advised that our staff will ensure to the best of our ability that state siting criteria have been met. It is unfortunate that DEHNR expertise will not be available.



GUILFORD COUNTY
Board of County Commissioners

P. O. Box 3427
GREENSBORO, NORTH CAROLINA 27402

TELEPHONE (910) 373-3351

FAX (910) 373-3209

April 29, 1997

CERTIFIED MAIL

Ms. Sherri L. Coghill, Environmental Engineer for Solid Waste
N. C. Department of Environment, Health & Natural Resources
P. O. Box 27687
Raleigh, North Carolina 27611-7687

Dear Ms. Coghill:

The Board County Board of Commissioners held a public hearing for the purpose of receiving input from the public on the application from the Piedmont Landfill and Recycling Center for a permit for a sanitary landfill. Enclosed is a certified copy of the Minutes from the meeting of April 3, 1997. Also enclosed are copies of two affidavits from the Greensboro News and Record and the Kernersville News showing publication dates of the advertisements.

If you have questions, please contact me at (910) 373-4893.

Sincerely,

Norma H. Bodsford
Clerk to Board

cc: Mr. Jim Elza, Planning Director
Mr. Jon Maxwell, County Attorney

CLIPPING OF LEGAL ADVERTISEMENT
ATTACHED HERE

NOTICE OF PUBLIC HEARING
PIEDMONT LANDFILL AND RECYCLING CENTER
SANITARY LANDFILL PERMIT APPLICATION
UNDER NCGS 130A-294 (b) (2)

DATE: April 3, 1997
TIME: 6:30 P.M.
PLACE: Board of County Commissioners Meeting Room, Second Floor
Old Guilford County Courthouse
301 W. Market Street
Greensboro, North Carolina

This is to notify the public that an application for a permit for a sanitary landfill has been filed by Piedmont Landfill and Recycling Center (PLRC) with the North Carolina Department of Environment, Health, and Natural Resources (NC DEHNR).

Pursuant to NCGS 130A-294 (b) (2), the Guilford County Board of Commissioners will hold a public hearing on the application of Piedmont Landfill and Recycling Center to construct and operate an expansion of approximately 360 acres of a sanitary landfill in unincorporated Northwest Guilford County in the Water Oak Road area adjacent to the existing PLRC sanitary landfill located in Forsyth County.

Under NCGS 130A-294 (b) (2), the purpose of the public hearing is to provide all citizens of Guilford County the opportunity to express their interest in and view of the PLRC sanitary landfill application to the Board of Commissioners and the North Carolina Department of Environment, Health, and Natural Resources, Solid Waste Section. All citizens will be afforded an opportunity to be heard.

This public hearing is for citizen comment on PLRC's state permit application only. Each speaker will be allowed 2 minutes to speak. It is not a public hearing on land use approval, road closing, a franchise, or a special use permit. It is in addition to any other hearing which the law may require. No action will be taken by the Board of Commissioners; this is an informational hearing.

Guilford County has provided NC DEHNR/Solid Waste Section with an initial Consistency Determination of PLRC's sanitary landfill permit application. Copies of the initial Consistency Determination and the PLRC sanitary landfill state permit application are available for public review at the Guilford County Department of Planning and Development, Plaza Level, New Courthouse Bldg., 201 S. Eugene Street, Greensboro, NC during normal business hours, Monday through Friday.

Norma Bodsford, Clerk
Guilford County Board of County Commissioners
301 West Market Street
Greensboro, NC 27402

NORTH CAROLINA
FORSYTH COUNTY.

AFFIDAVIT OF PUBLICATION

Before the undersigned, a Notary Public of said County and State, duly commissioned, qualified, and authorized by law to administer oaths, personally

appeared Becky M. Christiansen

who being first duly sworn, deposes and says: that

~~he~~^{she} (she) is Secretary
(Owner, partner, publisher, or other officer or employee authorized to make this affidavit)

of **KERNERSVILLE NEWS**, engaged in the publication of a newspaper known as **KERNERSVILLE NEWS**, published, issued, and entered as second class mail in the City of Kernersville in said County and State; that he (she) is authorized to make this affidavit and sworn statement; that the notice or other legal advertisement, a true copy of which is attached hereto, was published in the **KERNERSVILLE NEWS** on the following dates:

Mar. 22, 29, 1997

and that the said newspaper in which such notice, paper, document, or legal advertisement was published was, at the time of each and every such publication, a newspaper meeting all of the requirements and qualifications of Section 1-597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Section 1-597 of the General Statutes of North Carolina.

This 9th day of April, 1997.

Becky M. Christiansen
(Signature of person making affidavit)

Sworn to and subscribed before me, this 9th

day of April, 1997.

Paul S. Carter
Notary Public

My Commission Expires February 25, 2000
My Commission expires: _____

NEWS & RECORD

Published by
NEWS & RECORD, INC.
Greensboro, North Carolina

NORTH CAROLINA, GUILFORD COUNTY AFFIDAVIT OF PUBLICATION

Before the undersigned, a Notary Public of said County and State, duly commissioned, qualified, and authorized by law to administer oaths, personally appeared

Gene Kemp who being first duly sworn, deposes and says:

1. That he is Retail Advertising Manager of the Greensboro News Company, a corporation, engaged in the publication of newspapers known as the "News & Record", published, issued and entered as second class mail in the City of Greensboro in said County and State;

2. That he is authorized to make this affidavit and sworn statement; that the notice or other legal advertisement, a true copy of which is attached hereto, was published in the

NEWS & RECORD

on the following dates: March 21, 1997 and
March 28, 1997

for Public Hearing - Piedmont Landfill and placed through Guilford County

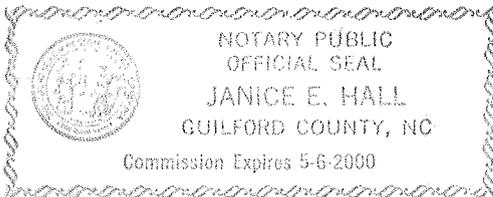
3. That the said newspaper (or newspapers) in which such notice, paper, document, or legal advertisement was published was, at the time of each and every such publication, a newspaper meeting all of the requirements and qualifications of Section 1-597 of General Statutes of North Carolina and was a qualified newspaper within the meaning of Section 1-597 of the General Statutes of North Carolina.

This 2nd day of April 1997

Gene Kemp Advertising Director
Local Advertising Manager

National Advertising Manager

Classified Advertising Manager



Sworn to and subscribed before me, this 2nd day of April 1997

Janice E. Hall
Notary Public

My commission expires: 5-6-2000

GUILFORD COUNTY CODE

Sec. 15.5-5. Franchise required [for sanitary landfill].

(a) Grant of franchise required. It shall be unlawful for any person or applicant for a sanitary landfill permit from the State of North Carolina to operate a sanitary landfill (as defined in N.C.G.S. 130A-290, as amended) in unincorporated Guilford County without having been granted a non-exclusive franchise by the Guilford County Board of Commissioners to do so. This franchise shall be in addition to other approvals required by law, including but not limited to land use approvals. "Person" means an individual, corporation, company, association, partnership, unit of local government, state agency, federal agency, or other legal entity. Where applicable and unless a different meaning is required by the context, the words included herein and defined in N.C.G.S. 130A-290 or N.C.G.S. 130A-294 shall have the meaning stated in that statute.

(b) Information required. An applicant for a franchise must provide with the application complete, clear and accurate information regarding:

- (1) A statement of the population to be served, including a description of the geographic area;
- (2) A description of the volume, source and characteristics of the waste stream;
- (3) A projection on the useful life of the landfill, an accurate estimate of any closure costs, and an undertaking in amount and form approved by the County Manager or his designee securing the full cost of said closure;
- (4) Number of employees the applicant expects to use in the business;
- (5) Name and address of the applicant and whether a sole proprietorship, corporation, or partnership, with disclosure of ownership interests;
- (6) A list of equipment possessed, available to, or to be obtained by the applicant;
- (7) The fee schedule for fees charged at the landfill;
- (8) Property description and site plan of the landfill; and
- (9) Liability insurance policies carried by the applicant. Said policies shall be good and sufficient, in the opinion of the County Manager or his designee, to insure payment for damages resulting from injury to property arising out of the collection, transportation or disposal of solid waste by

the franchisee or its agents. Said policies shall contain a "hold harmless clause" indemnifying the County with respect to claims made against the franchise or County.

The franchise granted by the Board of Commissioners shall also contain that information. Applicants for a franchise should anticipate that the period of time for the processing of an application, including clarification requests by the County, could take up to six months. Provision of false or misleading information in the application may result in revocation of a franchise.

(c) Fees.

- (1) The application fee for a franchise is hereby set by the Board of County Commissioners at \$250.00. The fee may be waived by the Board as to a governmental landfill.
- (2) The Board of Commissioners shall approve all fees to be charged by the applicant or operator of a sanitary landfill subject to a franchise under this ordinance. It shall be unlawful for the franchise to make charges greater or other than those approved by the Board. The franchisee may bill customers one month in advance of service. The fee to be charged by said operator may be changed by the Board as it deems necessary or expedient, by amendment to the franchise. The applicant or operator shall submit any proposed fee changes to the Board of Commissioners for approval by franchise amendment prior to the effective date of the fee change.

(d) Term. A franchise shall be for a term determined by the Board, not greater than ten (10) years for any privately owned sanitary landfill. The term of the franchise for any landfill owned by a government entity shall be not greater than twenty (20) years. A franchise shall not be transferable in any manner whatsoever, by stock transfer, lease or otherwise.

(e) Compliance with franchise and applicable laws. Any person granted a franchise to operate and maintain a sanitary landfill shall be subject to the provisions and requirements of the franchise, this ordinance and all applicable laws, including N.C.G.S. 130A-294.

(f) Enforcement and revocation. Failure to comply with franchise requirements or applicable laws shall subject franchisee to revocation of the franchise, following notice and opportunity to be heard, and/or cause the franchisee to be subject to any other enforcement method or penalty allowed by law, including the Guilford County Code.

(Ord. of 5-4-95)



GUILFORD COUNTY
PLANNING AND DEVELOPMENT DEPARTMENT

August 1, 1997

John G. Wolfe, III, Attorney
101 S. Main Street
Kernersville, NC 27284

RE: PIEDMONT LANDFILL AND RECYCLING CENTER (PLRC)

Dear Mr. Wolfe:

This is in response to your July 15, 1997 letter.

Piedmont Landfill and Recycling Center site is zoned AG. As your letter states, Guilford County's Development Ordinance was amended June 26, 1997 to exclude sanitary landfills from the AG zone effective July 1, 1997. Such landfills are allowed in the HI zone with a Special Use Permit.

It is my view that Piedmont Landfill and Recycling Center has not requested a consistency determination under NCGS 130A-294(b1)(4) for the proposed sanitary landfill site. The February 11, 1997 letter from the North Carolina Department of Environment, Health and Natural Resources (DEHNR) which we have discussed made that clear. At subsequent meetings Piedmont representatives have agreed with the February 11th letter that no request for determination of consistency has been submitted by Piedmont to the County. Until a request occurs under G.S. 130A-294(b1)(4), I can make no determination whether rezoning of this property would be required.

If PLRC disagrees with this interpretation, it may be appealed within 15 days to the Board of Adjustment under Sections 9-5.2 and 9-8 of the Development Ordinance.

Sincerely,

James D. Elza, Jr., AICP
Director, Planning and Development

/1

cc: Mul Wyman, Director of Planning
~~Sherry~~ Sherry L. Coghill, Environmental Engineer, DEHNR
Jonathan V. Maxwell, County Attorney
Roger C. Cotten, County Manager

Post Office Box 3427 • Greensboro, North Carolina 27402
Telephone: (910) 373-3334



May 22, 1997

Mr. Bobby Lutfy
North Carolina Dept of Environment, Health, and Natural Resources
Division of Waste Management (DWM)
401 Oberlin Road
Raleigh, NC 27611

Re: Planned Changes for the Piedmont Landfill Expansion Property

Dear Mr. Lutfy:

Please consider this as our understanding of the telephone conversation Peter Walls, Bill Lewis and I had with you today concerning our planned changes for the PLFRC expansion Site Study Application (SSA).

HISTORY

In the DWM's response to our Site Study Application (your letter dated March 27, 1997), it was stated that borrow activities were not allowed in the buffer area associated with the landfill facility boundary (LFB). We have since revised our landfill scheme to reflect the following major changes: moving the landfill footprint out of the FEMA defined floodplain, no stream relocation, revising the location of internal roadways and maintenance facility (placing it in the western LFB), and the relocation of Water Oak Road to the eastern property line.

We showed these new changes to Ms. Sherri Coghill a few weeks ago and requested the DWM to make a determination concerning the following requests: that the maintenance facility be allowed to remain in the western buffer since it was adjoining the existing landfill, for a buffer size determination along Goodwill Church Road, and a buffer size determination along the southeast LFB. It is our understanding that the DWM's decision was as follows: the maintenance facility could stay, a 200 foot buffer would be required from the northern right-of-way of Goodwill Church Road, and 100 foot buffer from the southeast LFB. Upon reviewing this decision, Ms Coghill suggested a more suitable LFB, i.e. move the LFB from the southeast corner to the western right of way of the newly relocated Water Oak Road. This would mean, however, that additional revisions to the SSA would be required to include a subsurface investigation. This is what caused our phone conversation today.

SITE STUDY REVISIONS

Based upon our phone conversation it is our understanding that: If we are going to change the LFB to the above mentioned configuration, the following must be performed:

Mr. Bobby Lutfy
May 22, 1997
Page 2

- Ensure that all location restriction studies (15A NCAC 13B .1622) are adjusted accordingly for this new additional area.
- If the PLFRC believes that a further subsurface investigation (as per 15A NCAC 13B .1623(a)) could be postponed to the design hydrogeologic phase (as per 15A NCAC 13B .1623(b)), and, provided that there are no plans for landfilling this area at this time, then further justification is needed from a NC licensed hydrogeologist.

It is also our understanding that the 100 foot buffer would follow along the new southeast LFB, i.e. the western ROW line of the relocated Water Oak Road, from the intersection of Goodwill Church Road north to the creek.

If this is not in accordance with your understanding of our conversation please let Bill Lewis or I know immediately. Thanks.

Sincerely,



Edward L. Gibson, P.E.
Environmental Engineer

cc: *Bill Lewis*
Peter Walls
Richard Harper
Sherri Coghill

PIEDMONT LANDFILL & RECYCLING CENTER

**9900 FREEMAN ROAD
KERNERSVILLE, NC 27284
(910) 595-6677
FAX (910) 595-9735**

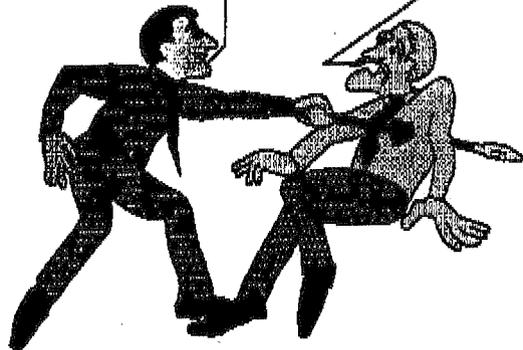
FAX TRANSMISSION COVER SHEET

TO: *Sherri Coghill*

FROM: *Ed Gibson*

DATE: _____ **TIME:** _____

**RIGHT TO THE
HEART OF THE
MATTER!!!**



**HAVE A HEART,
WILL YA?**

YOU SHOULD RECEIVE 2 PAGES INCLUDING THIS COVER SHEET. IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (910) 595-6677 IMMEDIATELY. THANK YOU.

COMMENTS: *Is this what you saying? Pls call and let me know. Thanks!*

LEFT CHURCH ROAD

S.R. 2088
VAN HOY ROAD

HAPPY HILL ROAD

S.R. 2032

FURSETH COUNTY
GREENE TOWNSHIP

WATER OAK ROAD
S.R. 2031

100 ft buffer

200 ft buffer

LOCATION OF POWERLINE SCALED FROM AERIAL PHOTOGRAPH SUPPLIED BY OTHERS. NO FIELD SURVEYING PERFORMED AT THIS TIME IN CONJUNCTION WITH THIS MAPPING.

EASEMENT TO DAVIDSON ELECTRIC MEMBERSHIP CORPORATION FOR THE RIGHT TO CONSTRUCT, OPERATE AND MAINTAIN ELECTRIC TRANSMISSION OF DISTRIBUTION LINES OR SYSTEM
D.B. 1739 PG. 169

NOTE: TOTAL AREA WITHIN ROAD R/W IS 7.6 AC ±

APPROX. LOCATION 100 YEAR FLOOD LINE SCALED FROM FLOOD PANEL 15

LANDFILL FACILITY BOUNDARY

LANDFILL FACILITY BOUNDARY

BOUNDARY FOR ZONING/LAND USE PURPOSES

AREA OF UNDETERMINED OWNERSHIP

TOWN OF FERNESVILLE
MDN
N = 891500 495
E = 1694000 004

(10' OFF LINE)
TOWN OF FERNESVILLE
MDN
N = 891500 752
E = 1694711 2302

TAX PARCEL 19, BLOCK 1182
OF ACL MAP 6-374
LAWRENCE V. BROWNING
D.B. 1986, PG. 556

7843 OF 99

NTS 612.24' 730'50"W 45' TOTAL

1 N 02° 08' 07" E - 351.28'

1 N 02° 08' 07" E - 351.28'

6.283 AC ± BY COMPUTER CALCULATION

0.148 AC ± BY COMPUTER CALCULATION

226.280 AC ± BY COMPUTER CALCULATION

0.045 AC ± BY COMPUTER CALCULATION

34.252 AC ± BY COMPUTER CALCULATION

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May 6, 1997

MEMO: To North Carolina Department of Environment, Health
and Natural Resources

RE: Waste Management of Carolinas Inc. plan to expand
landfill into Oak Ridge township of Guilford County

FROM: Faye Ellison
531 Beville Road
Reidsville, NC 27320

My name is Faye Ellison and I grew up in Oak Ridge. My husband is William Byrd Ellison who grew up in Summerfield. He is a United Methodist minister who has been subject to the appointive connectional system since the time of his ordination in the sixties. In a span of thirty years, we have lived in Durham, Greensboro, Charlotte, Reidsville and Winston-Salem.

For several years we have looked forward to the time when we could renovate and restore a house in the northwest corner of Guilford County, located at 8431 Linville Road in Oak Ridge. Our reasons for developing and finalizing these plans are twofold--both by heritage and by choice. The 62 year old Craftsman farm house (my home place) was built by my father and grandfather. With the exception of @ 3 or 4 years when the home was rented, family members have lived in the home.

We have the hope of reclaiming this home as our own residence sometime in the near future. Architectural drawings have been made; plans have been approved by the Historic District Committee; engineering drawings are being made; and we have had preliminary bulldozing and landscaping done.

A few years ago we were informed that the town of Kernersville had purchased land in northeast Forsyth County (adjacent to Guilford County) to expand its landfill. **We were not told that it would become a major regional landfill accepting garbage out-of-state.** Unfortunately it became apparent, all too quickly, as the numerous garbage trucks began to roll down Linville Road, a residential area, on their way to the landfill @ 2-3 miles from our property.

Faye Ellison

Thanks to the concerted efforts of the neighborhood organization, Neighbors for Environmental Safety and Transportation, eventually much of the traffic was rerouted off some of the more heavily populated areas. This took place after several months of enduring the heavy truck traffic, many meetings of concerned individuals, numerous telephone calls and complaints to elected officials.

Now, another cloud looms over the horizon. The Guilford County Commissioners, are being asked to approve a permit in order to expand the landfill into Guilford County. And the waste management division of the North Carolina Department of Environment, Health and Natural Resources holds the final authority in allowing this expansion.

Even though we do not presently live in Oak Ridge, we have spent thousands of dollars to purchase adjoining land and to improve our property. We have spent many hours of hard labor to improve the property in this beautiful area. We are by no means the exception. As a matter of fact, the rare exception would be the individual who does nothing to improve his or her property.

Aside from the fact that the increased traffic and pollution are likely to lower property values, there are other issues to be addressed. Safety (or lack of it) is an important concern. This entire area is growing rapidly. The increased truck traffic will inevitably be a threat to safety in residential areas. Why is North Carolina, one of the ten most heavily populated states and one of the fastest growing states in the 50 states, being selected as a dumping ground for garbage from other states? Furthermore, why would it be located near the center of a major metropolitan area within our state? What guarantees do we have that the garbage being transported to the landfill is not hazardous?

We are hoping and trusting that the NC Department of Environment, Health and Natural Resources will have the foresight to see the negative impact of allowing the landfill to come into Guilford County and will not approve such expansion. Otherwise, the "WHYS?" we have been asking will continue to grow until we have an answer.

Faye Ellison

Piedmont Landfill
and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735



A Waste Management Company

May 5, 1997

Ms. Sherri Coghill
North Carolina Dept. of Environment, Health, and Natural Resources
Solid Waste Section (SWS)
401 Oberlin Road
Raleigh, NC 27611

Re: Clarification to the Site Study Application For the Proposed Piedmont Landfill & Recycling Center (PLFRC) Expansion Project, Kernersville, NC.

Dear Ms. Coghill:

The purpose of this letter is to clarify a statement made in **Section 7.3.1** of the above referenced document.

As you know, we submitted the above referenced application to you dated January 17, 1997. In **Section 7.3.1**, we indicated that we anticipated an average monthly rate of 71,500 tons per month and that "... *this rate is expected to increase up to 50% annually to account for growth in the service area of the landfill*". This italicized statement needs clarification.

In the site life calculations, the PLFRC used 3,000 tons per day to determine the life of the proposed landfill. This figure is roughly 50% in excess of our existing, average rate of 2,000 tons per day. By no means were we implying that our intake of waste would increase 50% on an annual basis. Instead, we meant that our calculations were based upon a possible 50 % increase in waste stream over the life of the site.

We hope this helps clarify this sentence. If you would, please insert this letter into the Site Study Application. If you have any questions please do not hesitate to call either myself or Ed Gibson @ (910) 595-6677.

Sincerely,

William R. Lewis, P.E.
Division President and General Manager

cc: Ed Gibson
James Elza
Richard Harper

Piedmont Landfill
and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735



A Waste Management Company

May 1, 1997

Mr. Delacy Wyman, AICP
Planning Director
Guilford County Planning & Development Department
Governmental Center No. 2
Greensboro, NC 27402

Re: Clarification of the Piedmont Landfill & Recycling Center (PLFRC) Extension Site
Plan Application

Dear Mr. Wyman:

The purpose of this letter is to help avoid any confusion the Technical Review Committee (TRC) may have when it begins its review of our recently submitted Site Plan.

To avoid any possible confusion regarding the Site Plan submittal to the Guilford County TRC on April 28, 1997 and the Site Study Application (SSA) submittal made to the North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR) on January 17, 1997, we will attempt to explain what is now pertinent, and delineate the differences in the two plans.

First and foremost, the Site Plan submitted to you on Monday signifies the correct plan for this site. Disregard the scheme shown earlier in the SSA submitted to the NCDEHNR. The PLFRC will immediately amend this previously submitted SSA by submitting the same "Overall Site Plan" that was recently submitted to the TRC (this is sheet number 2, the large colored drawing). This newer site plan will replace Drawing number 7-1, "Site Development Plan" of the original SSA. We will also revise Drawing numbers 7-2 and 7-3 of the SSA to reflect the new changes and submit this also to NCDEHNR.

The differences between the January (NCDEHNR) and April (TRC) submittals are as follows:

- The newer site plan shows that the landfill footprint (where the waste will be placed) has been located out of the FEMA defined floodplain.
- The newer site plan shows a smaller landfill footprint because the January SSA proposed stream relocation has been removed.

Mr. Delacy Wyman

May 1, 1997

Page 2

- The newer site plan again shows that the existing Water Oak Road will be abandoned (just like the January SSA submittal) but that a new Water Oak Road will be relocated east of the proposed landfill footprint. To accommodate this relocation, an additional 1.5 acre parcel has been added to the northeast corner of the properties involved with this project.
- The newer site plan shows a different layout and location of landfill buildings, internal roadways, and waste processing, recycling and borrow areas.

If you have any questions please do not hesitate to call either myself or Ed Gibson at (910) 595-6677.

Sincerely,



William R. Lewis, P.E.

Division President & General Manager

cc: Tom Brown
Henry Isaacson
John Wolfe
Sherri Coghill
Richard Harper



GUILFORD COUNTY
PLANNING AND DEVELOPMENT DEPARTMENT

April 29, 1997

Via Facsimile
(910) 996-1162

Mr. John G. Wolfe, III
Attorney-at-Law
101 S. Main Street
Kernersville, NC 27284

Re: Piedmont Landfill Special Use Permit Application

Dear John:

This is in response to your April 25 letter, about which I have conferred with Mul Wyman and the County Attorney.

As you are aware, the November 18, 1996 meeting was held among you, Henry Isaacson and Mul Wyman. Upon your request we outlined the requirements for proceeding with the request for a proposed expansion of the Piedmont Sanitary Landfill into Guilford County. We also provided you a large amount of material, including DEHNR solid waste management rules, a table summarizing statutory requirements, a copy of our Franchise Ordinance, and a copy of a certificate of determination for sanitary landfill consistency.

At the outset you expressed your desire that the procedure be handled in a manner most satisfactory to the county. Comments from DEHNR and a conditionally approved sanitary landfill site plan was our preference. As we understand it, DEHNR has provided you a comment list, but a site plan has not been submitted to the Technical Review Committee.

You now state that you prefer not to receive State input prior to your filing an application for a special use permit. If you prefer to file the application for a special use permit, including the site plan, without having DEHNR's preliminary comments, we will accept it and process it. Please be advised that our staff will ensure to the best of our ability that state siting criteria have been met. It is unfortunate that DEHNR expertise will not be available.



GUILFORD COUNTY
Board of County Commissioners

P.O. Box 3427
GREENSBORO, NORTH CAROLINA 27402

TELEPHONE (910) 373-3351

FAX (910) 373-3209

April 29, 1997

CERTIFIED MAIL

Ms. Sherri L. Coghill, Environmental Engineer for Solid Waste
N. C. Department of Environment, Health & Natural Resources
P. O. Box 27687
Raleigh, North Carolina 27611-7687

Dear Ms. Coghill:

The Board County Board of Commissioners held a public hearing for the purpose of receiving input from the public on the application from the Piedmont Landfill and Recycling Center for a permit for a sanitary landfill. Enclosed is a certified copy of the Minutes from the meeting of April 3, 1997. Also enclosed are copies of two affidavits from the Greensboro News and Record and the Kernersville News showing publication dates of the advertisements.

If you have questions, please contact me at (910) 373-4893.

Sincerely,

Norma H. Bodsford
Clerk to Board

cc: Mr. Jim Elza, Planning Director
Mr. Jon Maxwell, County Attorney

CLIPPING OF LEGAL ADVERTISEMENT
ATTACHED HERE

NOTICE OF PUBLIC HEARING
PIEDMONT LANDFILL AND RECYCLING CENTER
SANITARY LANDFILL PERMIT APPLICATION
UNDER NCGS 130A-294 (b) (2)

DATE: April 3, 1997
TIME: 6:30 P.M.
PLACE: Board of County Commissioners Meeting Room, Second Floor
Old Guilford County Courthouse
301 W. Market Street
Greensboro, North Carolina

This is to notify the public that an application for a permit for a sanitary landfill has been filed by Piedmont Landfill and Recycling Center (PLRC) with the North Carolina Department of Environment, Health, and Natural Resources (NC DEHNR).

Pursuant to NCGS 130A-294 (b) (2), the Guilford County Board of Commissioners will hold a public hearing on the application of Piedmont Landfill and Recycling Center to construct and operate an expansion of approximately 360 acres of a sanitary landfill in unincorporated Northwest Guilford County in the Water Oak Road area adjacent to the existing PLRC sanitary landfill located in Forsyth County.

Under NCGS 130A-294 (b) (2), the purpose of the public hearing is to provide all citizens of Guilford County the opportunity to express their interest in and view of the PLRC sanitary landfill application to the Board of Commissioners and the North Carolina Department of Environment, Health, and Natural Resources, Solid Waste Section. All citizens will be afforded an opportunity to be heard.

This public hearing is for citizen comment on PLRC's state permit application only. Each speaker will be allowed 2 minutes to speak. It is not a public hearing on land use approval, road closing, a franchise, or a special use permit. It is in addition to any other hearing which the law may require. No action will be taken by the Board of Commissioners; this is an informational hearing.

Guilford County has provided NC DEHNR/Solid Waste Section with an initial Consistency Determination of PLRC's sanitary landfill permit application. Copies of the initial Consistency Determination and the PLRC sanitary landfill state permit application are available for public review at the Guilford County Department of Planning and Development, Plaza Level, New Courthouse Bldg., 201 S. Eugene Street, Greensboro, NC during normal business hours, Monday through Friday.

Norma Bodsford, Clerk
Guilford County Board of County Commissioners
301 West Market Street
Greensboro, NC 27402

NORTH CAROLINA
FORSYTH COUNTY.

AFFIDAVIT OF PUBLICATION

Before the undersigned, a Notary Public of said County and State, duly commissioned, qualified, and authorized by law to administer oaths, personally

appeared Becky M. Christiansen

who being first duly sworn, deposes and says: that

~~he~~^{xx} (she) is Secretary
(Owner, partner, publisher, or other officer or employee authorized to make this affidavit)

of **KERNERSVILLE NEWS**, engaged in the publication of a newspaper known as **KERNERSVILLE NEWS**, published, issued, and entered as second class mail in the City of **Kernersville** in said County and State; that he (she) is authorized to make this affidavit and sworn statement; that the notice or other legal advertisement, a true copy of which is attached hereto, was published in the **KERNERSVILLE NEWS** on the following dates:

Mar. 22, 29, 1997

and that the said newspaper in which such notice, paper, document, or legal advertisement was published was, at the time of each and every such publication, a newspaper meeting all of the requirements and qualifications of Section 1-597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Section 1-597 of the General Statutes of North Carolina.

This 9th day of April, 1997.

Becky M. Christiansen
(Signature of person making affidavit)

Sworn to and subscribed before me, this 9th

day of April, 1997.

Paul S. Carter
Notary Public

My Commission expires: My Commission Expires February 25, 2000

NEWS & RECORD

Published by
NEWS & RECORD, INC.
Greensboro, North Carolina

NORTH CAROLINA, GUILFORD COUNTY

AFFIDAVIT OF PUBLICATION

Before the undersigned, a Notary Public of said County and State, duly commissioned, qualified, and authorized by law to administer oaths, personally appeared

Gene Kemp who being first duly sworn, deposes and says:

1. That he is Retail Advertising Manager of the Greensboro News Company, a corporation, engaged in the publication of newspapers known as the "News & Record", published, issued and entered as second class mail in the City of Greensboro in said County and State;

2. That he is authorized to make this affidavit and sworn statement; that the notice or other legal advertisement, a true copy of which is attached hereto, was published in the

NEWS & RECORD

on the following dates: March 21, 1997 and
March 28, 1997

for Public Hearing - Piedmont Landfill and

placed through Guilford County

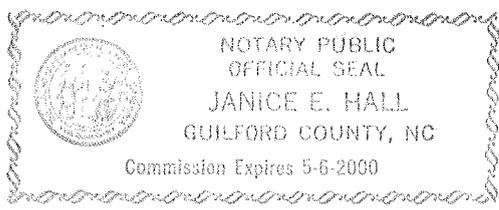
3. That the said newspaper (or newspapers) in which such notice, paper, document, or legal advertisement was published was, at the time of each and every such publication, a newspaper meeting all of the requirements and qualifications of Section 1-597 of General Statutes of North Carolina and was a qualified newspaper within the meaning of Section 1-597 of the General Statutes of North Carolina.

This 2nd day of April 1997

.....
Gene Kemp Advertising Director
.....
Local Advertising Manager

.....
National Advertising Manager

.....
Classified Advertising Manager



Sworn to and subscribed before me, this 2nd day of April 1997

Janice E. Hall
Notary Public

My commission expires: 5-6-2000

NOTICE OF PUBLIC HEARING

PIEDMONT LANDFILL AND RECYCLING CENTER
SANITARY LANDFILL PERMIT APPLICATION
UNDER NCGS 130A-294 (b1) (2)

DATE: April 3, 1997
TIME: 6:30p.m.
PLACE: Board of County Commissioners Meeting Room
Second Floor
Old Guilford County Courthouse
301 W. Market Street
Greensboro, North Carolina

This is to notify the public that an application for a permit for a sanitary landfill has been filed by Piedmont Landfill and Recycling Center (PLRC) with the North Carolina Department of Environment, Health, and Natural Resources (NC DEHNR).

Pursuant to NCGS 130A-294 (b1) (2), the Guilford County Board of Commissioners will hold a public hearing on the application of Piedmont Landfill and Recycling Center to construct and operate an expansion of approximately 360 acres of a sanitary landfill in unincorporated Northwest Guilford County in the Water Oak Road area adjacent to the existing PLRC sanitary landfill located in Forsyth County.

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Norma Bodsford, Clerk
Guilford County Board of County Commissioners
301 West Market Street
Greensboro, NC 27402

Call The Classifieds 910-274-5710 1-800-553-6880

NEWS & RECORD
Greensboro, North Carolina



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GUILFORD COUNTY
Board of County Commissioners

P.O. Box 3427
GREENSBORO, NORTH CAROLINA 27402

TELEPHONE (910) 373-3351

FAX (910) 373-3209

April 29, 1997

I hereby certify that the attached Minutes are a true and accurate copy of the Minutes of the Board of County Commissioners of Guilford County of the meeting held April 3, 1997. These will be recorded in Minute Book 40.

Witness my hand and seal, this the 29th day of April 1997.


Norma H. Bodsford
Clerk to Board

MINUTES OF BOARD OF COUNTY COMMISSIONERS
OF GUILFORD COUNTY

Greensboro, North Carolina
April 3, 1997

The Board of County Commissioners met in a duly noticed Regular Session in the Commissioners' Meeting Room in the Old County Courthouse, Greensboro, North Carolina.

PRESENT: Chairman Joe Bostic, presiding; Vice-Chairman Walt Cockerham; Commissioners Steve Arnold, W. G. Dunovant, Phyllis Gibbs, Robert Landreth, John Parks, Mary Rakestraw, and Chuck Winfree.

ABSENT: Commissioners Melvin "Skip" Alston and Warren Dorsett.

ALSO PRESENT: Roger C. Cotten, County Manager; Jonathan V. Maxwell, County Attorney; and Norma H. Bodsford, Clerk to Board.

INVOCATION AND PLEDGE OF ALLEGIANCE

Reverend G. H. Vaughn, Associate Pastor, Immanuel Baptist Church, offered the Invocation, which was followed by the Pledge of Allegiance to the Flag.

PRESENTATION OF PROCLAMATION DECLARING THE WEEK OF APRIL 13-19, 1997 AS CRIME VICTIMS' RIGHTS WEEK

Chairman Bostic read a Proclamation declaring the week of April 13th through the 19th, 1997, as Crime Victims' Rights Week in Guilford County and urged all citizens and institutions to support the establishment and enforcement of victims' rights and services this week and throughout the year.

SPEAKERS FROM THE FLOOR

The following speakers spoke regarding the completion of a connector street - High View Road: Marla Schoolmeester, 3248 Cheswick Drive, Greensboro; Greg Ford, 6415 Wellstone Court, Greensboro; Martha Soltani, 5907 High View Road, Greensboro; and Kathy Kelly, High View Road, Greensboro. These speakers expressed their concerns with the completion of High View Road, which will connect Inman Road to Muirfield Road. They spoke to the increased traffic, safety of their children, and getting out of their property with the increased traffic volume.

Wayne Troxler, 7467 Doggett Road, Greensboro, requested Commissioners to reconsider their zoning decision on Miltonwood

Road made at the last meeting of the Board. No motion was made to reconsider this case.

Lois Josephs, 3203 Cottonham Court, Greensboro and Pauline Austin, 3239 Cheswick Drive, also spoke against the completion of High View Road.

Chairman Bostic requested that the Planning staff meet with the speakers concerning High View Road.

APPROVED THE FOLLOWING CONSENT AGENDA ITEMS (Item I.C.3 removed for further discussion)

Commissioner Rakestraw moved adoption of the following Consent Agenda items. Motion was seconded by Commissioner Dunovant. Motion carried on roll call vote as follows: AYES: Arnold (on all items except I.A.1), Bostic, Cockerham, Dunovant, Gibbs, Landreth, Parks, Rakestraw and Winfree. NOES: Arnold on I.A.1.

AMENDED FY1996-97 PUBLIC HEALTH BUDGET BY \$26,250 TO REFLECT RECEIPT OF FUNDS FROM THE STATE WOMEN'S PREVENTIVE BRANCH

Amended the Fiscal Year 1996-97 Public Health Budget by \$26,250 to reflect receipt of funds from the State Women's Preventive Branch. These funds will be utilized to support 105 voluntary male sterilization procedures. Amended the Budget Ordinance as follows:

GENERAL FUND

Increase appropriations to Public Health	\$26,250
Increase State & Federal Revenue	\$26,250

APPROPRIATION OF REVENUE OF \$2,268 TO THE BOARD OF ELECTIONS REALIZED FROM THE SETTLEMENT OF AN INSURANCE CLAIM DUE TO DAMAGE SUSTAINED BY A LAPTOP COMPUTER

Appropriated revenue in the amount of \$2,268 realized from the settlement of an insurance claim due to damage sustained by a laptop computer. Amended the Budget Ordinance as follows:

GENERAL FUND

Increase appropriations to Elections	\$2,268
Increase Miscellaneous Revenues	\$2,268

APPROPRIATED \$115,969 FROM THE INMATE WELFARE ACCOUNT INTO SHERIFF'S BUDGET TO BE USED TO PURCHASE VARIOUS ITEMS NEEDED FOR THE PRISON FARM

Appropriated \$115,969 from the Inmate Welfare Account into the Sheriff's Budget to be used to purchase various items needed for the Prison Farm. (Complete list of items needed by the Sheriff filed with these Minutes.) Amended the Budget Ordinance as follows:

GENERAL FUND

Increase appropriations to Law Enforcement	\$115,969
Increase Miscellaneous Revenue	\$ 15,969
Increase appropriated Fund Balance*	\$100,000

*Inmate Welfare Fund Balance

AWARDED CONTRACT TO STANDARD REGISTER, THE LOWEST RESPONSIBLE BIDDER, IN THE AMOUNT OF \$70,012 FOR THE PURCHASE OF TAX FORMS FOR THE TAX DEPARTMENT

Bids were received from the following vendors for tax forms for the Tax Department:

Company	Total Bid
Standard Register	\$70,012.00
Moore Business Forms	76,492.00
Better Business Forms	78,154.00
Southern Systems	83,179.50
Wesley Business Forms	87,469.00

Awarded contract to Standard Register, the lowest responsible bidder, in the amount of \$70,012 for the purchase of tax forms for the Tax Department. These tax forms are the tax bills which will be mailed to Guilford County residents as their notice of Guilford County tax owed.

AWARDED CONTRACT TO CABLETRON SYSTEMS, THE LOWEST RESPONSIBLE BIDDER, IN THE AMOUNT OF \$82,445.02 FOR THE PURCHASE OF INTELLIGENT HUBS AND ACCESSORIES FOR INFORMATION SERVICES

Bids were received from the following vendors for the purchase of Intelligent Hubs and Accessories for Information Services:

Company	Amount
Cabletron	\$ 82,445.02
Futron	97,721.00
SDF	104,946.72

Awarded contract to Cabletron Systems, the lowest responsible bidder, in the amount of \$82,445.02, for the purchase of Intelligent Hubs and accessories for Information Services to be used in the upgrading of token-ring multi-service access units.

APPROVED MINUTES OF MEETING OF COUNTY COMMISSIONERS HELD FEBRUARY 27, 1997

Approved the Minutes of the meeting of the Board of County Commissioners held on February 27, 1997.

RECEIVED REPORT OF SETTLEMENT OF GUILFORD COUNTY VERSUS WAYNE TROGDON FROM COUNTY ATTORNEY

In accordance with the Open Meetings Law and pursuant to instruction received in Closed Session, the Board accepted receipt of report from the County Attorney's office on settlement of Guilford County, et al versus Wayne Trogdon, et al by payment of \$287,500 on or before April 16, 1997. Mr. Trogdon will withdraw his petition to the N. C. Supreme Court in the near future.

HELD PUBLIC HEARING ON PIEDMONT LANDFILL AND RECYCLING CENTER IN ACCORDANCE WITH N. C. GENERAL STATUTES 130A-294(B1)(2) AND PUBLIC NOTICE WHICH WAS ADVERTISED TWO TIMES.

Chairman Bostic stated that this is the time and place set to hold a public hearing on Piedmont Landfill and Recycling Center on the boundary line of Guilford and Forsyth Counties. He said this has been advertised two times in local publications. The Chairman advised that this is an informational hearing and no action is required by the Board of County Commissioners. Mr. Bostic explained that each speaker will be allowed two minutes; however, if a speaker is speaking for several citizens or a group, this speaker could be allotted additional time. The Chairman stated that he understood that both the proponents and the opponents had a video to show. He stated that he would allowing the videos to be shown first.

County Attorney Maxwell advised that this is a purely informational hearing required by State Law and no action by the Board is contemplated or required at this time.

Chairman Bostic stated that as far as he knows, no Commissioner has a bias or preconceived notion about this landfill at this particular point in time. He stated Commissioners want to hear and receive information from both sides.

Henry Isaacson, Attorney, 101 West Friendly Avenue, Greensboro, stated that he represented Piedmont Landfill and Waste Management of Carolinas. Mr. Isaacson introduced Tom Brown, Region President of Waste Management of Carolina, to narrate their video.

Mr. Brown stated that the video would depict a typical day for Piedmont Landfill. As the video ran, Mr. Brown spoke to Piedmont Landfill, its history, layout/site of the landfill, and process of garbage pickup from point of origination to the landfill. Representatives of Waste Management of the Carolina also

distributed information to Commissioners prior to the meeting. This information is filed with the Minutes.

Alan Perrine, 8463 Haw River Road, Kernersville, N. C., showed a video on behalf of the opponents. Mr. Perrine said that the video showed the high volume of traffic on a residential road. He said the vehicles go too fast, are very noisy, and trash falls off the trucks into the yards of people living along the road. He stated that they then have to clean up the mess. Mr. Perrine pointed out that on farm land, the farmer either has to clean up the trash or "turn it under" as he plows.

Chairman Bostic stated that he would now open the floor for public comment. He stated that he knew this issue was very sensitive to many people, however, he expected everyone to speak and act in a professional and courteous manner and in return the Commissioners and staff would act in a similar manner. The Chairman stated that he would not allow name calling or personal attacks.

Chairman Bostic requested that the proponents speak at this time.

H. C. Fields, 1903 Belden Drive, Greensboro, said he could personally relate to the concerns of the people here tonight. He said that he lived near the White Street landfill within the City of Greensboro. He spoke to the expansion of the White Street landfill and the elimination of nineteen homes and a church. He stated that this landfill is inadequate in size and can probably only be used for about 10-15 years. He said Greensboro, High Point, and Guilford County officials need to sit down together and plan for the future.

Betty Thompson, 3318 S. Elm-Eugene, Greensboro, spoke to the expansion of the White Street landfill and said that it only fair to look at expanding into other areas. She urged Commissioners to meet with their counterparts in Greensboro and High Point and to resolve this problem in an equitable way.

Raymond Chestnut, 1910 San Fernando Drive, High Point, stated that he was familiar with environmental issues because of providing environmental consulting services to industries located in the Carolinas and Virginia. He encouraged a favorable decision to award Piedmont Landfill its requested expansion. Mr. Chestnut said that a decision regarding facilities such as this one should be based on fact and need and not emotion. He elaborated on the reasons for having an environmentally sound, well-run waste disposal facility such as this one.

Chairman Bostic opened the floor to those persons in opposition to the expansion of this facility.

Bill Parrish, 7801 Kinross, Oak Ridge, passed out information to Commissioners on the history of environmental and contractual

violations of Waste Management, Inc. (A copy of this information is filed with these Minutes.) Mr. Parrish said that Waste Management is in financial trouble according to the internet and other financial sources; and he said he doubted they would be able to remain in business for thirty years. Mr. Parrish addressed the operations of the Piedmont Landfill referring to the waste distributed along the roads, including out of town waste from areas outside the six counties which Piedmont Landfill was purportedly accepting garbage from. He said the only way to go to keep the cost down and have control over out-of-state waste is to have a publicly owned and correctly operated landfill. He said in a very short time, it will become an enhancement to businesses moving into the area because of low control cost.

Tom Brown, 8417 Linville Road, Greensboro, said that he was the Chairman of Neighbors for Environmental Safety Today (NEST) and has lived in Oak Ridge his entire life and cares enough about his area and county to be here tonight to speak out in opposition to this expansion. Mr. Brown gave Commissioners photographs to demonstrate why no one would want a landfill in his/her neighborhood. He said once Waste Management got "their foot" in Guilford County, there would be no stopping them. He urged Commissioners to see what a negative impact this expansion would have to Guilford County.

The following people also spoke in opposition to the expansion of the Piedmont Landfill by Waste Management: Bill Knox, 3432 Edgefield Road, Greensboro; Jane Vessa, 5919 Pepper Road, Oak Ridge; Ken VanHoy, 9185 Huff Fern Road, Kernersville; Kathy Lemar, 7329 Goodwill Church Road; John C. Woods, 8201 Newberry, Stokesdale; Stan Dodd, 6521 Hollow River Road, Oak Ridge; Danny Beeson, 8444 Haw River Road, Kernersville; Bill Parrish (second time); Francis Disney, 5601 Foxbury, Oak Ridge; Raymond Pegram, 7612 Middle Drive, Greensboro; Christine Henzer, 9536 White Tail Trail; James Attaway, member of the Town Council of Stokesdale; Jeannie Evers, corner of Haw River Road and NC68; and Sarah Kelly, 305 W. Fisher Avenue, Greensboro. A summary of the concerns expressed by these speakers regarding the expansion of the Piedmont Landfill were: 1) leaking garbage trucks that exceed safe speed limits and contribute greatly to the deterioration of the local roads; 2) trash blowing out these trucks and littering the roads; 3) school busses and local cars having near misses with speeding garbage trucks causing great concern for the safety of the citizens in the area; 4) safety of the local water supply and possible contamination of local aquifers threatening their drinking water; 5) lowering property values; 6) noise of the trucks going and coming from the landfill from sun up to sun down; and 7) concern that this landfill will become the dump site for the entire East coast. Citizens urged Commissioners to concern the community's health and living standards and not support the expansion of the landfill.

Chairman Bostic thanked citizens for taking time to come to the

Courthouse tonight to express their concerns to Commissioners. He said that all comments and concerns will be taken under consideration as Commissioners and staff continue to deal with the next steps in this process. (Note: There were approximately 250-275 citizens present in opposition to the landfill. Representatives of Waste Management were present in support, along with three speakers requesting Commissioners to consider other alternatives for the present landfill sites in Guilford County.)

The Board recessed at 8:30 P. M.

The Board reconvened at 8:53 P. M. with all Commissioners present.

SET COMMISSIONERS' MEETING IN HIGH POINT FOR MAY 8, 1997

Commissioner Landreth stated that he had no objection to meeting in High Point, however, he would like for Commissioners to meet in other jurisdictions of the County. Other Commissioners agreed with this suggestion. Chairman Bostic directed staff to plan meetings on a quarterly basis with other jurisdictions in different parts of the County.

Commissioner Landreth moved that the Board set a meeting in High Point in the Washington Courtroom for May 8, 1997. Motion was seconded by Chairman Bostic and motion carried unanimously.

MADE APPOINTMENTS/REAPPOINTMENTS TO VARIOUS BOARDS AND COMMISSIONS

BOARD OF ADJUSTMENT

Commissioner Gibbs moved that Francis Anderson and Wyatt Cutler be appointed as Regular Members of the Board of Adjustment; moved that Mary Skenes be appointed as an Alternative Member of the BOA; and further moved the reappointment of Darrell Whitt and Allen Holt Gwyn as Alternate Members of the BOA; all these members appointed for three year terms expiring April 10, 2000. Motion was seconded by Commissioner Rakestraw and carried unanimously.

ADULT CARE HOME COMMUNITY ADVISORY COMMITTEE

Commissioner Gibbs moved that Ethel Morehead be appointed as a member of the Adult Care Home Community Advisory Committee for a one-year initial term expiring April 4, 1998. Motion was seconded by Commissioner Rakestraw and carried unanimously.

GUILFORD COUNTY ADVISORY BOARD FOR ENVIRONMENTAL QUALITY

Commissioner Parks moved the appointment of Katherine Troxler to the Advisory Board for Environmental Quality. Commissioner Rakestraw moved the appointment of David Pleasants to the ABEQ. On a show of hands, Katherine Troxler received three votes and David Pleasants received six votes. Chairman Bostic stated that David

Pleasants was appointed to the ABEQ Board in an At-large Seat, for the remainder of a three-year term expiring December 31, 1999.

JOINT HISTORIC PROPERTIES COMMISSION

Commissioner Landreth moved the reappointment of Phillip G. Pickett for a four-year term expiring April 1, 2001. Commissioner Rakestraw moved the appointment of Jodie Effird to replace Robert Yow, for a four-year term expiring April 1, 2001, and the reappointment of Teresa Jo Styles for a four-year term expiring April 1, 2001. Motion was seconded by Commissioner Gibbs and motion to reappoint these members carried unanimously.

NURSING HOME COMMUNITY ADVISORY COMMITTEE

Commissioner Rakestraw moved the reappointment of Imogene Weir for a two-year term expiring February 22, 1999. Motion was seconded by Commissioner Gibbs and carried unanimously.

TRANSPORTATION ADVISORY COMMITTEE

Commissioner Cockerham moved the reappointment of Robert Landreth as a voting member of the Transportation Advisory Committee and the appointment of Mary Rakestraw to replace Margaret Arbuckle as the Alternate Member of the TAC. Motion was seconded by Chairman Bostic and carried unanimously.

PIEDMONT TRIAD AIRPORT AUTHORITY BOARD

Commissioner Arnold moved the appointment of Commissioner Walt Cockerham to replace Stanley Frank on the Piedmont Triad Airport Authority Board. Commissioner Parks moved that this matter be tabled until all members of this Board was present. Motion was seconded by Commissioner Dunovant and FAILED to carry on roll call vote as follows: AYES: Dunovant, Landreth and Parks. NOES: Arnold, Bostic, Cockerham, Gibbs, Rakestraw and Winfree.

Commissioner Parks moved the appointment of Stanley Frank.

Chairman Bostic spoke to the accomplishment and record of Walt Cockerham and stated that he felt he will make an excellent member of the Airport Authority.

Upon a roll call vote, Commissioner Dunovant, Landreth and Parks voted for Stanley Frank; Commissioners Arnold, Bostic, Cockerham, Gibbs, Rakestraw and Winfree voted for Walt Cockerham. Chairman Bostic stated that Walt Cockerham was appointed to the Piedmont Triad Airport Authority Board for a three-year term expiring April 20, 2000.

COMMENTS ON THE UNTIMELY DEATH OF FORMER COMMISSIONER PERCY H. SEARS

Commissioners expressed regret over the untimely death of former Commissioner Percy H. Sears. It was noted that Mr. Sears had served the County diligently and genuinely had the welfare of Guilford County's citizens at heart. A moment of silence was observed for Percy H. Sears and several Commissioners stated that Mr. Sears would be sorely missed and offered condolences to Mr. Sears' family.

ADJOURNMENT

There being no further business, the Board adjourn at 9:15 P. M. to meet again on April 10, 1997, in the Commissioners' Meeting Room in the Old County Courthouse, Greensboro, North Carolina.

Chairman, Board of County Commissioners

Clerk to Board



GUILFORD COUNTY
PLANNING AND DEVELOPMENT DEPARTMENT

April 25, 1997

Mr. John G. Wolfe, III
Attorney-at-Law
101 S. Main Street
Kernersville, NC 27284

Re: Application for Franchise for Piedmont Landfill and Recycling Center

Dear Mr. Wolfe:

Our staff has reviewed the March 31 application for a franchise for Piedmont Landfill and Recycling Center to operate a sanitary landfill within Guilford County in light of section 15.5-5 of the Guilford County Code requiring a county franchise for a sanitary landfill.

After reviewing that application, in several respects we believe it is incomplete. We have the following concerns:

1. The \$250.00 application fee was not included with the application.
2. Regarding the second requirement in the Franchise Ordinance, we believe the description of the volume, source and characteristics of the waste stream is not in sufficient detail. We would request that you define each waste stream and provide a list of specific waste to be received at the proposed landfill under (a) residential waste, (b) commercial waste and (c) certain non-hazardous industrial waste. Refer to sections 7.3.1 of the site study application. Information concerning how much of the waste stream would be recyclables – and what percentage will in fact be recycled – should also be included.
3. Concerning the estimate of closure cost which you provided, we request that you provide supportive information and computations used as the basis for figuring closure cost. Provide written concurrence from the North Carolina Department of Environment, Health and Natural Resources as to this estimated closure cost. To secure the project's cost of closure and post-closure, you must provide a bond for the full amount satisfactory to myself as the manager's designee as part of the franchise application.

"CHAPTER 3.

"GOVERNING BODY.

"Sec. 3.1. The governing body of the Town of Oak Ridge is the Town Council, which has five members.

"Sec. 3.2. The qualified voters of the entire Town elect the members of the Town Council.

"Sec. 3.3. From the effective date of this charter until the organizational meeting of the Town Council after the 1999 municipal elections the Mayor, Mayor Pro Tem, and the other three members of Town Council will be:

- | | |
|---------------|----------------|
| Interim Mayor | Bill Parrish |
| Mayor Pro Tem | Gary Blackburn |
| Council | Mack Peoples |
| Council | Greg Bissett |
| Council | Roger Howerton |

The Interim Mayor and Mayor Pro Tem named by this section shall only serve as such if another council member is not chosen for that position as provided by Section 3.5 of this Charter.

"Sec. 3.4. At the regular Town election in 1999, five council members shall be elected. The persons receiving the three highest numbers of votes shall be elected for four-year terms, and the two persons receiving the next highest numbers of votes shall be elected for two-year terms. In 2001 and quadrennially thereafter, two council members shall be elected for four-year terms. In 2003 and quadrennially thereafter, three council members shall be elected for four-year terms.

"Sec. 3.5. At the organizational meeting of the initial council and at the organizational meeting after each election, the council shall elect one of its members to serve at its pleasure as Mayor.

"CHAPTER 4.

"ELECTIONS.

"Sec. 4.1. The Town Council shall be elected by the nonpartisan plurality method as provided by G.S. 163-292. Elections shall be governed by general law except as provided otherwise by this Charter.

"CHAPTER 5.

cast shall be cast "For incorporation of the Town of Oak Ridge", then Sections 1 and 2 of this act shall become effective on the date that the Guilford County Board of Elections determines the result of the election.

Section 6. This act is effective when it becomes law.

</body>

"ADMINISTRATION.

"Sec. 5.1. The Town of Oak Ridge shall operate under the Mayor-Council plan as provided in Part 3 of Article 7 of Chapter 160A of the General Statutes.

"CHAPTER 6.

"TAXATION.

"Sec. 6.1. Notwithstanding G.S. 160A-209(d), except with the approval of the qualified voters of the Town in a referendum under G.S. 160A-209, the Town may not levy ad valorem taxes in excess of twenty cents (20cents) on the one hundred dollars (\$100.00) valuation. This section does not limit taxation to pay the debt service on general obligation indebtedness incurred by the Town in accordance with law."

Section 2. From and after the effective date of the incorporation, the citizens and property in the Town of Oak Ridge shall be subject to municipal taxes levied for the year beginning July 1, 1997, and for that purpose the Town shall obtain from Guilford County a record of property in the area herein incorporate which was listed for taxes as of January 1, 1997, and the businesses in the Town shall be liable for privilege license tax from the effective date of the privilege license tax ordinance. The Town may adopt a budget ordinance for fiscal year 1997-98, without following the timetable in the local government budget and fiscal control act, but shall follow the sequence of actions in the spirit of the act insofar as is practical. For fiscal year 1997-98 ad valorem taxes may be paid at par or face amount within 90 days of adoption of the budget ordinance, and thereafter in accordance with the schedule in G.S. 105-36 as if taxes had been due and payable on September 1, 1997.

Section 3. (a) The Guilford County Board of Elections, shall conduct an election on the Tuesday after the first Monday in November of 1997 for the purpose of submission of the proposed Charter to the qualified voters of the area described in Section 2.1 of the Charter of the Town of Oak Ridge. Registration for the election shall be conducted in accordance with G.S. 163-288.2.

(b) In the election, the question on the ballot shall be:

" [] FOR [] AGAINST

Incorporation of the Town of Oak Ridge".

Section 4. In such election if a majority of the votes cast are not cast "For incorporation of the Town of Oak Ridge", then Sections 1 and 2 of this act shall have no force or effect.

Section 5. In such election, if a majority of the votes

To: Sherri Coghill

Landfill foes: Not in our neighborhood

● Opponents of a proposed landfill form an enormous crowd and plead for help from the Guilford commissioners.

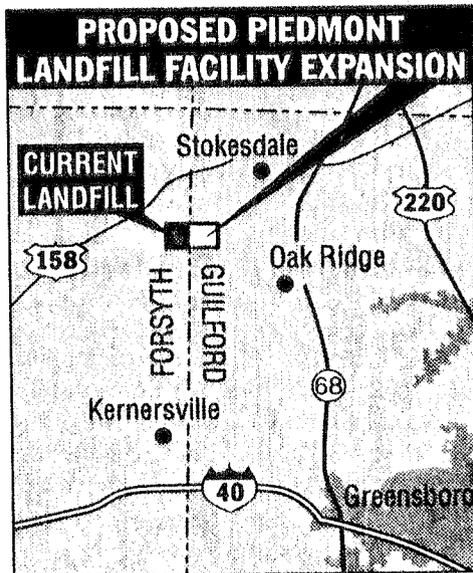
BY BEN FELLER
Staff Writer

We don't want it in our backyard. Or our front yard. Or anywhere near us whatsoever.

That's the message the Guilford County commissioners got Thursday from most of the more than 300 people who packed a public hearing to oppose a proposed landfill in western Guilford.

Forming the largest crowd to attend a county commissioners meeting in recent history, the people filled the stately courtroom and balcony in the Old County Courthouse and spilled out into an adjacent common area, where the hearing played on television.

The overwhelming majority came to oppose a private company's proposal to expand its landfill from Forsyth County into Guilford County, between Stokesdale and Oak Ridge. Officials from Waste Management of Carolinas Inc. promoted the landfill and had a few supporters on their side, but they spent most of the night quietly absorbing criticism about their plan.



News & Record

"Nobody wants to live by such a stinking, disgusting site," said Kristine Hentzen, who lives in Forsyth County, one mile from the existing Piedmont Landfill and Recycling Center. "I will fight this till the day I die."

Waste Management has options to buy 360 acres in Guilford County, where it wants to develop a 225-acre landfill, using the rest of the land as a wooded buffer. Company officials say the expansion of Piedmont Landfill would extend its life well into the next century and would provide needed space for

Please see **DUMP**, Page **B2**



Myland III/News & Record
o the Dudley High

rest



The proposed stadium tax hike could go to a vote of the people sometime late this summer.

George Jeter, a spokesman for the secretary of state, said Thursday he was not sure how his office would handle the complaints from Webster and Barbour.

They might turn them over to the N.C. attorney general for a ruling, he said. Jeter said Thursday the secretary of state's staff might simply ask N.C. Baseball members to register as lobbyists, if they deem it

Webster at the request of Yanceyville attorney R. Lee Farmer, a member of the N.C. Baseball Committee.

"I have not initiated any contacts with legislators," Solomon said. "But I will answer any questions they may have."

Farmer did not return phone calls Thursday.

Baseball supporters want to increase the region's sales tax by 1 cent for one year to help fund stadium construction. If approved,

registration law.

But other legislators — even those opposed to subsidizing a stadium — were not overly concerned by the complaints lodged by Webster and Barbour.

"I hadn't thought about it before," said state Sen. John Blust of Greensboro, who opposes public funding for a stadium.

"Since this is a referendum, I'm not going to beat the bushes on this, looking for things to throw doubt on the bill."

DUMP

Continued from page B1

communities to get rid of their garbage. The company says it now accepts garbage from North Carolina and Virginia.

"We're prepared to address each and every criticism and concern," said Tom Brown, the company's regional manager, after showing a video of Piedmont Landfill. "We want to work with the commissioners and the community to address these concerns as best we can."

The hearing, however, was not designed to be a dialogue. Supporters and opponents of the landfill expansion spoke at separate times, and the critics dominated about 75 of the hearing's 90 minutes.

The commissioners, as expected, did not make any decision about the project or respond to the speakers' comments. Commissioners Chairman Joe Bostic, who had asked those in attendance to refrain from personal attacks, thanked them for participating.

"We will take all the information that has been afforded to us tonight and do further investigation," Bostic said. "We take very seriously what has been said here tonight."

The commissioners, as required by state law, held the hearing in response to Waste Management's application for a new state landfill permit. The hearing began what is sure to be a lengthy process featuring several other public hearings. In the coming weeks, the commissioners will likely consider whether to grant a franchise for the landfill expansion, and they also

must approve a special-use permit before the company can receive state permits.

Landfill critics chose several approaches to express their opposition, using references on everything from history and religion to child safety and the stench of garbage.

They complained often that the garbage trucks speed on country roads and dump smelly and unsightly litter and liquids on their way to the existing landfill.

Although only 15 landfill opponents addressed the commissioners, several of them spoke on behalf of dozens of people.

"I want to pray that this nightmare will soon be over," said Cathy LeMar, who said the landfill would be in her front yard. "Please save our community."

Bill Knox, a member of Citizens for Responsible Government, said the landfill company could not be trusted as an environmentally safe neighbor.

"When they say they're trying to help us, they're really trying to help themselves," he said.

Alan Perrine, who lives on Haw River Road near the landfill, showed the commissioners a home video in which garbage dots the roadside and hangs from the trees.

"This is not just in our back yard," he said. "It's in our front yard, in our fields — everywhere you turn, there's garbage."

Serving as a spokesman for many landfill critics, Oak Ridge's Bill Parrish accused Waste Management of hauling in garbage from northeastern states. Parrish urged the commissioners to solve Guilford County's long-range waste dis-

posal needs by pursuing a publicly-owned landfill.

Piedmont Landfill handles 17 percent of the waste generated in Guilford County. The rest is disposed of at city-owned landfills in Greensboro and High Point. Although the county will need more landfill space in the coming years, a consultant has advised the commissioners not to contract with Piedmont Landfill because of the expense and the uncertainty surrounding the landfill's expansion. The consultant recommended that the county promote the expansion of the two city landfills and find a 600-acre site for a public landfill.

Some residents at the hearing did not oppose the project. Betty Thompson, who lives in the Mount Zion community near the White Street landfill in eastern Greensboro, said the county's elected leaders should study all landfill options — including Waste Management's plan.

"We're only looking for equity in this situation," she said. "Stop the environmental disparity in our community."

After the hearing, Brown, the Waste Management official, disputed many speakers' claims. He insists Piedmont Landfill has not and will not accept garbage from states other than North Carolina and Virginia. He said his company's crews clean the roadsides, it takes steps to avoid truckers' speeding and its truck traffic will not increase with a new landfill.

"We just hope everyone will keep an open mind and listen to both sides," he said. "If landfills weren't around, what would people do with their garbage?"

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State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director



March 27, 1997

Mr. William R. Lewis
Piedmont Landfill & Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284

RE: Hydrogeologic Review Of The Site Study Application For The
Proposed PLFRC Expansion Project (Guilford County)

Dear Mr. Lewis,

The Solid Waste Section Hydrogeologic Unit has done the initial review of the above referenced Site Study Application. There are several items that need clarification and/or further documentation. Please have RUST Environment & Infrastructure provide a response to the following questions and comments:

LOCAL CHARACTERIZATION STUDY

Page 3-2: The text on page 3-2 and the Drawing 3-1a are not consistent. The text references an R6 zoning for an area "to the west of the proposed landfill facility" and states "The property to the northwest, north, and northeast is currently zoned residential". Drawing 3-1a does not have these zoning designations. Also, there is no legend for the zoning designations that do appear on Drawing 3-1a.

Page 3-3: The text on page 3-3 references "about 20 occupied residences within the study area", however I was only able to locate 16 residences on Drawing 3-1a, as designated with the PR symbol. There are a number of other structures shown on the drawing that do not have the PR designation. I assume these are barns, out buildings, or other unoccupied buildings.

Page 3-4: The text on Page 3-4 states that "groundwater beneath the (Kernersville disposal) facility most likely flows to the north toward the unnamed tributary", however the "watershed boundary" line and topography on Diagram 3-1b indicate a radial groundwater flow pattern from the Kernersville Landfill.

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Mr. William Lewis
PLFRC Expansion Site Study
Page 2

Page 3-7: The text describes surface water flow from the site "down four small coves via intermittent streams". Figure 4-16, which illustrates a number of Spring Locations at the site, would seem to indicate that significant portions of these streams may be perennial, rather than intermittent. This appeared to be the case during my site visit.

Drawing 3-2: The Aerial Photograph does not extend to the 2000 foot perimeter around the proposed facility boundary as required by Rule .1618(c)(2).

SITE HYDROGEOLOGIC STUDY

Page 4-6: On Page 4-6 reference is made to "veins of pegmatite" and on Page 4-7 reference is made to "diabase dikes". These types of features could cause preferential ground-water flow. Has there been any evidence of these types of features during excavation at the existing landfill, in boring logs, or in rock outcrops or stream beds, etc.?

Page 4-28: Please provide additional discussion regarding the effect of the stream relocation on the hydrogeology and monitoring of this area. If a pipe and gravel collector is installed in the original stream channel, how will this be monitored and is PLFRC prepared to treat this as leachate should contaminants be found?

Page 4-23: Additional evaluation and documentation for the perched conditions of spring SP-8 will be necessary in the Design Hydrogeologic Report.

Page 4-29: Conclusion 1 states "The site lies within the Charlotte Belt and Milton Belt geologic boundary". Is this contact actually within the proposed facility? Could there be preferential ground-water flow along the contact?

Table 4-3: The water table elevation information required by Rule .1623(a)(7) (A), (B), (C), and (D) is either not present or is poorly documented in the Report. Please provide the required information along with support documentation.

- (A) No time of boring or 24 hour water table elevations are provided.
- (B) Only one set of stabilized readings appear in the Table. And only two appear to be included in the Report. There should be water table readings for all piezometers taken at least monthly since the piezometers were installed. Readings for March and April are especially critical, since this is usually when the seasonal high water table conditions occur.
- (C) There is little discussion or documentation for the "estimation of the long-term seasonal high water table".
- (D) There is little or no "discussion of any natural or man-made activities that have the potential for causing water table fluctuations".

Figure 4-4: Figure 4-4, along with Figures 4-9, 4-10, 4-11, 4-16, 4-17, and 4-22, need to be submitted at a larger scale so the topographic lines, etc. are clearly legible and the data presented is more easily interpreted. - Rule .1603(b)(3).

Figure 4-7: Why are some of the drainage features within (and in the vicinity of) the proposed facility marked on the Geologic Lineament Map, and other drainage features are not marked?

Figure 4-12: Some of the information seems to be plotted slightly incorrectly. It would be easier to interpret the data on the Cross-Sections and Hydrogeologic Cross-Sections if the figures were prepared at a larger (standard engineering) scale.

Drawing 7-2: This drawing indicates proposed borrow activities within the proposed facility boundary buffer zones. This is not allowed. The Landfill Construction Plan needs to be modified to preserve the 300 foot buffer zones.

Appendix C: A number of the boring logs indicate soils with low SPT blow counts. This could indicate potential problems with foundation stability and settling, especially in the soft silt/clay alluvial soils in the creek beds and the floodplain.

Appendix D: The Piezometer Construction Records indicate that extended sand filter packs were installed for several of the piezometers. When the filter packs extend across more than one hydrogeologic unit it makes it difficult to assign the hydraulic test values to a particular unit. Also, when abandoning these piezometers, they will need to be re-drilled in order to properly grout the boreholes.

Appendix E: Only two sets of water table elevation data have been submitted. Readings should have been taken at least monthly, since the time of piezometer installation. If this has not been done, additional water table readings need to be obtained immediately, before the Spring seasonal high period ends (when the vegetation comes out and evapotranspiration becomes a significant factor).

Rule .1623(a)(4)(E) requires information on "Saturated hydraulic conductivity, porosity, and effective porosity for each lithologic unit of the uppermost aquifer". A table needs to be prepared that summarizes the representative data for the various lithologic (hydrogeologic) units. Further definition may be necessary based upon differences in fine grained soils and coarser grained soils. Rule .1631(c) requires this information for both "unsaturated and saturated geologic units".

Rule .1623(a)(8) requires information on "The horizontal and vertical dimensions of ground-water flow". Further evaluation of the three-dimensional flow regime is needed based upon additional water table elevation readings. At what point does the aquifer begin to be present in the unconsolidated sediments? Identify recharge and discharge areas. In the nested piezometers, are the vertical flow patterns consistent over time?

Rule .1623(a)(13)(D) requires a discussion of "the ground-water flow regime of the uppermost aquifer at the site and the ability to effectively monitor the MSWLF units". Please provide more detailed discussion on this, focusing especially on the proposed relocation of a portion of the stream and the possible effects on the ground-water discharge situation.

Mr. William Lewis
PLFRC Expansion Site Study
Page 5

Please provide the revisions and additional information requested so the hydrogeologic technical review of the Piedmont Landfill expansion Site Study can be continued by the Solid Waste Section. If you have any questions or would like to schedule a meeting to discuss this letter, you may contact me at (919) 733-0692, extension 258.

Sincerely,



Bobby Lutfy
Hydrogeologist
Solid Waste Section

cc: Sherri Coghill, Solid Waste Section
Brent Rockett, SWS - Winston-Salem
Peter Walls, RUST Environmental



GUILFORD COUNTY
Board of County Commissioners

P. O. Box 3427
GREENSBORO, NORTH CAROLINA 27402

CERTIFIED

March 21, 1997

Sherri L. Coghill, Environmental Engineer
for Solid Waste
N.C. Department of Environment, Health
And Natural Resources
P. O. Box 27687
Raleigh, North Carolina 27611-7687

Dear Ms. Coghill:

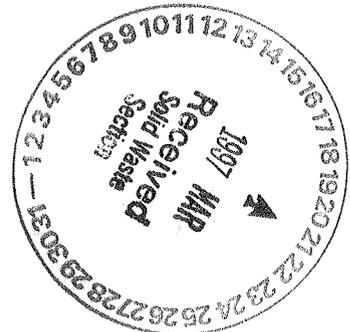
The Guilford County Board of Commissioners will hold a public hearing for the purpose of receiving input from the public on the application from the Piedmont Landfill and Recycling Center for a permit for a sanitary landfill. The public hearing will be held on April 3, 1997, at 6:30 P.M. in the Commissioners' Meeting Room on the second floor of the Old County Courthouse, 301 West Market Street, Greensboro, N.C. I have enclosed a copy of the notice being published in the **Greensboro News-Record** and the **Kernersville News**.

If you have any questions, you may contact me at (910) 373-7428.

Sincerely,

Jane V. Garner
Deputy Clerk to Board

Enclosure



NOTICE OF PUBLIC HEARING
PIEDMONT LANDFILL AND RECYCLING CENTER
SANITARY LANDFILL PERMIT APPLICATION
UNDER NCGS 130A-294(b1) (2)

DATE: April 3, 1997
TIME: 6:30 p.m.
PLACE: Board of County Commissioners Meeting Room
Second Floor
Old Guilford County Courthouse
301 W. Market Street
Greensboro, North Carolina

This is to notify the public that an application for a permit for a sanitary landfill has been filed by Piedmont Landfill and Recycling Center (PLRC) with the North Carolina Department of Environment, Health, and Natural Resources (NC DEHNR).

Pursuant to NCGS 130A-294(b1)(2), the Guilford County Board of Commissioners will hold a public hearing on the application of Piedmont Landfill and Recycling Center to construct and operate an expansion of approximately 360 acres of a sanitary landfill in unincorporated Northwest Guilford County in the Water Oak Road area adjacent to the existing PLRC sanitary landfill located in Forsyth County.

Under NCGS 130A-294(b1)(2) the purpose of the public hearing is to provide all citizens of Guilford County the opportunity to express their interest in and view of the PLRC sanitary landfill application to the Board of Commissioners and the North Carolina Department of Environment, Health, and Natural Resources, Solid Waste Section. All citizens will be afforded an opportunity to be heard.

This public hearing is for citizen comment on PLRC's state permit application only. Each speaker will be allowed 2 minutes to speak. It is not a public hearing on land use approval, road closing, a franchise, or a special use permit. It is in addition to any other hearing which the law may require. No action will be taken by the Board of Commissioners; this is an informational hearing.

Guilford County has provided NC DEHNR/Solid Waste Section with an initial Consistency Determination on PLRC's sanitary landfill permit application. Copies of the initial Consistency Determination and the PLRC sanitary landfill state permit application are available for public review at the Guilford County Department of Planning and Development, Plaza Level, New Courthouse Bldg., 201 S. Elm-Eugene Street, Greensboro, NC during normal business hours, Monday through Friday.

Norma Bodsford, Clerk
Guilford County Board of County Commissioners
301 West Market Street
Greensboro, NC 27402



Jim Cobby

North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

February 21, 1997

Edward L. Gibson, P.E.
Facility Engineering Manager
Piedmont Landfill and Recycling Center
9900 Freeman Road
Kernersville, NC 27284

Re: Archaeological Testing Report, 31GF352**,
Piedmont Landfill Expansion, Forsyth and
Guilford Counties, ER 96-8153, ER 97-8210

Dear Mr. Gibson:

Thank you for your letter of January 6, 1997, transmitting the archaeological testing report by Thomas G. Lilly Jr. of Garrow and Associates for the above project.

Results of the phase II testing of archaeological site 31GF352** indicate that the site deposits are mixed and there is no separation between the nineteenth century and twentieth century occupations. The ability of this site to yield significant information is extremely limited and it is our opinion that 31GF352** is not eligible for the National Register of Historic Places. No additional investigation of this site is recommended.

The report in general meets our office's guidelines and those of the Secretary of the Interior.

These comments are made in accord with G.S. 121-12(a) and Executive Order XVI. If you have any questions regarding them, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

A handwritten signature in dark ink that reads "David Brook".

David Brook
Deputy State Historic Preservation Officer

DB:slw



cc: ✓ Jim Coffey
Solid Waste Section
Division of Waste Management
DEHNR

Thomas G. Lilly Jr.
Garrow and Associates
417 North Boylan Avenue
Raleigh, NC 27603

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director



February 11, 1997

James D. Elza, Jr., Director
Planning and Development
Guilford County
P. O. Box 3427
Greensboro, North Carolina 27402

Re: Clarification of January 21, 1997 Correspondence

Dear Mr. Elza:

The Solid Waste Section received a consistency determination from Guilford County dated January 31, 1997, as a response to Section correspondence of January 21, 1997. The Section would like to clarify the purpose of the January 21, 1997, correspondence to Guilford County.

By the referenced correspondence, the Section intended to notify the County, in accordance with NCGS 130A-294(b1)(2), that the Section received a site study application from Waste Management of Carolinas, Inc., for expansion of the Piedmont Landfill and Recycling Center into Guilford County. This statute also requires the Section to forward a copy of the application to the county. The Solid Waste Section did not submit the application to Guilford County on behalf of the applicant. NCGS 130A-294(b1)(3) and (4) require the permit applicant to request a franchise, request a determination as to whether the county has in effect franchise, zoning, subdivision or land-use planning ordinances and request a determination as to whether the landfill, as proposed, is consistent with the applicable ordinances. The Section will inform Waste Management of these general statute requirements.

The Section also intended to ensure that Guilford County was aware that the county is required by statute to conduct a public hearing if sufficient public interests exists. Please inform the Section when the public interest hearing is conducted.

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Voice 919-733-4996



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Mr. Elza
February 11, 1997
Page 2

If you have any questions, please contact me at (919)733-0692, extension 259.

Sincerely,



Sherri L. Coghill
Environmental Engineer
Solid Waste Section

cc: Roger C. Cotten, Guilford County
James Coffey
Julian Foscue
William R. Lewis, PLFRC

Guilford County
Planning & Development Department
Fax Transmittal

DATE: 2/3/97

TIME: 4:05 PM

TO: Sherri L. Coghill, Env. Engr.

ORGANIZATION: DEHNR/SOLID WASTE SECTION

FAX #: 919-715-3605

FROM: MULVIMAN, Director

DIVISION: Planning

PHONE #: 910-373-3731

FAX #: (910) 333-6988

MESSAGE: Guilford County Development Ordinance, Franchise Ordinance, and NCGS 153A-241 mailed to you this afternoon as attachments to Guilford County Consistency Determination letter dated 1/3/97.

Pls. advise if you have questions.

NUMBER OF PAGES (including COVER SHEET): One (1)



GUILFORD COUNTY

PLANNING AND DEVELOPMENT DEPARTMENT

January 31, 1997

Sherri L. Coghill, Environmental Engineer
DEHNR/Solid Waste Section
P. O. Box 27687
Raleigh, NC 27611-7687

CERTIFIED

RE: **GUILFORD COUNTY CONSISTENCY DETERMINATION
SANITARY LANDFILL PERMIT APPLICATION
FOR PIEDMONT LANDFILL AND RECYCLING CENTER (PLRC)**

Dear Ms. Coghill:

In accordance with your request under NCGS 130A-294(b1)(4) apparently on behalf of Piedmont Landfill and Recycling Center, the following determination is made in response to your letter of January 21, 1997:

1. Guilford County has jurisdiction over the land on which the proposed facility is located.
2. Guilford County has not approved a Site Plan, a Special Use Permit, Road Abandonment, or a Franchise for this facility, but Guilford County does have in effect ordinances and/or procedures governing such approvals.
3. Guilford County has not held a hearing with regard to this facility. The general public interest hearing pursuant to NCGS 130A-294(b1)(2) will be held within sixty (60) days. It will be at least 180 days before the county can process all such applications and hold all the necessary hearings or procedures relating to all necessary approvals. This assumes that the Piedmont Landfill and Recycling Center (PLRC) timely files complete and appropriate applications, fees, and documentation with our office.
4. At this time the proposed facility is not consistent with the Guilford County Development Ordinance, including zoning and land use, the County Solid Waste Franchise Ordinance, or State Road Abandonment (NCGS 153A-241). No franchise has been issued. No special use permit has been issued. No site plan has been approved. A copy of such ordinances are attached hereto. These have been discussed with the applicant, and the applicant is well familiar with them.

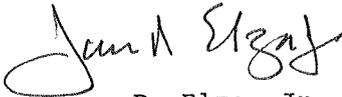
Such site application is not approved until such hearings are held, permits and licenses/franchise are granted, and abandonments are made.

5. We are very concerned that your January 21, 1997 letter failed to point out the 15-day waiver provision of NCGS 130A-294(b1)(3) which could easily be overlooked by a local government, thereby depriving local citizens of the substantial protections afforded by local government land use and franchising provisions. We are also concerned that the applicant has apparently applied to you for a permit prior to receiving clearances and a franchise from Guilford County, contrary to NCGS 130A-294(b1)(3).

Sherri L. Coghill, Environmental Engineer
January 31, 1997
Page 2

If you have any questions, please contact me at (910) 373-3060. We are submitting a copy hereof to the applicant.

Sincerely,



James D. Elza, Jr., AICP
Director, Planning and Development

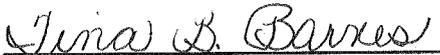
VERIFICATION

The undersigned Guilford County Planning and Development Director hereby certifies that he is the Enforcement Officer as provided by the Guilford County Development Ordinance as adopted by the Board of County Commissioners and that the above determination is correct to the best of his knowledge and belief, as required by NCGS 130A-294(b1)(4).



James D. Elza, Jr.
Director, Planning and Development

Sworn to and subscribed
before me this 31 day of January, 1997.



Notary Public

my Commission 12/5/98

/1

Attachments: 1-Development Ordinance, 2-Franchise Ordinance,
3-Road Abandonment law

cc: Mul Wyman, Director of Planning
Jonathan Maxwell, County Attorney
Ken Knust, Inspections Director
Mark Kirstner, Chief, Zoning Section
Jim Morrison, Chief, Planning Section
Larry Harvell, Community Services
Piedmont Landfill and Recycling Center (with attachments)
Henry Isaacson, Attorney
John Wolfe, Attorney

RECEIVED
JAN 31 1997

Piedmont Landfill
and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735

Copies



A Waste Management Company

Original
sent
1/8/97
Fed-ex

January 6, 1997

Mr. David Brook
Deputy State Historic Preservation Officer
North Carolina Department of Cultural Resources (NCDRCR)
109 East Jones Street
Raleigh, NC 27601

Re: Piedmont Landfill Expansion, Forsyth and Guilford Counties, ER 96-8153

Dear Mr. Brook:

Please consider this as a response to your letter to Mr. Richard A. Harper, our consultant, dated August 23, 1996 concerning the above referenced subject.

In accordance with your recommendation contained in your letter regarding Historic Period Site 31GF352, we hereby submit the results of our testing phase, as documented in the attached report (two copies), Phase II Archaeological Testing of Site 31GF352, Piedmont Landfill Expansion, Guilford and Forsyth Counties, North Carolina, by Garrow & Associates, dated January 1997.

Regarding your request for more information on Lowe Memorial Church, again we would like to explain that we are submitting the historical/archaeological reports to your department as required by 15A NCAC 13B .1618 (c) (2) (F). As specified in this regulation (15A NCAC 13B .1618 (c) (2)), it specifically denotes an investigative radius of 2,000 feet. Lowe Memorial Church falls outside this radius. It is my understanding that, based upon a telephone conversation with Ms. Renee Gledhill-Early, the intent of this request for traffic counts, project description (including entrance to the proposed landfill), etc., is based upon the issue that blowing litter from waste trucks passing this church may impact this site. Please understand that waste trucks have been passing this church in excess of ten years due to either the Town of Kernersville Landfill or the existing Piedmont Landfill located in this area, and no impact has occurred at this historic site. With the entrance to the expansion area located along Goodwill Church Road (approximately 4,700 feet from Lowe Memorial Church), trucks will continue to pass this site when the landfill expansion becomes a reality. The number of waste trucks that could potentially pass this church once the expansion opens is unknown, and is contingent upon the amount of waste the landfill receives. We can, however, give you an approximation of existing truck traffic: the existing landfill presently receives an average of 200 trucks per day, with approximately 60 % of these trucks passing Lowe Memorial Church. Also for informational purposes only, we are enclosing pictures of Lowe Memorial Church.

Mr. David Brook
January 6, 1997
Page 2

We are awaiting your comments to the above mentioned Phase II report. If you have any questions, feel free to contact either myself or Bill Lewis at (910) 595-6677.

Sincerely,



Edward L. Gibson, P.E.
Facility Engineering Manager

cc: Bill Lewis
Richard Harper
Sherri Coghill

PIEDMONT LANDFILL & RECYCLING CENTER

**9900 FREEMAN ROAD
KERNERSVILLE, NC 27284
(910) 595-6677
FAX (910) 595-9735**

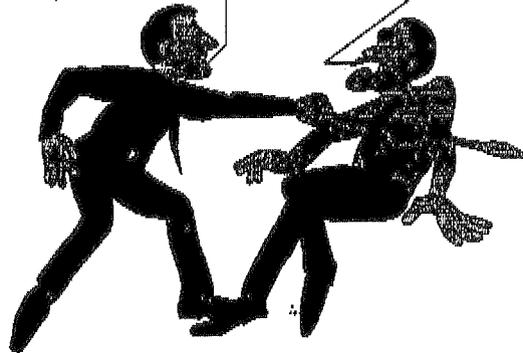
FAX TRANSMISSION COVER SHEET

TO: *Sherrri Coghill*

FROM: *Ed Gibson*

DATE: *1/9/97* **TIME:** *3:30PM*

RIGHT TO THE
HEART OF THE
MATTER!!!



HAVE A HEART,
WILL YA?

YOU SHOULD RECEIVE *3* PAGES INCLUDING THIS COVER SHEET. IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (910) 595-6677 IMMEDIATELY. THANK YOU.

COMMENTS:

FYI

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34-06

State of North Carolina
Department of Environment
and Natural Resources
Division of Waste Management



James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
William L. Meyer, Director

October 13, 1997

Mr. William R. Lewis
Piedmont Landfill and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284

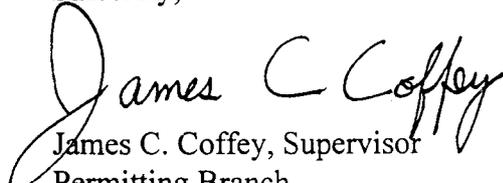
RE: Modification to Permit
Final Cover Slope
Piedmont Landfill and Recycling Center
Permit No. 34-06

Dear Mr. Lewis:

The Solid Waste Section hereby approves the request for modification of final cover side slopes from 4:1 to 3:1. This request modifies the alternative final cover design approved by the Section on July 31, 1997. Your request and this approval will be added to the list of approved documents for Permit No. 34-06.

If you have any questions or comments regarding this correspondence, please contact Sherri Coghill at (919)733-0692, ext. 259.

Sincerely,


James C. Coffey, Supervisor
Permitting Branch
Solid Waste Section

cc: Mark Taylor, EcoLogic Assoc.
Julian Foscue
Brent Rockett
Tim Jewett

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Waste Management

James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
William L. Meyer, Director



September 4, 1997

Mr. John Shumate, Environmental Manager
Kobe Copper Products, Inc.
P. O. Box 160
Pine Hall, NC 27042

Subject: August 27, 1997 Waste Determination Request for Disposal of 215 Pounds per Month of RCRA "Empty" One Gallon Containers Containing Ink Residues at the Lined Piedmont Sanitary Landfill in Forsyth County, Permit Number (34-06).

Dear Mr. Shumate:

Beginning July 12, 1994, any Waste Determination requests received by the Division of Waste Management (DWM) that were targeting wastes to be disposed in lined NC municipal waste sanitary landfills resulted in notification to the generator that the lined landfill management would do the waste screening and accept or reject the request. Since that date, the DWM has only done Waste Determinations on wastes destined for unlined landfills. Your (subject) request may ultimately receive the attention of the Piedmont Landfill management. However, there are several unique factors involved in the subject request that require the Division's response prior to your redirecting your request to Waste Management Corp. in Kernersville.

The *Residues of Hazardous Waste in Empty Containers* section found in 40 CFR 261.7 codified as 15A NCAC 13A .0106 allows some residual hazardous waste to remain in containers following practices commonly employed to remove materials from that type of container. The residual material is not reclassified as being non-hazardous, but rather is stated as no longer being subject to regulation under certain Hazardous Waste Rules. However, these containers with residue are subject to all 15A NCAC 13B Solid Waste Rules and must meet the requirements for landfilling. Any residue must be shown to pass the S.W. 846 Method 9095 paint filter test for free liquids and also in this particular waste's case must be shown to no longer have the characteristic of ignitability. The justification for this is found in section .1626(6)(i) of the rules which states that barrels and drums shall not be disposed of unless they are empty and perforated sufficiently to ensure that no liquid or hazardous waste is contained therein, except fiber drums containing asbestos.

The test for free liquids is straightforward, but testing a solid for ignitability is difficult since U.S. EPA flash point tests are for liquids or for solids which can cause fire by friction. In an August 26, 1992 letter to the American Furniture Manufacturers Association, EPA recommended ASTM D4982-89 (Method A) as an interim procedure.

Mr. John Shumate
September 4, 1997
Page 2

One last point. You indicated that your waste is listed and is U002. The U002 designation is the hazardous waste identification number for misprocessed acetone or a remainder of pure acetone which is being discarded. That identification does not apply to a product which merely contains a quantity of acetone.

This reply to your request is not meant to allow or deny acceptance of the waste into the designated Piedmont Sanitary Landfill. As stated earlier, that is a decision to be made by the landfill management. If you have any questions about this matter, please telephone me at 919-733-0692, extension 260.

Sincerely,



William R. Hocutt
Waste Determination Coordinator
Solid Waste Section

cc: Dexter Matthews
Jim Coffey
Julian Foscue
Terry Dover
Hugh Jernigan
Brent Rockett
Bill Lewis

c:\wp6doc\wastdet\kobecop.97

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director



July 7, 1997

Mr. William R. Lewis
Piedmont Landfill and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284

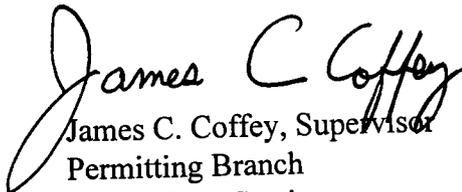
RE: Permission to Operate
Phase 3, Cell 2, Subcell 2
Piedmont Landfill and Recycling Center
Permit No. 34-06

Dear Mr. Lewis:

The Solid Waste Section has determined that Waste Management of Carolinas, Inc. has met the pre-operative conditions of Permit to Construct No. 34-06 for Phase 3, Cell 2, Subcell 2 of the Piedmont Landfill. Permission to operate in this subcell is hereby granted. Operation shall be in accordance with all applicable rules of 15A NCAC 13B and the conditions of Permit No. 34-06.

If you require further information, please contact me at (919) 733-0692, ext. 255.

Sincerely,


James C. Coffey, Supervisor
Permitting Branch
Solid Waste Section

cc: Sherri Coghill
Julian Foscue
Jim Barber
Brent Rockett

Piedmont Landfill
and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735



A Waste Management Company

CF 34-06

May 19, 1997

**Ms. Sherri Coghill
North Carolina Dept of Environment, Health, and Natural Resources
Division of Waste Management (DWM)
401 Oberlin Road
Raleigh, NC 27611**



Re: Interim Leachate Recirculation Report; Piedmont Landfill & Recycling Center (PLFRC), Kernersville, NC

Dear Ms. Coghill:

In accordance with the approval letter dated December 21, 1995, the PLFRC hereby submits two copies of the interim report.

As you can see from the report, we have last recirculated leachate on December 16, 1996. We have not recirculated since that day.

This first recirculation trial period was small, with no signs indicating any actual or potential problems. The system is working quite well but for one drawback — it is very labor intensive, which is one reason why we did not recirculate as much as we would have liked.

So that you may schedule a visit to observe this operation, we are expecting to start recirculating again sometime in July 1997.

If you have any questions, feel free to contact either myself or Ed Gibson @ (910) 595-6677.

Sincerely,

**William R. Lewis, P.E.
Division President and General Manager**

**cc: Ed Gibson w/encl
Mark Taylor w/o encl**

Piedmont Landfill
and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735



A Waste Management Company

April 8, 1997

Mr. Mark Poindexter
North Carolina Dept of Environment, Health, and Natural Resources
Division of Waste Management (DWM)
401 Oberlin Road
Raleigh, NC 27611

Re: Gas/Groundwater Correlation Study as per letter to you dated January 17, 1997:
Piedmont Landfill & Recycling Center (PLFRC)

Dear Mr. Poindexter:

Enclosed please find three (3) copies of the above referenced report, entitled **PIEDMONT LANDFILL AND RECYCLING CENTER GAS/VADOSE ZONE SOIL GAS ASSESSMENT AND GROUNDWATER QUALITY ASSESSMENT** by RUST E & I, Inc. dated April 1997. As you will see, this study indicates that the source of the parameter determined to be a statistically significant increase over background (chloroethane) is from landfill gas rather than leachate.

Based upon this study, three recommendations have been made, one of which needs your approval. We are requesting that the DWM review and evaluate this report and give us your comments as soon as possible. Why don't I give you a telephone call in a week or so and set an appointment for all those involved to discuss this report.

If you have any questions, feel free to give either myself or Bill Lewis a call @ (910) 595-6677. Thank you.

Sincerely,

Edward L. Gibson, P.E.
Facility Environmental Manager

cc: John Baker w/o encl
Operating Record w/encl
William R. Lewis w/o encl
Mike McFeeley w/o encl
Tom Brown w/o encl
Rick O'Sadnick w/o encl

-Booklet-

34-06

Piedmont Landfill and Recycling Center

April, 1997

Quality • Integrity • Creativity • Responsiveness



**PIEDMONT LANDFILL
AND RECYCLING CENTER
LANDFILL GAS/
VADOSE ZONE SOIL GAS
ASSESSMENT AND
GROUNDWATER QUALITY
ASSESSMENT**

Prepared for:

*Waste Management
of Carolinas, Inc.*

*Piedmont Landfill
and Recycling Center
9900 Freeman Rd.
Kernersville, NC*

April 1997

Prepared by:
Rust Environment & Infrastructure
3121 Butterfield Rd.
Oak Brook, Illinois

*Quality through
teamwork*

**PIEDMONT LANDFILL
AND RECYCLING CENTER
LANDFILL GAS/
VADOSE ZONE SOIL GAS
ASSESSMENT AND
GROUNDWATER QUALITY
ASSESSMENT**

Prepared for:

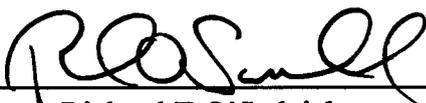
*Waste Management
of Carolinas, Inc.*

*Piedmont Landfill
and Recycling Center
9900 Freeman Rd.
Kernersville, NC*

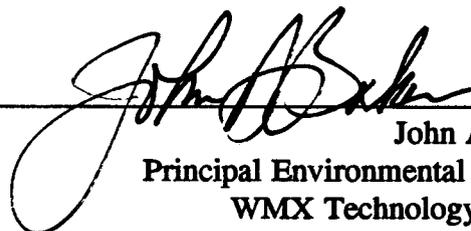
April 1997

Prepared by:

**Rust Environment & Infrastructure
3121 Butterfield Rd.
Oak Brook, Illinois**



Richard F O'Sadnick
Project Manager
Rust E&I



John A. Baker
Principal Environmental Scientist
WMX Technology Center

TABLE OF CONTENTS

EXECUTIVE SUMMARY AND RECOMMENDATIONS iii

1.0 INTRODUCTION 1

2.0 FIELD INVESTIGATION PROGRAM 1

 2.1 VSI Installation 2

 2.2 Pressure and Methane (CH₄) Screening 2

 2.2.1 VSI Screening 2

 2.2.2 Ground Water Well Headspace Screening 3

 2.3 Gas Sample Collection 3

3.0 TEMPORARY MONITORING WELLS 5

4.0 GAS ISOTOPE ANALYSIS 6

 4.1 Objectives of the Isotope Sampling Event 6

 4.2 Background on the Use of Environmental Isotopes 6

 4.2.1 Stable Isotopes 7

 4.2.1.1 Oxygen and Hydrogen Isotopes 7

 4.2.1.2 Carbon Isotopes 8

 4.2.2 Radioactive Isotopes 8

 4.3 Gas Isotope Results 9

5.0 STATIC-RESPONSE VACUUM TESTING 9

6.0 RESULTS AND RECOMMENDATIONS 11

7.0 REFERENCES 13

LIST OF TABLES

Table

- | | |
|----------|--|
| 1 | VSI Readings - January 21, 1997 |
| 2 | VSI Readings - January 27, 1997 |
| 3 | VSI Readings - January 28, 1997 |
| 4 | Supplemental VSI readings |

LIST OF FIGURES

Figure

- | | |
|----------|----------------------------------|
| 1 | Sample Point Location Map |
|----------|----------------------------------|

LIST OF APPENDICES

Appendices

- | | |
|----------|---|
| A | Gas Sampling Analytical Results |
| B | Gas Sampling Isotope Analytical Results |
| C | WMX Environmental Monitoring Laboratories, Inc.,
Groundwater Geochemical/Isotope Assessment Report |
| D | Temporary Monitoring Well Construction Logs |

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Piedmont Landfill & Recycling Center (PLFRC) is a municipal solid waste landfill in Kernersville, North Carolina owned and operated by Waste Management of Carolinas, Inc.. In performing one of their routine, groundwater detection monitoring events in 1996, one volatile organic compound (VOC), chloroethane, was detected in a downgradient well, MW09. In accordance with North Carolina solid waste regulations, the PLFRC entered into assessment groundwater monitoring. In order to more quickly determine the source of the chloroethane, the PLFRC retained the services of the Rust Environment and Infrastructure to conduct a field assessment of current conditions to determine the source of the chloroethane.

The first part of the assessment was to determine if there was a correlation between the landfill leachate and groundwater. Background groundwater, along with MW09 and landfill leachate were analyzed for leachate indicator parameters. The results of this assessment indicated that there is not a significant increase of leachate indicator parameters, such as chloride, in MW09 and other downgradient wells. This was documented in the report submitted to the NCDEHNR Division of Waste Management dated March 19, 1997 which is included in this report.

Due to the type of halogenated organic compound (chloroethane) detected in groundwater samples from monitoring well MW09, it was suspected that the source of the chloroethane is landfill gas, and not landfill leachate. Therefore, this project was initiated to: 1) address the source of groundwater impacts documented at groundwater monitoring well MW09, and 2) assess potential source areas of landfill gas migration, and 3) to assess possible remedial measures designed to mitigate the ground water impacts.

The data gathered from this study show that landfill gas has migrated below the landfill liner invert into the vadose zone above the water table. Also, based upon the results of the field monitoring and the analytical sampling, it appears that landfill gas VOCs have diffused into solution in ground water where they were then detected in monitoring well MW09.

No chloroethane or other groundwater impacts was observed in three temporary groundwater monitoring points installed approximately 50 feet downgradient of MW09

During the course of this investigation, The existing landfill gas extraction system was adjusted as to apply increased vacuum on the west side of the landfill in the vicinity of monitoring well MW09. These adjustments have already appeared to have removed the majority of landfill gas from the out-of-refuse vadose zone. This demonstration that the existing gas collection system has the ability to influence both the in-refuse probes as well as the out-of refuse probes indicates strongly that the landfill gas impacts to monitoring well MW09 at the site should be mitigated over time with continued modified gas control already in place at the west side of the landfill.

Therefore, an evaluation of analytical data reviewed for this study, in addition to a review of the hydrogeology, underlying site stratigraphy, monitoring well construction, and site history indicates the source of the chloroethane as being from landfill gas rather than landfill leachate.

Based upon the results of this study, it is recommended that :

- Continued monitoring of the temporary landfill gas probes and the out-of- refuse landfill gas probes be performed. The existing gas control system should be tuned to exert a continual slight vacuum on the out-of refuse gas probes. If the current system is not able to control the gas over time, than a series of shallow in-refuse gas extraction wells should be installed between MW09 and gas extraction well W-1 in order to control landfill gas on the perimeter of the landfill, and minimize the landfill gas effects on the monitored groundwater
- Groundwater monitoring well MW09 should be replaced with a new well that will minimize the potential for landfill gas impacts to monitored groundwater. MW09 was constructed with a 15 foot long screened interval. Approximately only five feet of that screened interval is in water, leaving ten feet of unsaturated screen. This presents a pathway for landfill gas to enter the well headspace and cause inter-well landfill gas effects to the groundwater. The temporary wells installed downgradient of MW09 were installed with no unsaturated screen, and though these wells monitor the same zone as MW09, no groundwater impacts were observed.
- A transient response-vacuum test should be performed in the subject area near MW09 in order to better determine the area/areas within the landfill that should be identified for a more aggressive approach to gas extraction/groundwater remediation.

1.0 INTRODUCTION

This project was initiated to address detections of one volatile organic compound (VOC), chloroethane, in one ground water in monitoring well at the Piedmont Landfill located in Kernersville, North Carolina.

Chloroethane is a common constituent in landfill gas, and it was suspected that landfill gas may be the source of chloroethane in MW09. Previous studies at other Waste Management facilities has shown that VOCs in landfill gas in the unsaturated vadose zone can partition into an aqueous phase, which can be a source of contaminants in the ground water.

This assessment project was designed with two objectives. One, to determine if the VOC detections in the ground water monitoring wells was due to leachate contamination, landfill gas contamination or sources other than the landfill unit. Second, to determine the most efficient corrective measures technology to address the source of the VOCs. Assessment activities performed as part of this project and summarized in this report include:

- Determination of the source-type of groundwater impact by sampling groundwater and analyzing various landfill media for permit specific volatile organic compounds (VOCs), major anions and cations, leachate indicator parameters and environmental isotopes;
- Determination of the extent of landfill gas movement from the facility by measuring methane gas concentrations and pressures in the out-of-refuse vadose zone;
- Confirmation of the suspected Volatile Organic Compound (VOC) vapor to liquid transfer using headspace gas "fingerprinting" techniques;
- Demonstration of the correlation between methane concentrations in the vadose zone and VOC concentrations in the groundwater; and
- Presentation of the results of the investigation and any conclusions or recommendations.

2.0 FIELD INVESTIGATION PROGRAM

Rust E&I conducted a field investigation program to collect the appropriate data needed to assess the out-of-refuse vadose zone soil gas and groundwater quality around the landfill, with emphasis on the west side of the landfill near MW09. The field investigation program was conducted from January 20 through January 29, 1997 and involved the following activities:

- Installation of temporary vadose zone monitoring and sampling devices called vapor sample implants (VSIs).
- Taking methane measurements in the VSIs and monitoring well headspace.
- Taking pressure measurements in the VSIs.

- Installation of three temporary groundwater monitoring wells downgradient of MW09 along the perimeter road on the west side of the landfill.
- Collection of gas samples for VOC and environmental isotope analysis from soil VSIs, landfill gas extraction wells and ground water monitoring well headspace.

2.1 VSI Installation

An ATV mounted Hydraulic Soil Probe (HSP) unit, also called a Geoprobe, was utilized to penetrate both the landfill cover, and the out-of-refuse soil vadose zone for the installation of the temporary VSIs used in this investigation. Thirty (30) VSIs were placed at locations within the west side of the landfill, and twelve (12) VSIs were placed at locations out-of-refuse at the fence along the western perimeter of the landfill. A map showing the location of each VSI is presented as Figure 1.

The Geoprobe uses a hydraulic hammering device to drive hollow stem rods equipped with an expendable drive tip eight (8) feet into the soils. VSI construction consists of placing 3/8-inch OD polyethylene tubing through the hollow stem rods as the rods are pulled upward and removed from the ground. The bottom three (3) feet of the tubing was perforated with small diameter holes (approximately 1/16 of an inch) before placement inside the hollow stem rods. The annulus around the perforated portion of the tubing was backfilled with silica sand and the remaining annulus from above the perforations upward to the ground surface was sealed with hydrated bentonite pellets. Approximately 2-3 feet of tubing was left extending above the ground surface for each VSI. The tubing was sealed by attaching a 1/4-inch hose-barbed quick connect coupling to prevent venting of the soil gas and to allow for future soil gas monitoring and sampling. The tubing that extended above the ground surface was fastened to a wooden stake which was labeled to identify each location.

The VSI locations were selected to collect and analyze the gas in the vadose zone to determine the presence and/or concentrations of methane (CH₄) and other VOCs. As a quality control measure, soil samples were collected from selected soil VSI Geoprobe locations using a small diameter soil sampling device to confirm the depth of the target formation. (The field measurements of CH₄ concentrations used to delineate the extent and quality of the landfill gas during the investigation are included in the tables following this report)

2.2 Pressure and Methane (CH₄) Screening

2.2.1 VSI Screening

After all of the VSIs had been installed, pressure measurements were taken using a digital manometer. Once the pressure was measured and recorded, a combustible gas indicator (a GasTech NP-204[®]) was attached to the VSI and was purged for 30 - 60 seconds. Once the VSI was purged, the CH₄ concentration was measured and recorded. This measurement information

may be used to design a passive or active gas recovery system as part of the corrective measures by placing the gas recovery wells in areas with the highest pressure concentrations.

2.2.2 Ground Water Well Headspace Screening

The headspace atmosphere in well MW09 was field screened for CH₄ concentrations. The sampling procedure consisted of opening the well and measuring the depth to the water surface. A section of polyethylene tubing was inserted in the well to a depth of one foot above the water surface. An aspirator bulb was used to purge the stagnant air from the polyethylene tubing. After purging was completed, the methane indicator was attached to the tubing and a gas measurement was taken starting from the bottom of the air column and moving upward to the top. The upward movement was used to obtain a vertical profile of the monitoring well headspace air.

On December 18, 1996 the methane in the headspace of MW09 was recorded at 28%. Since that time the tuning of the existing gas collection system has adjusted, and little to no gas has been detected in the headspace of MW09.

2.3 Gas Sample Collection

In order to produce a gas fingerprint for comparison purposes, gas samples were taken from various points both in and out of refuse. The landfill gas samples from the Piedmont Landfill were collected in a SUMMA canister and Tedlar bags. A SUMMA canister is a small stainless steel sample container shipped from the laboratory under 30 in/hg of vacuum. Each SUMMA canister is checked with a pressure gauge for pressure tightness prior to use in the field. The gauge is attached to the SUMMA valve port, the valve is opened and the reading is recorded on the chain of custody. SUMMA canisters having less than 28 in/hg of vacuum are considered defective and would be shipped back to the laboratory. None of the SUMMA canisters shipped to the Piedmont Landfill failed this requirement.

Each SUMMA canister was given a final pressure check prior to shipment to the laboratory. This was done to ensure the maximum sample volume was collected. This check consisted of attaching a pressure gage to the sample port, opening the sample valve and recording the reading. The sample valve was then closed, the pressure gage removed and a dust cover was placed on the sample port to protect against contamination during shipment. All SUMMA canisters used for this sample event showed a zero PSIG reading. Had the pressure read negative or positive, the laboratory would make adjustments in their concentration/volume calculations to correct for this reading.

Each SUMMA canister was then sealed in an individual box, along with a field information card, and a canister pressure record. Four individual boxes and their chain of custody forms were placed in a larger box which was sealed and shipped to Core Laboratories located in Houston, Texas.

The following is a table which outlines the samples that were collected and analyzed as part of this project:

PIEDMONT LANDFILL ANALYTICAL GAS SAMPLING			
	VOLATILE ORGANIC COMPOUNDS	FIXED GASSES	ENVIRONMENTAL ISOTOPES
TP-2	X	X	X
TP-3	X	X	
TP-4	X	X	
MW09	X	X	
FLARE	X	X	X
GW-1	X	X	X
GW-2	X	X	
GW-11	X	X	

The analytical results from the gas sampling can be found in **Appendix 1**.

VSI Gas Sample Collection

In order to produce a gas fingerprint for comparison purposes, gas samples were taken from the three VSIs nearest MW09 that had the highest methane readings (TP-2, TP-3 and TP-4). The gas samples collected from these probes were analyzed at the laboratory for volatile organic compounds (EPA method TO-14) and fixed gasses (CH₄, CO₂, N, O₂). TP-2 was also analyzed for environmental isotopes.

Immediately prior to sample collection, the digital manometer was attached to the VSI. The measured pressure in the VSI was recorded on the chain of custody form. After the pressure reading was recorded, a NP-204 was attached to the VSI. After the CH₄ concentration reading stabilized, the concentration was recorded on the chain of custody form. The SUMMA canister was then attached to the VSI by sliding the VSI tubing over the sample valve port on the SUMMA. The SUMMA canister valve was then opened slightly to allow the gas to slowly enter the canister. Each SUMMA canister was completely filled within 60 seconds. Once filled, the sample valve was closed, and the tubing was removed from the sample port. The sample time, date, location and other field information was recorded on the chain of custody form.

Monitoring Well Headspace Gas Sampling

A headspace gas sample was collected from monitoring well MW09. A SUMMA canister was

utilized to collect this sample. The gas sample collected was analyzed for volatile organic compounds and fixed gasses.

The well was opened and a section of polyethylene tubing was lowered to the depth where the highest CH₄ concentrations had been measured during the screening activities (just above the water table). A small diaphragm pump and a NP-204 were connected to the tubing via a t-junction. The diaphragm pump was used to purge the length of tubing while the NP-204 monitored the CH₄ concentration as it was pulled through the tubing. Once the CH₄ measurements stabilized, the concentration was recorded on the chain of custody form. With the tubing crimped to prevent air intrusion, the NP-204 was then removed and replaced with a SUMMA canister. The SUMMA canister sample valve was then opened for approximately sixty seconds. Once the SUMMA canister had filled, the sample valve was closed and the tubing was removed from the well casing. The sample time, date, location and other field information was recorded on the chain of custody form. The well was closed and locked after all sample activities were finished.

Landfill Gas Extraction Well/Utility Flare Gas Sampling

Landfill gas sample were collected from gas extraction wells W-1, W-2, W-11, and the site utility flare. SUMMA canisters and Tedlar Bags were utilized to collect these samples. The gas samples collected were analyzed for volatile organic compounds and fixed gasses. W-1 and the flare were also sampled for environmental isotopes.

A small diaphragm pump and a NP-204 were connected to the sampling ports on the wells via a t-junction. The diaphragm pump was used to purge the length of tubing while the NP-204 monitored the CH₄ concentration as it was pulled through the tubing. Once the CH₄ measurements stabilized, the concentration was recorded on the chain of custody form. With the tubing crimped to prevent air intrusion, the NP-204 was then removed and replaced with a SUMMA canister. The SUMMA canister sample valve was then opened for approximately sixty seconds. Once the SUMMA canister had filled, the sample valve was closed and the tubing was disconnected from the wells/flare. The sample time, date, location and other field information was recorded on the chain of custody form. The well was closed and locked after all sample activities were finished.

3.0 TEMPORARY MONITORING WELLS

Three temporary groundwater monitoring wells were installed downgradient of MW09 along the perimeter road on the west side of the landfill. The location of these well are identified in Figure 1. The following is a description of the installation procedures:

Piezometer Installation

The temporary wells (TMW-1, TMW-2 and TMW-3) were installed on January 27, 1997 using air-rotary drilling methods. Prior to any drilling, sampling, or installation, all related equipment was steam cleaned by the drilling contractor. The soil borings for the piezometers were advanced through the partially weathered bedrock using a 4-1/4" air-rotary bit.

The piezometers were constructed with schedule 40 PVC flush threaded riser and a 5 foot long schedule 40 PVC flush threaded #10 slotted screen. Each piezometer was installed so that the screen was completely submerged in the saturated portion of the partially weathered bedrock. A gravel pack consisting of clean fine sand (#8 Torpedo sand) that was placed to a depth of approximately 1 foot above the top of the well screens. Three feet of bentonite pellets were then carefully placed above the filter pack. The remaining annular space of each borehole was filled with cement-bentonite grout to the surface. Piezometer construction logs are included in this report as Appendix D.

The piezometers were developed on January 29, 1997 using a Well Wizard development pump. Each piezometer was developed by removing a minimum of 5 well volumes until the water from each well cleared up.

4.0 GAS ISOTOPE ANALYSIS

4.1 Objectives of the Gas Isotope Sampling Event

The objective of the isotope sampling was to better characterize the methane detected in the out-of-refuse vadose zone, as well as the landfill gas itself. Based upon the nature of the methane detections in the vadose zone, it was considered that the methane was not from the landfill. The purpose of this testing was to determine if the out-of-refuse methane was from the landfill, or a different source. The Five isotopes used in this study are proven as excellent indicators for source determination in environmental investigations. The isotopes used are Deuterium (δD or 2H), Tritium (3H), Carbon-13 ($\delta^{13}C$ or ^{13}C), Carbon-14 (^{14}C) and Oxygen-18 ($\delta^{18}O$ or ^{18}O). The results of this isotope gas sampling can be found in Appendix 2.

4.2 Background on the Use of Environmental Isotopes

In recent years, the use of environmental isotopes has proven to be a valuable tool in assessments of municipal solid waste facilities. Rust has used this technique successfully to conduct assessments and delineate extent of leachate and landfill gas contamination at numerous landfill facilities across the country. Coleman (1991) showed that isotopes of Carbon and Hydrogen are very useful in identifying CH_4 produced in landfills. Egboka (1983) used tritium to help assess the dispersion and rate of recharge of contamination in ground water associated with a landfill in Ontario, Canada. Depending on the dispersive characteristics of the ground water flow path and the attenuative characteristics of the mineralogy, it appears that tritium is a particularly useful parameter for identifying leachate impacts from landfills constructed since the early 1950's. Isotopes are atoms of the same element that have different numbers of neutrons in the nucleus and therefore different atomic weights. Isotopes may be "stable" or "radioactive". Environmental isotopes used in this assessment include the following elements: Carbon (^{12}C , ^{13}C), Hydrogen (1H , 2H , 3H) and Oxygen (^{16}O , ^{18}O). Of these, only Tritium is a radioactive isotope. The average terrestrial abundances for the isotopes of these elements are as follows:

Carbon-12 (^{12}C)	98.89 %
Carbon-13 (^{13}C)	1.11 %

Hydrogen (¹ H)	99.984%
Deuterium (² H)	0.015%
Tritium (³ H)	10 ⁻¹⁴ to 10 ⁻¹⁶ % (radioactive)
Oxygen-16 (¹⁶ O)	99.76%
Oxygen-18 (¹⁸ O)	0.20%

From Hoefs, 1980 and Fritz and Fontz, 1980.

4.2.1 Stable Isotopes

The concentration of stable isotopes of an element in coexisting chemical phases or reacting chemical compounds vary slightly because of the differences in the mass of the isotopes. Generally, the heavier isotope will be concentrated in the solid phase where it is more strongly bound for those elements undergoing transitions between the solid, liquid, and gaseous states over a range of temperature. Heavier isotopes also tend to be concentrated in the more oxidized phase of the element. Isotopic distributions in reactions controlled by biological systems (e.g., bacterial metabolism) are primarily a result of kinetic effects. These kinetic differences typically appear as differences in the reaction rates for different combinations of isotopes. In general, a lighter isotope will cause a faster reaction rate and will be concentrated in the main reaction product relative to the source materials.

Actual differences between isotopic abundances are usually very small and are normally expressed in the "delta" (δ) notation. A δ value of a stable isotope in a sample is the "per mil" (‰, parts per thousand) difference in the ratio of the less abundant isotope to the most abundant isotope in a sample relative to the same ratio in a known standard. This is represented in the following equation:

$$\delta X_{(\text{sample})} = [(R_{\text{sample}} - R_{\text{standard}}) / R_{\text{standard}}] * 1000$$

where: δX = the isotope of interest (δD , $\delta^{13}C$ and $\delta^{18}O$)
 R = the ratio of $^2H/^1H$, $^{13}C/^{12}C$, or $^{18}O/^{16}O$

Positive values of δD , $\delta^{13}C$ and $\delta^{18}O$ indicate that the sample is enriched in the heavy isotope relative to the standard. Negative values of δD , $\delta^{13}C$ and $\delta^{18}O$ mean that the sample is depleted in the heavy isotope relative to the standard.

4.2.1.1 Oxygen and Hydrogen Isotopes

The isotopic composition (δD and $\delta^{18}O$) of meteoric water is greatly affected by the processes of evaporation and the temperature at which precipitation took place. Oxygen and hydrogen isotopes in precipitation from around the world follow a consistent relationship characteristic of latitude and climatic conditions (Craig, 1961). This relationship can be mathematically expressed by the following linear equation:

$$\delta D = 8 * \delta^{18}O + 10$$

This equation produces a straight line referred to as the "meteoric water line". The $\delta^{18}\text{O}$ and δD values are generally preserved in meteoric water after it enters the soil zone and infiltrates the shallow groundwater. Meteoric waters that have not been isotopically altered through physical or chemical processes should plot along the meteoric line. Meteoric waters that have been altered via physicochemical processes (e.g., evaporation or methanogenesis) plot off the meteoric line. The figure in Appendix B shows the meteoric line and how the isotopes are affected by certain physiochemical processes.

4.2.1.2 Carbon Isotopes

During the microbial generation of CH_4 that occurs in a landfill, CH_4 is enriched in the lighter isotopes (^{12}C and ^1H), while CO_2 is enriched in the heavier isotope (^{13}C). When dissolved in water, methane does not ionize to form other complex carbon species. Therefore, it does not directly affect the isotopic composition of the Dissolved Inorganic Carbon (DIC). However, when CO_2 dissolves in water, it dissociates to form other carbon species, and affects the isotopic composition of the DIC. As a result, the DIC of a landfill leachate should have a $\delta^{13}\text{C}$ composition different from that of the surrounding natural groundwater.

4.2.2 Radioactive Isotopes

Radioactive isotopes have unstable nuclei and therefore change into different elements through spontaneous decay involving the emission of particles and energy. The rates of decay for the various radioactive isotopes differ widely, ranging from a fraction of a second to millions of years. The rate of decay of each radioactive isotope, reported as the "half-life", refers to the length of time it takes for the concentration of the radioactive isotope to decrease by one half. The radioactive isotope used in this investigation was tritium (^3H).

Tritium is a naturally occurring isotope of hydrogen with an atomic mass of 3. Tritium is formed naturally by cosmic rays interacting with nitrogen in the upper atmosphere. After tritium is produced, it combines with oxygen and hydrogen to form water ($^1\text{H}^3\text{HO}$) and is then dispersed throughout the hydrosphere. Tritium has a half life of 12.4 years. This means that once water is removed from the atmosphere and is no longer able to equilibrate with the continuous generation of tritium, the concentration of tritium in the water decreases by one half in 12.4 years. Tritium is measured in tritium units (TU's) in which one TU would equal one tritium atom in 10^{18} hydrogen atoms. Atmospheric tritium concentrations prior to atomic device testing in the 1950's are estimated to be 5 to 10 TU's (Payne, 1972). After the atmospheric testing of atomic devices, the tritium content in the atmosphere increased to many hundreds and sometimes thousands of TU's depending on the geographic location. Since atmospheric testing of atomic devices stopped in the late 1960's there has been a continuous decrease in the tritium concentration of the atmosphere.

Landfills constructed since the 1950's should have received precipitation enriched in tritium, which makes this isotope useful as a tracer for leachate impact. This assumes that the initial water from precipitation is trapped in the landfill and has a relatively long residency time there due to the construction of artificial or clay liners. As the landfill is filled and capped there should be less

dilution of the tritium in the leachate than in ground water and surface water in the area surrounding the landfill. Previous studies in Illinois show that tritium levels in unimpacted ground water, range from <1 to 10 TU's. Landfill leachate, however, has ranged from >100 to >2000 TU's. Even with considerable dilution, leachate impacting ground water elevates the tritium of the ground water significantly.

4.3 Gas Isotope Results

Environmental isotope samples were collected from three sample points at the PLFRC. The methane concentrations in these samples ranges from 14.5% in the out-of-refuse vadose zone sample of TP-2, to over 44% in the sample from gas extraction well W-1. The carbon and hydrogen isotopic compositions of methane in these samples indicates that the methane was formed bacterially via the fermentation process, which is typical of a near-surface environment. All three samples also have similar Carbon-14 concentrations in methane ranging from 115 to 121 units of post-modern carbon (pMC). This indicates that the methane was formed from post-bomb organic materials, typical of landfill gasses. The chemical compositions and the carbon and hydrogen isotope data indicate that the sample from TP-2 has been subjected to a small amount of bacterial oxidation. This indicated that the gas has either passed or is in an aerobic zone. This is correct as the sample from TP-2 is out-of-refuse vadose gas.

The analytical results can be found in **Appendix 2**.

5.0 STATIC-RESPONSE VACUUM TESTING

For the purpose of identifying the affect that the existing gas collection system has on both in-refuse media, and out-of-refuse soils, cursory static response vacuum testing in the area of concern was performed. In addition to helping to determine extent of extraction influence of subsurface gas, these tests can be used to determine relative influence of extraction wells, evaluate flow within and between soil horizons, and provide useful information for optimizing the tuning of the landfill gas extraction system.

On December 18, 1996, methane was detected at 28 percent by volume in the headspace of groundwater monitoring well MW09. It should be noted that at this point, no fine tuning to the recently installed gas extraction system had yet occurred. After reviewing the extraction system monitoring data, Rust E&I recommended that the gas flow from the nearest extraction well (W-1) be increased. Since that adjustment has been made, methane levels in the headspace on MW09 have been significantly reduced.

In order to further evaluate the influence of W-1, a series of pressure and methane concentration measurements were collected from the temporary probes recently installed on the west side of the PLFRC. The location of these probes are identified in **Figure 1**.

The initial monitoring results from these probes following installation took place on January 21, 1997. These results appeared to indicate vacuum being exerted by the gas collection system on

both the in-refuse and out-of-refuse probes (Table 1). No methane was detected in the headspace of MW09 during this monitoring.

After this monitoring was completed, W-1 (the nearest gas extraction well to MW09) was completely shut off to observe the static recovery of subsurface gas pressures and methane concentrations both in and out-of-refuse.

The second monitoring event took place on January 27, 1997, six days after W-1 was shut off. These results indicate that pressure has built up both in and out-of-refuse due to the lack of active extraction in the area (Table 2). Methane concentrations remained consistent in the out-of-refuse probes, while the concentrations increased in-refuse. No methane was detected in the headspace of MW09 during this monitoring. Gas extraction well W-1 was then turned back on wide open to observe the effects of active gas extraction on the probes.

Almost immediate effects were then noted on several in and out-of-refuse probes. Pressure observed at TP-27, located near W-1, dropped from +1.70" down to +1.50" within one minute of turning on W-1. The pressure continued to drop steadily. Pressure at TP-18, a probe located between W-1 and MW09, dropped from +2.35" to +1.90" within four minutes of turning on W-1.

The third monitoring event took place the next morning on January 28, 1997, 18 hours after W-1 had been turned back on. These results appear to indicate vacuum once again being exerted by the gas collection system, specifically W-1, on both the in-refuse and out-of-refuse probes (Table 3). No methane was detected in the headspace of MW09 during this monitoring.

Since such effects were observed on the influence of W-1 on the in and out-of-refuse probes, an attempt was made to identify the depth of the out-of-refuse gas movement affecting MW09 and the gas probes was performed. To accomplish this, a series of 14 VSI's were placed at increasing depths on either side of MW09. The location of these probes are depicted in Figure 1. The initial monitoring results from these probes (Table 4) indicate that the highest gas concentration recorded was from the deepest of the probes (18 feet). The interval which exhibited the greatest pressure/vacuum reading is from six to twelve feet below ground surface. These results correlate with the location of the top of the unsaturated screened interval of MW09.

6.0 RESULTS AND RECOMMENDATIONS

The primary VOC detections of concern in the groundwater samples (chloroethane) is present in the leachate sample at 63 ug/l. However, this constituent is found in abundance in landfill gas samples at much higher concentrations. (3,760 ppbv from the flare sample). There is no chloroethane, or any other impacts detected in the groundwater results from the three new temporary wells installed downgradient of MW09. The amount of chloroethane in landfill gas opposed to the amount of chloroethane in landfill leachate supports the position that the landfill gas is the source of chloroethane detections in groundwater monitoring well MW09.

In conjunction with this gas assessment, an geochemical environmental study was conducted at PLFRC by the Environmental Monitoring laboratory to assist in the determination of the source of the chloroethane in groundwater at monitoring well MW09. This Gechemical report can be found in Appendix 3. Landfill leachates, groundwater from select wells, and were sampled for geochemical parameters and isotopes. An evaluation of all the data using several different methods, in addition to the hydrogeologic conditions showed that the source of the VOC may not be from the landfill leachate, but from landfill gas. Since the landfill leachate geochemical parameters are greatly elevated over background data, it is anticipated that a release from the landfill would elevate chloride and tritium concentrations in levels between one to two orders of magnitude to match the ratio of chloroethane in leachate and groundwater.

Since the alkalinity ratios in groundwater and leachate are similar to chloroethane, this may provide more evidence the chloroethane if from landfill gas (e.g., the high alkalinity in groundwater is attributed to increased carbon dioxide in the head-space of the monitoring well).

The elevated levels of tritium over background in MW09 may also be due to vapor phase transport of water in the landfill gas (a recent sample of tritium in methane from a temporary gas probe outside the landfill showed 100,000 TUs). Also, the area of the landfill cells adjacent to MW09 is constructed with a double geomembrane liner. The secondary leachate collection system has flows of less than 1 gal/acre/day. Flows up to 10 gal/acre/day are considered "de minimus", and are below the action leakage rate defined in the permit. Therefore, this is another line of evidence to establish that the leachate most likely is not the source of chloroethane and is not significantly impacting groundwater quality.

During the course of this investigation, The existing landfill gas extraction system was adjusted as to apply increased vacuum on the west side of the landfill in the vicinity of monitoring well MW09. These adjustments have already appeared to have removed the majority of landfill gas from the out-of-refuse vadose zone. This demonstration that the existing gas collection system has the ability to influence both the in-refuse probes as well as the out-of refuse probes indicates strongly that the landfill gas impacts to monitoring well MW09 at the site should be mitigated over time with continued modified gas control already in place at the west side of the landfill.

Based upon the results of this study, it is recommended that:

- Continued monitoring of the temporary landfill gas probes and the out-of-refuse landfill gas probes be performed. The existing gas control system should be tuned to exert a continual slight vacuum on the out-of refuse gas probes. If the current system is not able to control the gas over time, than a series of shallow in-refuse gas extraction wells should be installed between MW09 and gas extraction well W-1 in order to control landfill gas on the perimeter of the landfill, and minimize the landfill gas effects on the monitored groundwater
- Groundwater monitoring well MW09 should be replaced with a new well that will minimize the potential for landfill gas impacts to monitored groundwater. MW09 was constructed with a 15 foot long screened interval. Approximately only five feet of that screened interval is in water, leaving ten feet of unsaturated screen. This presents an excellent condition for landfill gas to enter the well headspace and cause inter-well landfill gas effects to the groundwater. The temporary wells installed downgradient of MW09 were installed with no unsaturated screen, and though these wells monitor the same zone as MW09, no groundwater impacts were observed.
- A transient response-vacuum test should be performed in the subject area near MW09 in order to better determine the area/areas within the landfill that should be identified for a more aggressive approach to gas extraction/groundwater remediation.

7.0 REFERENCES

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- Egboka BCE, Cherry JA, Rarvolden RN, and Frind EO; (1983) **Migration of Contaminants in Ground Water at a Landfill: A Case Study.** Journal Of Hydrology. 63:51-80.
- Fritz P, and Fontes J; (1980) **Handbook of Environmental Isotope Geochemistry.** Volume 1, The Terrestrial Environment, A, Elsevier Scientific Publishing Co., Amsterdam - Oxford-New York.
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TABLES

TABLE 1
PIEDMONT LANDFILL
VSI CH₄ AND PRESSURE MEASUREMENTS
FOR 01/21/97

Gas Extraction Well W-1:

Pressure	Available Vacuum	ΔP	CH₄	Temperature
-11.61"	-13.50"	.80	49.0%	86 ^o

PROBE	DEPTH	PRESSURE (" WC)	%CH ₄
TP-1	18.5'	0.00	0.0
TP-2	12.0'	-0.07	19.0
TP-3	13.5'	-0.18	16.0
TP-4	15.0'	-0.17	1.2
TP-5	14.0'	-0.15	0.2
TP-6	17.5'	-0.13	0.0
TP-7	8.0'	-0.13	0.0
TP-8	18.0'	-0.12	0.0
TP-9	14.0'	-0.45	25.0
TP-10	10.0'	-0.15	0.0
TP-11	5.5'	-0.04	0.0
TP-12	6.0'	-0.02	0.0
TP-13	12.0	-6.53	0.0
TP-14	7.0'	-6.63	0.0
TP-15	8.0'	-7.38	22.0
TP-16	5.0'	-6.98	0.0
TP-17	5.0'	-6.85	0.0
TP-18	9.0'	-7.75	0.0
TP-19	6.0'	-5.23	3.0
TP-20	9.0'	-5.23	0.0
TP-21	9.0'	-9.27	11.0

TABLE 1
PIEDMONT LANDFILL
VSI CH₄ AND PRESSURE MEASUREMENTS
FOR 01/21/97
(cont.)

PROBE	DEPTH	PRESSURE (" WC)	% CH ₄
TP-22	9.5'	-8.46	45.0
TP-23	7.5'	-7.37	0.0
TP-24	7.0'	-7.34	8.0
TP-25	6.0'	-2.40	0.0
TP-26	12.0'	-8.60	31.0
TP-27	10.0'	-8.52	45.0
TP-28	8.0'	-8.38	43.0

*Landfill gas extraction well W-1 turned off after these readings. Will monitor after field conditions equilibrate.

**TABLE 2
PIEDMONT LANDFILL
VSI CH₄ AND PRESSURE MEASUREMENTS
FOR 01/27/97
(Gas Well W-1 Off for six days)**

PROBE	DEPTH	PRESSURE (" WC)	%CH ₄
TP-1	18.5'	+0.0	0.0
TP-2	12.0'	+.12	16.0
TP-3	13.5'	+.20	10.0
TP-4	15.0'	+.20	3.4
TP-5	14.0'	+.34	2.0
TP-6	17.5'	+.43	4.4
TP-7	8.0'	+.50	5.5
TP-8	18.0'	+1.10	6.0
TP-9	14.0'	+1.2	20.0
TP-10	10.0'	+1.01	.06
TP-11	5.5'	+.52	0.0
TP-12	6.0'	+.50	10.0
TP-13	12.0'	+2.50	2.0
TP-14	7.0'	+2.45	26.0
TP-15	8.0'	+2.56	0.8
TP-16	5.0'	+2.51	25.0
TP-17	5.0'	+2.28	10.0
TP-18	9.0'	+2.35	8.0
TP-19	6.0'	+2.52	1.2
TP-20	9.0'	+1.88	47.0
TP-21	9.0'	+1.92	55.0
TP-22	9.5'	+1.63	15.0
TP-23	7.5'	+1.19	22.0

TABLE 1
PIEDMONT LANDFILL
VSI CH₄ AND PRESSURE MEASUREMENTS
FOR 01/27/97
(cont.)

PROBE	DEPTH	PRESSURE (" WC)	%CH ₄
TP-24	7.0'	+0.93	22.0
TP-25	6.0'	+0.71	2.5
TP-26	12.0'	+1.70	45.0
TP-27	10.0'	+2.11	35.0
TP-28	8.0'	+2.23	46.0

* Gas extraction well W-1 turned back on after these static readings

TABLE 3
PIEDMONT LANDFILL
VSI CH₄ AND PRESSURE MEASUREMENTS
FOR 01/28/97
(Gas Well W-1 ON for 18 hours)

Gas Extraction Well W-1:

Pressure	Available Vacuum	ΔP	CH₄	Temperature
-15.66"	-16.66"	1.00"	45.0%	90°

PROBE	DEPTH	PRESSURE (" WC)	%CH ₄
TP-1	18.5'	-.05	0.0
TP-2	12.0'	-.06	16.0
TP-3	13.5'	-.11	10.0
TP-4	15.0'	-.08	3.4
TP-5	14.0'	-.07	2.0
TP-6	17.5'	-.06	4.4
TP-7	8.0'	-.10	5.5
TP-8	18.0'	-.10	6.0
TP-9	14.0'	-.07	20.0
TP-10	10.0'	-.08	.06
TP-11	5.5'	-.02	0.0
TP-12	6.0'	-.30	10.0
TP-13	12.0'	-9.42	2.0
TP-14	7.0'	-9.06	26.0
TP-15	8.0'	-10.12	0.8
TP-16	5.0'	-10.07	25.0
TP-17	5.0'	-9.72	10.0
TP-18	9.0'	-10.21	8.0
TP-19	6.0'	-10.45	1.2
TP-20	9.0'	-7.90	47.0
TP-21	9.0'	-12.81	55.0

TABLE 3
PIEDMONT LANDFILL
VSI CH₄ AND PRESSURE MEASUREMENTS
FOR 01/28/97
(cont.)

PROBE	DEPTH	PRESSURE (" WC)	% CH₄
TP-22	9.5'	-11.12	15.0
TP-23	7.5'	-9.83	22.0
TP-24	7.0'	-10.18	22.0
TP-25	6.0'	-7.52	2.5
TP-26	12.0'	-12.32	45.0
TP-27	10.0'	-12.65	35.0
TP-28	8.0'	-12.20	46.0

TABLE 4
PIEDMONT LANDFILL
SUPPLEMENTAL VSI
CH₄ AND PRESSURE MEASUREMENTS
FOR 02/10/97

PROBE	DEPTH	PRESSURE (" WC)	% CH₄
TP-29	18.0'	-0.03	18.0
TP-30	16.0'	-0.03	11.0
TP-31	14.0'	-0.03	5.0
TP-32	12.0'	-1.20	0.8
TP-33	10.0'	-1.60	3.5
TP-34	8.0'	-1.40	2.0
TP-35	6.0'	-1.10	1.4
TP-36	4.0'	-0.10	1.0
TP-37	5.0	-0.60	0.9
TP-38	8.0'	-0.50	1.6
TP-39	11.0'	-0.80	0.8
TP-40	14.0'	0.00	0.4
TP-41	17.0'	1.20	1.6
TP-42	17.0'	0.00	1.6

FIGURES

APPENDIX A
Gas Sampling Analytical Results



GULF STATES ANALYTICAL

ANALYSIS SUMMARY REPORT

Rust E&I
Rust E&I
3121 Butterfield Rd.
Oak Brook, IL 60521

GSA Group: 26622
Date Reported: 02/24/97
Date Received: 01/29/97

Attn: Mr. Rick Sadnick
Project: Piedmont Landfill

Purchase Order:
Project No.: 76466

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample: 141316 - 01/28/97 - Flare #121			
8340 Volatiles, TO-14			
Dichlorodifluoromethane	ND	ppbv	700
Chloromethane (Methyl chloride)	ND	ppbv	700
1,2-Dichlorotetrafluoroethane	ND	ppbv	700
Vinyl chloride	ND	ppbv	700
Bromomethane (Methyl bromide)	ND	ppbv	700
Trichlorofluoromethane	ND	ppbv	700
1,1-Dichloroethene	ND	ppbv	700
Dichloromethane	20,200	ppbv	700
Allyl chloride (3-Chloropropene)	ND	ppbv	700
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ppbv	700
1,1-Dichloroethane	6,280	ppbv	700
cis-1,2-Dichloroethene	ND	ppbv	700
Chloroform	ND	ppbv	700
1,2-Dichloroethane	ND	ppbv	700
1,1,1-Trichloroethane	ND	ppbv	700
Benzene	891	ppbv	700
Carbon tetrachloride	ND	ppbv	700
1,2-Dichloropropane	ND	ppbv	700
Trichloroethene	ND	ppbv	700
cis-1,3-Dichloropropene	ND	ppbv	700
trans-1,3-Dichloropropene	ND	ppbv	700
1,1,2-Trichloroethane	ND	ppbv	700
Toluene	32,400	ppbv	3,000
Ethylene dibromide (EDB)	ND	ppbv	700
Tetrachloroethene	2,320	ppbv	700
Chlorobenzene	ND	ppbv	700
Ethylbenzene	4,100	ppbv	700
m,p-Xylene	10,900	ppbv	700
Styrene	1,650	ppbv	700
1,1,2,2-Tetrachloroethane	ND	ppbv	700
o-Xylene	2,600	ppbv	700
4-Ethyltoluene	ND	ppbv	700
1,3,5-Trimethylbenzene	ND	ppbv	700
1,2,4-Trimethylbenzene (Pseudocumene)	1,100	ppbv	700

Core Laboratories, Inc.

6310 Rothway, Houston, Texas 77040, (713) 690-4444, Fax (713) 690-5646

ANALYSIS SUMMARY REPORT

Page 2

Rust E&I

GSA Group: 26622

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:141316 - 01/28/97 - Flare #121			
8340 Volatiles, TO-14			
Benzyl chloride	ND	ppbv	700
1,3-Dichlorobenzene	ND	ppbv	700
1,4-Dichlorobenzene	ND	ppbv	700
1,2-Dichlorobenzene	ND	ppbv	700
1,2,4-Trichlorobenzene	ND	ppbv	700
Hexachloro-1,3-butadiene	ND	ppbv	700
8360X Volatiles Additional, Air			
Acetone	ND	ppbv	1,000
Chlorodibromomethane	ND	ppbv	700
Bromodichloromethane	ND	ppbv	700
Bromoform	ND	ppbv	700
Carbon disulfide	ND	ppbv	700
trans-1,2-Dichloroethene	ND	ppbv	700
Chloroethane (Ethyl chloride)	3.760	ppbv	700
n-Hexane	35,000	ppbv	700
2-Hexanone	ND	ppbv	1,000
2-Butanone (MEK)	ND	ppbv	1,000
4-Methyl-2-pentanone (MIBK)	ND	ppbv	1,000
Vinyl acetate	ND	ppbv	1,000
CL15 Non Routine Test	SEE ATTACHED		
Sample:141317 - 01/28/97 - MW-9 #171			
8340 Volatiles, TO-14			
Dichlorodifluoromethane	ND	ppbv	1
Chloromethane (Methyl chloride)	ND	ppbv	1
1,2-Dichlorotetrafluoroethane	ND	ppbv	1
Vinyl chloride	ND	ppbv	1
Bromomethane (Methyl bromide)	ND	ppbv	1
Trichlorofluoromethane	ND	ppbv	1
1,1-Dichloroethene	ND	ppbv	1
Dichloromethane	ND	ppbv	1
Allyl chloride (3-Chloropropene)	ND	ppbv	1
1,1,2-Trichloro-1,2,2-trifluoroetha	ND	ppbv	1
1,1-Dichloroethane	ND	ppbv	1
cis-1,2-Dichloroethene	ND	ppbv	1
Chloroform	ND	ppbv	1
1,2-Dichloroethane	ND	ppbv	1
1,1,1-Trichloroethane	ND	ppbv	1
Benzene	ND	ppbv	1
Carbon tetrachloride	ND	ppbv	1
1,2-Dichloropropane	ND	ppbv	1
Trichloroethene	ND	ppbv	1

ANALYSIS SUMMARY REPORT

Page 3

Rust E&I

GSA Group: 26622

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:141317 - 01/28/97 - MW-9 #171			
8340 Volatiles, TO-14			
cis-1,3-Dichloropropene	ND	ppbv	1
trans-1,3-Dichloropropene	ND	ppbv	1
1,1,2-Trichloroethane	ND	ppbv	1
Toluene	4	ppbv	1
Ethylene dibromide (EDB)	ND	ppbv	1
Tetrachloroethene	ND	ppbv	1
Chlorobenzene	ND	ppbv	1
Ethylbenzene	ND	ppbv	1
m,p-Xylene	2	ppbv	1
Styrene	ND	ppbv	1
1,1,2,2-Tetrachloroethane	ND	ppbv	1
o-Xylene	ND	ppbv	1
4-Ethyltoluene	1	ppbv	1
1,3,5-Trimethylbenzene	ND	ppbv	1
1,2,4-Trimethylbenzene (Pseudocumen	ND	ppbv	1
Benzyl chloride	ND	ppbv	1
1,3-Dichlorobenzene	ND	ppbv	1
1,4-Dichlorobenzene	1	ppbv	1
1,2-Dichlorobenzene	ND	ppbv	1
1,2,4-Trichlorobenzene	ND	ppbv	1
Hexachloro-1,3-butadiene	ND	ppbv	1
8360X Volatiles Additional, Air			
Acetone	ND	ppbv	3
Chlorodibromomethane	ND	ppbv	1
Bromodichloromethane	ND	ppbv	1
Bromoform	ND	ppbv	1
Carbon disulfide	ND	ppbv	1
trans-1,2-Dichloroethene	ND	ppbv	1
Chloroethane (Ethyl chloride)	ND	ppbv	1
n-Hexane	13	ppbv	1
2-Hexanone	ND	ppbv	3
2-Butanone (MEK)	ND	ppbv	3
4-Methyl-2-pentanone (MIBK)	ND	ppbv	3
Vinyl acetate	ND	ppbv	3
CL15 Non Routine Test	SEE ATTACHED		
Sample:141318 - 01/28/97 - GW-2 #128			
8340 Volatiles, TO-14			
Dichlorodifluoromethane	ND	ppbv	10
Chloromethane (Methyl chloride)	ND	ppbv	10
1,2-Dichlorotetrafluoroethane	ND	ppbv	10
Vinyl chloride	ND	ppbv	10

ANALYSIS SUMMARY REPORT

Page 4

Rust E&I

GSA Group: 26622

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:141318 - 01/28/97 - GW-2 #128			
8340 Volatiles, TO-14			
Bromomethane (Methyl bromide)	ND	ppbv	10
Trichlorofluoromethane	ND	ppbv	10
1,1-Dichloroethene	ND	ppbv	10
Dichloromethane	229	ppbv	10
Allyl chloride (3-Chloropropene)	ND	ppbv	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ppbv	10
1,1-Dichloroethane	83	ppbv	10
cis-1,2-Dichloroethene	22	ppbv	10
Chloroform	ND	ppbv	10
1,2-Dichloroethane	ND	ppbv	10
1,1,1-Trichloroethane	ND	ppbv	10
Benzene	23	ppbv	10
Carbon tetrachloride	ND	ppbv	10
1,2-Dichloropropane	ND	ppbv	10
Trichloroethene	35	ppbv	10
cis-1,3-Dichloropropene	ND	ppbv	10
trans-1,3-Dichloropropene	ND	ppbv	10
1,1,2-Trichloroethane	ND	ppbv	10
Toluene	1.730	ppbv	700
Ethylene dibromide (EDB)	ND	ppbv	10
Tetrachloroethene	43	ppbv	10
Chlorobenzene	ND	ppbv	10
Ethylbenzene	164	ppbv	10
m,p-Xylene	411	ppbv	10
Styrene	22	ppbv	10
1,1,2,2-Tetrachloroethane	ND	ppbv	10
o-Xylene	103	ppbv	10
4-Ethyltoluene	13	ppbv	10
1,3,5-Trimethylbenzene	19	ppbv	10
1,2,4-Trimethylbenzene (Pseudocumen)	42	ppbv	10
Benzyl chloride	ND	ppbv	10
1,3-Dichlorobenzene	ND	ppbv	10
1,4-Dichlorobenzene	ND	ppbv	10
1,2-Dichlorobenzene	ND	ppbv	10
1,2,4-Trichlorobenzene	ND	ppbv	10
Hexachloro-1,3-butadiene	ND	ppbv	10
8360X Volatiles Additional, Air			
Acetone	1.230	ppbv	30
Chlorodibromomethane	ND	ppbv	10
Bromodichloromethane	ND	ppbv	10
Bromoform	ND	ppbv	10
Carbon disulfide	ND	ppbv	10

ANALYSIS SUMMARY REPORT

Page 5

Rust E&I

GSA Group: 26622

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:141318 - 01/28/97 - GW-2 #128			
8360X Volatiles Additional, Air			
trans-1,2-Dichloroethene	ND	ppbv	10
Chloroethane (Ethyl chloride)	53	ppbv	10
n-Hexane	747	ppbv	10
2-Hexanone	ND	ppbv	30
2-Butanone (MEK)	900	ppbv	30
4-Methyl-2-pentanone (MIBK)	552	ppbv	30
Vinyl acetate	ND	ppbv	30
CL15 Non Routine Test	SEE ATTACHED		
Sample:141319 - 01/28/97 - GW-11 #114			
8340 Volatiles, TO-14			
Dichlorodifluoromethane	ND	ppbv	700
Chloromethane (Methyl chloride)	ND	ppbv	700
1,2-Dichlorotetrafluoroethane	ND	ppbv	700
Vinyl chloride	ND	ppbv	700
Bromomethane (Methyl bromide)	ND	ppbv	700
Trichlorofluoromethane	ND	ppbv	700
1,1-Dichloroethene	ND	ppbv	700
Dichloromethane	6,860	ppbv	700
Allyl chloride (3-Chloropropene)	ND	ppbv	700
1,1,2-Trichloro-1,2,2-trifluoroetha	ND	ppbv	700
1,1-Dichloroethane	2,990	ppbv	700
cis-1,2-Dichloroethene	ND	ppbv	700
Chloroform	ND	ppbv	700
1,2-Dichloroethane	ND	ppbv	700
1,1,1-Trichloroethane	ND	ppbv	700
Benzene	912	ppbv	700
Carbon tetrachloride	ND	ppbv	700
1,2-Dichloropropane	ND	ppbv	700
Trichloroethene	ND	ppbv	700
cis-1,3-Dichloropropene	ND	ppbv	700
trans-1,3-Dichloropropene	ND	ppbv	700
1,1,2-Trichloroethane	ND	ppbv	700
Toluene	72,600	ppbv	3,000
Ethylene dibromide (EDB)	ND	ppbv	700
Tetrachloroethene	715	ppbv	700
Chlorobenzene	ND	ppbv	700
Ethylbenzene	3,490	ppbv	700
m,p-Xylene	10,000	ppbv	700
Styrene	ND	ppbv	700
1,1,2,2-Tetrachloroethane	ND	ppbv	700
o-Xylene	2,360	ppbv	700

ANALYSIS SUMMARY REPORT

Page 6

Rust E&I

GSA Group: 26622

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:141319 - 01/28/97 - GW-11 #114			
8340 Volatiles, TO-14			
4-Ethyltoluene	ND	ppbv	700
1,3,5-Trimethylbenzene	ND	ppbv	700
1,2,4-Trimethylbenzene (Pseudocumen	869	ppbv	700
Benzyl chloride	ND	ppbv	700
1,3-Dichlorobenzene	ND	ppbv	700
1,4-Dichlorobenzene	ND	ppbv	700
1,2-Dichlorobenzene	ND	ppbv	700
1,2,4-Trichlorobenzene	ND	ppbv	700
Hexachloro-1,3-butadiene	ND	ppbv	700
8360X Volatiles Additional, Air			
Acetone	ND	ppbv	1,000
Chlorodibromomethane	ND	ppbv	700
Bromodichloromethane	ND	ppbv	700
Bromoform	ND	ppbv	700
Carbon disulfide	ND	ppbv	700
trans-1,2-Dichloroethene	ND	ppbv	700
Chloroethane (Ethyl chloride)	2,550	ppbv	700
n-Hexane	20,300	ppbv	700
2-Hexanone	ND	ppbv	1,000
2-Butanone (MEK)	ND	ppbv	1,000
4-Methyl-2-pentanone (MIBK)	ND	ppbv	1,000
Vinyl acetate	ND	ppbv	1,000
CL15 Non Routine Test	SEE ATTACHED		
Sample:141320 - 01/28/97 - TP-2 #100			
8340 Volatiles, TO-14			
Dichlorodifluoromethane	ND	ppbv	10
Chloromethane (Methyl chloride)	ND	ppbv	10
1,2-Dichlorotetrafluoroethane	ND	ppbv	10
Vinyl chloride	ND	ppbv	10
Bromomethane (Methyl bromide)	ND	ppbv	10
Trichlorofluoromethane	ND	ppbv	10
1,1-Dichloroethene	ND	ppbv	10
Dichloromethane	ND	ppbv	10
Allyl chloride (3-Chloropropene)	ND	ppbv	10
1,1,2-Trichloro-1,2,2-trifluoroetha	ND	ppbv	10
1,1-Dichloroethane	ND	ppbv	10
cis-1,2-Dichloroethene	ND	ppbv	10
Chloroform	ND	ppbv	10
1,2-Dichloroethane	ND	ppbv	10
1,1,1-Trichloroethane	ND	ppbv	10
Benzene	ND	ppbv	10

ANALYSIS SUMMARY REPORT

Page 7

Rust E&I

GSA Group: 26622

Test Analysis	Results as Received	Units	Limit of Quantitation
Sample:141320 - 01/28/97 - TP-2 #100			
8340 Volatiles, TO-14			
Carbon tetrachloride	ND	ppbv	10
1,2-Dichloropropane	ND	ppbv	10
Trichloroethene	ND	ppbv	10
cis-1,3-Dichloropropene	ND	ppbv	10
trans-1,3-Dichloropropene	ND	ppbv	10
1,1,2-Trichloroethane	ND	ppbv	10
Toluene	473	ppbv	10
Ethylene dibromide (EDB)	ND	ppbv	10
Tetrachloroethene	ND	ppbv	10
Chlorobenzene	ND	ppbv	10
Ethylbenzene	ND	ppbv	10
m,p-Xylene	11	ppbv	10
Styrene	ND	ppbv	10
1,1,2,2-Tetrachloroethane	ND	ppbv	10
o-Xylene	ND	ppbv	10
4-Ethyltoluene	ND	ppbv	10
1,3,5-Trimethylbenzene	ND	ppbv	10
1,2,4-Trimethylbenzene (Pseudocumen	ND	ppbv	10
Benzyl chloride	ND	ppbv	10
1,3-Dichlorobenzene	ND	ppbv	10
1,4-Dichlorobenzene	ND	ppbv	10
1,2-Dichlorobenzene	ND	ppbv	10
1,2,4-Trichlorobenzene	ND	ppbv	10
Hexachloro-1,3-butadiene	ND	ppbv	10
8360X Volatiles Additional, Air			
Acetone	ND	ppbv	30
Chlorodibromomethane	ND	ppbv	10
Bromodichloromethane	ND	ppbv	10
Bromoform	ND	ppbv	10
Carbon disulfide	ND	ppbv	10
trans-1,2-Dichloroethene	ND	ppbv	10
Chloroethane (Ethyl chloride)	ND	ppbv	10
n-Hexane	ND	ppbv	10
2-Hexanone	ND	ppbv	30
2-Butanone (MEK)	ND	ppbv	30
4-Methyl-2-pentanone (MIBK)	ND	ppbv	30
Vinyl acetate	ND	ppbv	30
CL15 Non. Routine Test	SEE ATTACHED.		
Sample:141321 - 01/28/97 - TP-4 #172			
8340 Volatiles, TO-14			
Dichlorodifluoromethane	ND	ppbv	7

ANALYSIS SUMMARY REPORT

Page 8

Rust E&I

GSA Group: 26622

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:141321 - 01/28/97 - TP-4 #172			
8340 Volatiles, TO-14			
Chloromethane (Methyl chloride)	ND	ppbv	7
1,2-Dichlorotetrafluoroethane	ND	ppbv	7
Vinyl chloride	ND	ppbv	7
Bromomethane (Methyl bromide)	ND	ppbv	7
Trichlorofluoromethane	ND	ppbv	7
1,1-Dichloroethene	ND	ppbv	7
Dichloromethane	ND	ppbv	7
Allyl chloride (3-Chloropropene)	ND	ppbv	7
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ppbv	7
1,1-Dichloroethane	ND	ppbv	7
cis-1,2-Dichloroethene	ND	ppbv	7
Chloroform	ND	ppbv	7
1,2-Dichloroethane	ND	ppbv	7
1,1,1-Trichloroethane	ND	ppbv	7
Benzene	ND	ppbv	7
Carbon tetrachloride	ND	ppbv	7
1,2-Dichloropropane	ND	ppbv	7
Trichloroethene	ND	ppbv	7
cis-1,3-Dichloropropene	ND	ppbv	7
trans-1,3-Dichloropropene	ND	ppbv	7
1,1,2-Trichloroethane	ND	ppbv	7
Toluene	ND	ppbv	7
Ethylene dibromide (EDB)	ND	ppbv	7
Tetrachloroethene	14	ppbv	7
Chlorobenzene	ND	ppbv	7
Ethylbenzene	ND	ppbv	7
m,p-Xylene	10	ppbv	7
Styrene	ND	ppbv	7
1,1,2,2-Tetrachloroethane	ND	ppbv	7
o-Xylene	ND	ppbv	7
4-Ethyltoluene	ND	ppbv	7
1,3,5-Trimethylbenzene	ND	ppbv	7
1,2,4-Trimethylbenzene (Pseudocumen)	ND	ppbv	7
Benzyl chloride	ND	ppbv	7
1,3-Dichlorobenzene	ND	ppbv	7
1,4-Dichlorobenzene	ND	ppbv	7
1,2-Dichlorobenzene	ND	ppbv	7
1,2,4-Trichlorobenzene	ND	ppbv	7
Hexachloro-1,3-butadiene	NC	ppbv	7
8360X Volatiles Additional, Air			
Acetone	ND	ppbv	10
Chlorodibromomethane	ND	ppbv	7

ANALYSIS SUMMARY REPORT

Page 9

Rust E&I

GSA Group: 26622

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:141321 - 01/28/97 - TP-4 #172			
8360X Volatiles Additional, Air			
Bromodichloromethane	ND	ppbv	7
Bromoform	ND	ppbv	7
Carbon disulfide	ND	ppbv	7
trans-1,2-Dichloroethene	ND	ppbv	7
Chloroethane (Ethyl chloride)	ND	ppbv	7
n-Hexane	114	ppbv	7
2-Hexanone	ND	ppbv	10
2-Butanone (MEK)	ND	ppbv	10
4-Methyl-2-pentanone (MIBK)	ND	ppbv	10
Vinyl acetate	ND	ppbv	10
CL15 Non Routine Test	SEE ATTACHED		
Sample:141322 - 01/28/97 - TP-3 #170			
8340 Volatiles, TO-14			
Dichlorodifluoromethane	ND	ppbv	1
Chloromethane (Methyl chloride)	ND	ppbv	1
1,2-Dichlorotetrafluoroethane	ND	ppbv	1
Vinyl chloride	ND	ppbv	1
Bromomethane (Methyl bromide)	ND	ppbv	1
Trichlorofluoromethane	ND	ppbv	1
1,1-Dichloroethene	ND	ppbv	1
Dichloromethane	ND	ppbv	1
Allyl chloride (3-Chloropropene)	ND	ppbv	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ppbv	1
1,1-Dichloroethane	ND	ppbv	1
cis-1,2-Dichloroethene	ND	ppbv	1
Chloroform	ND	ppbv	1
1,2-Dichloroethane	ND	ppbv	1
1,1,1-Trichloroethane	ND	ppbv	1
Benzene	ND	ppbv	1
Carbon tetrachloride	ND	ppbv	1
1,2-Dichloropropane	ND	ppbv	1
Trichloroethene	6	ppbv	1
cis-1,3-Dichloropropene	ND	ppbv	1
trans-1,3-Dichloropropene	ND	ppbv	1
1,1,2-Trichloroethane	ND	ppbv	1
Toluene	3	ppbv	1
Ethylene dibromide (EDB)	ND	ppbv	1
Tetrachloroethene	22	ppbv	1
Chlorobenzene	ND	ppbv	1
Ethylbenzene	ND	ppbv	1
m,p-Xylene	12	ppbv	1

ANALYSIS SUMMARY REPORT

Page 10

Rust E&I

GSA Group: 26622

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:141322 - 01/28/97 - TP-3 #170			
8340 Volatiles, TO-14			
Styrene	ND	ppbv	1
1,1,2,2-Tetrachloroethane	ND	ppbv	1
o-Xylene	3	ppbv	1
4-Ethyltoluene	1	ppbv	1
1,3,5-Trimethylbenzene	ND	ppbv	1
1,2,4-Trimethylbenzene (Pseudocumen	2	ppbv	1
Benzyl chloride	ND	ppbv	1
1,3-Dichlorobenzene	ND	ppbv	1
1,4-Dichlorobenzene	ND	ppbv	1
1,2-Dichlorobenzene	ND	ppbv	1
1,2,4-Trichlorobenzene	ND	ppbv	1
Hexachloro-1,3-butadiene	ND	ppbv	1
8360X Volatiles Additional, Air			
Acetone	ND	ppbv	3
Chlorodibromomethane	ND	ppbv	1
Bromodichloromethane	ND	ppbv	1
Bromoform	ND	ppbv	1
Carbon disulfide	ND	ppbv	1
trans-1,2-Dichloroethene	ND	ppbv	1
Chloroethane (Ethyl chloride)	ND	ppbv	1
n-Hexane	1,400	ppbv	1
2-Hexanone	ND	ppbv	3
2-Butanone (MEK)	ND	ppbv	3
4-Methyl-2-pentanone (MIBK)	ND	ppbv	3
Vinyl acetate	ND	ppbv	3
CL15 Non Routine Test	SEE ATTACHED		
Sample:141323 - 01/28/97 - GW-1 #104			
8340 Volatiles, TO-14			
Dichlorodifluoromethane	ND	ppbv	700
Chloromethane (Methyl chloride)	ND	ppbv	700
1,2-Dichlorotetrafluoroethane	ND	ppbv	700
Vinyl chloride	ND	ppbv	700
Bromomethane (Methyl bromide)	ND	ppbv	700
Trichlorofluoromethane	ND	ppbv	700
1,1-Dichloroethene	ND	ppbv	700
Dichloromethane	3,550	ppbv	700
Allyl chloride (3-Chloropropene)	ND	ppbv	700
1,1,2-Trichloro-1,2,2-trifluoroetha	ND	ppbv	700
1,1-Dichloroethane	1,840	ppbv	700
cis-1,2-Dichloroethene	ND	ppbv	700
Chloroform	ND	ppbv	700

ANALYSIS SUMMARY REPORT

Page 11

Rust E&I

GSA Group: 26622

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:141323 - 01/28/97 - GW-1 #104			
8340 Volatiles, TO-14			
1,2-Dichloroethane	ND	ppbv	700
1,1,1-Trichloroethane	ND	ppbv	700
Benzene	ND	ppbv	700
Carbon tetrachloride	ND	ppbv	700
1,2-Dichloropropane	ND	ppbv	700
Trichloroethene	ND	ppbv	700
cis-1,3-Dichloropropene	ND	ppbv	700
trans-1,3-Dichloropropene	ND	ppbv	700
1,1,2-Trichloroethane	ND	ppbv	700
Toluene	32.300	ppbv	700
Ethylene dibromide (EDB)	ND	ppbv	700
Tetrachloroethene	756	ppbv	700
Chlorobenzene	ND	ppbv	700
Ethylbenzene	2,510	ppbv	700
m,p-Xylene	7,140	ppbv	700
Styrene	ND	ppbv	700
1,1,2,2-Tetrachloroethane	ND	ppbv	700
o-Xylene	1,830	ppbv	700
4-Ethyltoluene	ND	ppbv	700
1,3,5-Trimethylbenzene	ND	ppbv	700
1,2,4-Trimethylbenzene (Pseudocumen	814	ppbv	700
Benzyl chloride	ND	ppbv	700
1,3-Dichlorobenzene	ND	ppbv	700
1,4-Dichlorobenzene	ND	ppbv	700
1,2-Dichlorobenzene	ND	ppbv	700
1,2,4-Trichlorobenzene	ND	ppbv	700
Hexachloro-1,3-butadiene	ND	ppbv	700
8360X Volatiles Additional, Air			
Acetone	ND	ppbv	1,000
Chlorodibromomethane	ND	ppbv	700
Bromodichloromethane	ND	ppbv	700
Bromoform	ND	ppbv	700
Carbon disulfide	ND	ppbv	700
trans-1,2-Dichloroethene	ND	ppbv	700
Chloroethane (Ethyl chloride)	3,260	ppbv	700
n-Hexane	24,200	ppbv	700
2-Hexanone	ND	ppbv	1,000
2-Butanone (MEK)	ND	ppbv	1,000
4-Methyl-2-pentanone (MIBK)	2,750	ppbv	1,000
Vinyl acetate	ND	ppbv	1,000
CL15 Non Routine Test	SEE ATTACHED		

ANALYSIS SUMMARY REPORT

Page 12

Rust E&I

GSA Group: 26622

Test Method Summary:

8340 - EPA AIR TOXICS TO-14

8360X- EPA TO-14

CL15 -

ND - Compound was analyzed but not detected.

Respectfully Submitted,
Reviewed and Approved by:

Karen Satterfield
Project Manager



CORE LABORATORIES

LABORATORY TESTS RESULTS 02/07/97

JOB NUMBER: 970519

CUSTOMER: CORE LABORATORIES

ATTN: JOSH JONES

CLIENT I.D.....:
DATE SAMPLED.....: 01/28/97
TIME SAMPLED.....: 17:46
WORK DESCRIPTION...: 141316-26622

LABORATORY I.D....: 970519-0001
DATE RECEIVED.....: 02/03/97
TIME RECEIVED.....: 13:42
REMARKS.....:

FLARE

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Fixed Gas Analysis		*1			02/07/97	JB
Oxygen	1.44	0.01	Mol %			
Nitrogen	16.32	0.01	Mol %			
Carbon Dioxide	39.51	0.01	Mol %			
Methane	42.73	0.01	Mol %			

P O BOX 34766
HOUSTON, TX 77234-4282
(713) 943-9776





CORE LABORATORIES

LABORATORY TESTS RESULTS 02/07/97

JOB NUMBER: 970519

CUSTOMER: CORE LABORATORIES

ATTN: JOSH JONES

CLIENT I.D.....:
DATE SAMPLED.....: 01/28/97
TIME SAMPLED.....: 17:05
WORK DESCRIPTION...: 141317-26622

LABORATORY I.D....: 970519-0002
DATE RECEIVED....: 02/03/97
TIME RECEIVED....: 13:42
REMARKS.....:

MW-9

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Fixed Gas Analysis		*1			02/07/97	JB
Oxygen	21.79	0.01	Mol %			
Nitrogen	77.79	0.01	Mol %			
Carbon Dioxide	0.24	0.01	Mol %			
Methane	0.16	0.01	Mol %			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 02/07/97

JOB NUMBER: 970519

CUSTOMER: CORE LABORATORIES

ATTN: JOSH JONES

CLIENT I.D.....:
DATE SAMPLED.....: 01/28/97
TIME SAMPLED.....: 17:25
WORK DESCRIPTION...: 141318-26622

LABORATORY I.D....: 970519-0003
DATE RECEIVED.....: 02/03/97
TIME RECEIVED.....: 13:42
REMARKS.....:

GW-2

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Fixed Gas Analysis		*1			02/07/97	JB
Oxygen	21.03	0.01	Mol %			
Nitrogen	77.18	0.01	Mol %			
Carbon Dioxide	0.84	0.01	Mol %			
Methane	0.95	0.01	Mol %			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 02/07/97

JOB NUMBER: 970519

CUSTOMER: CORE LABORATORIES

ATTN: JOSH JONES

CLIENT I.D.....:
DATE SAMPLED.....: 01/28/97
TIME SAMPLED.....: 17:20
WORK DESCRIPTION...: 141319-26622

LABORATORY I.D...: 970519-0004
DATE RECEIVED....: 02/03/97
TIME RECEIVED....: 13:42
REMARKS.....:

GW-11

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Fixed Gas Analysis		*1			02/07/97	JB
Oxygen	0.63	0.01	Mol %			
Nitrogen	6.44	0.01	Mol %			
Carbon Dioxide	40.77	0.01	Mol %			
Methane	52.16	0.01	Mol %			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 02/07/97

JOB NUMBER: 970519

CUSTOMER: CORE LABORATORIES

ATTN: JOSH JONES

CLIENT I.D.....:
DATE SAMPLED.....: 01/28/97
TIME SAMPLED.....: 16:47
WORK DESCRIPTION...: 141320-26622

LABORATORY I.D....: 970519-0005
DATE RECEIVED....: 02/03/97
TIME RECEIVED....: 13:42
REMARKS.....:

TP-2

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Fixed Gas Analysis		*1			02/07/97	JB
Oxygen	12.74	0.01	Mol %			
Nitrogen	73.21	0.01	Mol %			
Carbon Dioxide	7.47	0.01	Mol %			
Methane	6.58	0.01	Mol %			

P O BOX 34766
HOUSTON, TX 77234-4282
(713) 943-9776





CORE LABORATORIES

LABORATORY TESTS RESULTS 02/07/97

JOB NUMBER: 970519

CUSTOMER: CORE LABORATORIES

ATTN: JOSH JONES

CLIENT I.D.....:
DATE SAMPLED.....: 01/28/97
TIME SAMPLED.....: 16:38
WORK DESCRIPTION...: 141321-26622

LABORATORY I.D....: 970519-0006
DATE RECEIVED....: 02/03/97
TIME RECEIVED....: 13:42
REMARKS.....:

TP-4

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Fixed Gas Analysis		*1			02/07/97	JB
Oxygen	1.78	0.01	Mol %			
Nitrogen	74.65	0.01	Mol %			
Carbon Dioxide	19.05	0.01	Mol %			
Methane	4.52	0.01	Mol %			

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(713) 943-9776





CORE LABORATORIES

LABORATORY TESTS RESULTS 02/07/97

JOB NUMBER: 970519

CUSTOMER: CORE LABORATORIES

ATTN: JOSH JONES

CLIENT I.D.....:
DATE SAMPLED.....: 01/28/97
TIME SAMPLED.....: 16:43
WORK DESCRIPTION....: 141322-26622

LABORATORY I.D....: 970519-0007
DATE RECEIVED.....: 02/03/97
TIME RECEIVED.....: 13:42
REMARKS.....:

TP-3

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Fixed Gas Analysis		*1			02/07/97	JB
Oxygen	1.58	0.01	Mol %			
Nitrogen	66.15	0.01	Mol %			
Carbon Dioxide	21.54	0.01	Mol %			
Methane	10.71	0.01	Mol %			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 02/07/97

JOB NUMBER: 970519

CUSTOMER: CORE LABORATORIES

ATTN: JOSH JONES

CLIENT I.D.....:
DATE SAMPLED.....: 01/28/97
TIME SAMPLED.....: 17:30
WORK DESCRIPTION...: 141323-26622

GW-1

LABORATORY I.D....: 970519-0008
DATE RECEIVED....: 02/03/97
TIME RECEIVED....: 13:42
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Fixed Gas Analysis		*1			02/07/97	JB
Oxygen	0.35	0.01	Mol %			
Nitrogen	20.51	0.01	Mol %			
Carbon Dioxide	35.49	0.01	Mol %			
Methane	43.65	0.01	Mol %			

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APPENDIX B
Gas Isotope Analytical Results

ANALYSIS REPORT

Report of Gas Analysis

FAXED

Lab #: 17300 Job #: 1151
Sample Name/Number: Flare
Company: Rust E and I
Date Sampled: 1/29/1997
Container: Cali-5-Bond Bag
Field/Site Name: Piedmont Landfill
Location: Kemersville
Formation/Depth:
Sampling Point:
Date Received: 1/30/1997 Date Reported: 2/25/1997

Component	Chemical vol. %	Delta C-13 per mil	Delta D per mil	C-14 conc. pMC	Tritium TU
Carbon Monoxide -----	nd				
Helium -----	nd				
Hydrogen -----	0.38				
Argon -----	0.19				
Oxygen -----	1.63				
Nitrogen -----	16.35				
Carbon Dioxide -----	38.32	4.68			
Methane -----	43.08	-56.61	-315.2	115 ± 1	11660 ± 100
Ethane -----	0.0039				
Ethylene -----	nd				
Propane -----	0.0068				
Iso-butane -----	0.0024				
N-butane -----	0.0015				
Iso-pentane -----	0.0061				
N-pentane -----	0.0013				
Hexanes + -----	0.026				

Total BTU/cu.ft. dry @ 60deg F & 14.7psia, calculated: 440
Specific gravity, calculated: 1.001

Remarks:

nd = not detected. na = not analyzed. Isotopic composition of carbon is relative to VPDB. Isotopic composition of hydrogen is relative to VSMOW. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100 percent.



ANALYSIS REPORT

FAXED

Report of Gas Analysis

Lab #: 17301 Job #: 1151
Sample Name/Number: TP-2
Company: Rust E and I
Date Sampled: 1/29/1997
Container: Cali-5-Bond Bag
Field/Site Name: Peidmont Landfill
Location: Kemersville
Formation/Depth:
Sampling Point:
Date Received: 1/30/1997 Date Reported: 2/25/1997

Component	Chemical vol. %	Delta C-13 per mil	Delta D per mil	C-14 conc. pMC	Tritium TU
Carbon Monoxide -----	nd				
Helium -----	nd				
Hydrogen -----	nd				
Argon -----	0.82				
Oxygen -----	0.0025				
Nitrogen -----	68.12				
Carbon Dioxide -----	16.57	-31.13			
Methane -----	14.48	-54.80	-301.0	121 ± 1	110600 ± 1000
Ethane -----	0.0013				
Ethylene -----	nd				
Propane -----	0.0015				
Iso-butane -----	nd				
N-butane -----	nd				
Iso-pentane -----	nd				
N-pentane -----	nd				
Hexanes + -----	0.0013				

Total BTU/cu.ft. dry @ 60deg F & 14.7psia, calculated: 147
Specific gravity, calculated: 1.002

Remarks:

nd = not detected. na = not analyzed. Isotopic composition of carbon is relative to VPDB. Isotopic composition of hydrogen is relative to VSMOW. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100 percent.



ANALYSIS REPORT **FAXED**

Report of Gas Analysis

Lab #: 17302 Job #: 1151
Sample Name/Number: GW-1
Company: Rust E and I
Date Sampled: 1/29/1997
Container: Cali-5-Bond Bag
Field/Site Name: Piedmont Landfill
Location: Kemersville
Formation/Depth:
Sampling Point:
Date Received: 1/30/1997 Date Reported: 2/25/1997

Component	Chemical vol. %	Delta C-13 per mil	Delta D per mil	C-14 conc. pMC	Tritium TU
Carbon Monoxide -----	nd				
Helium -----	nd				
Hydrogen -----	0.10				
Argon -----	0.24				
Oxygen -----	0.20				
Nitrogen -----	20.79				
Carbon Dioxide -----	34.28	8.83			
Methane -----	44.35	-57.30	-314.3	120 ± 1	22240 ± 190
Ethane -----	0.0058				
Ethylene -----	nd				
Propane -----	0.0094				
Iso-butane -----	0.0022				
N-butane -----	0.0015				
Iso-pentane -----	0.0020				
N-pentane -----	nd				
Hexanes + -----	0.017				

Total BTU/cu.ft. dry @ 60deg F & 14.7psia, calculated: 451
Specific gravity, calculated: 0.974

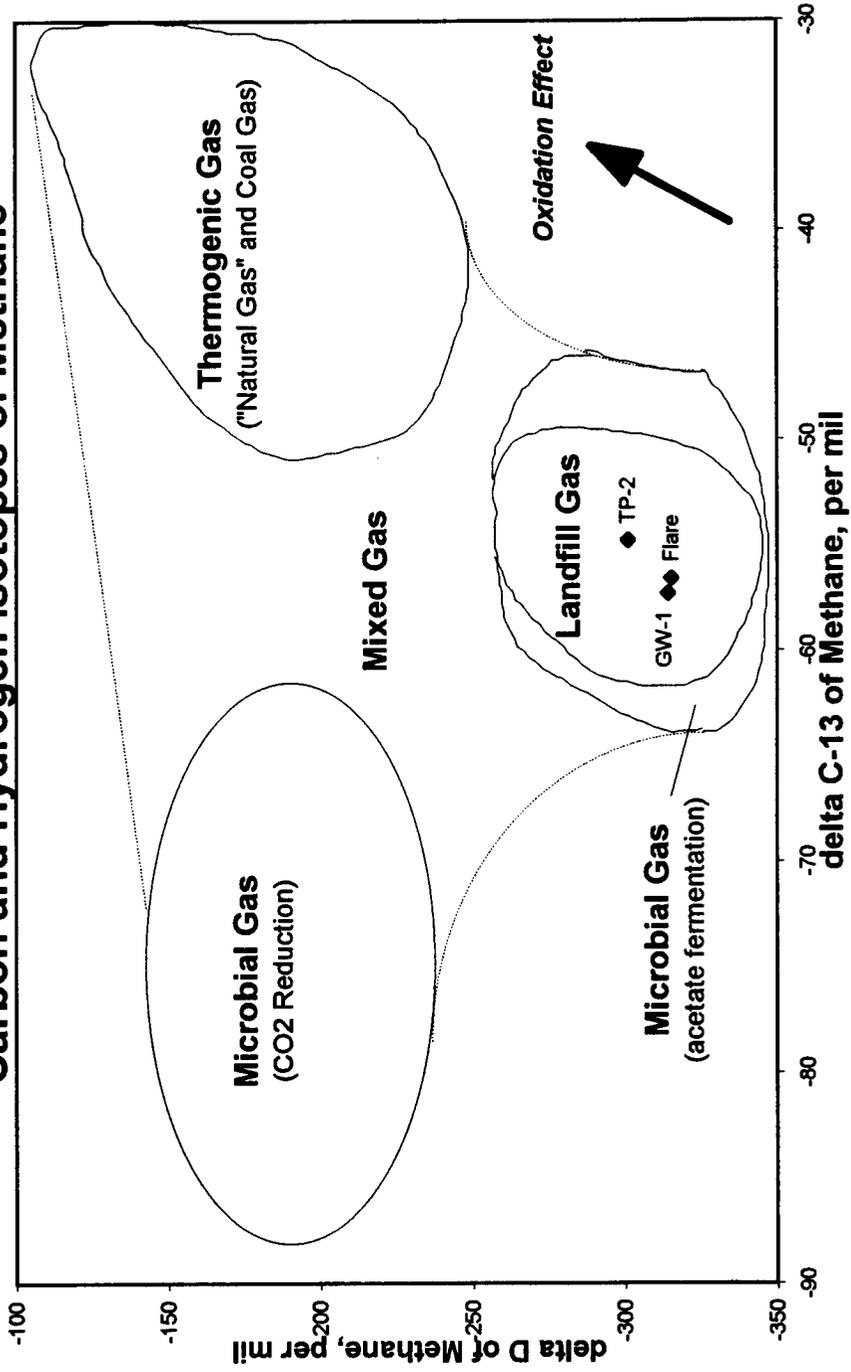
Remarks:

nd = not detected. na = not analyzed. Isotopic composition of carbon is relative to VPDB. Isotopic composition of hydrogen is relative to VSMOW. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100 percent.



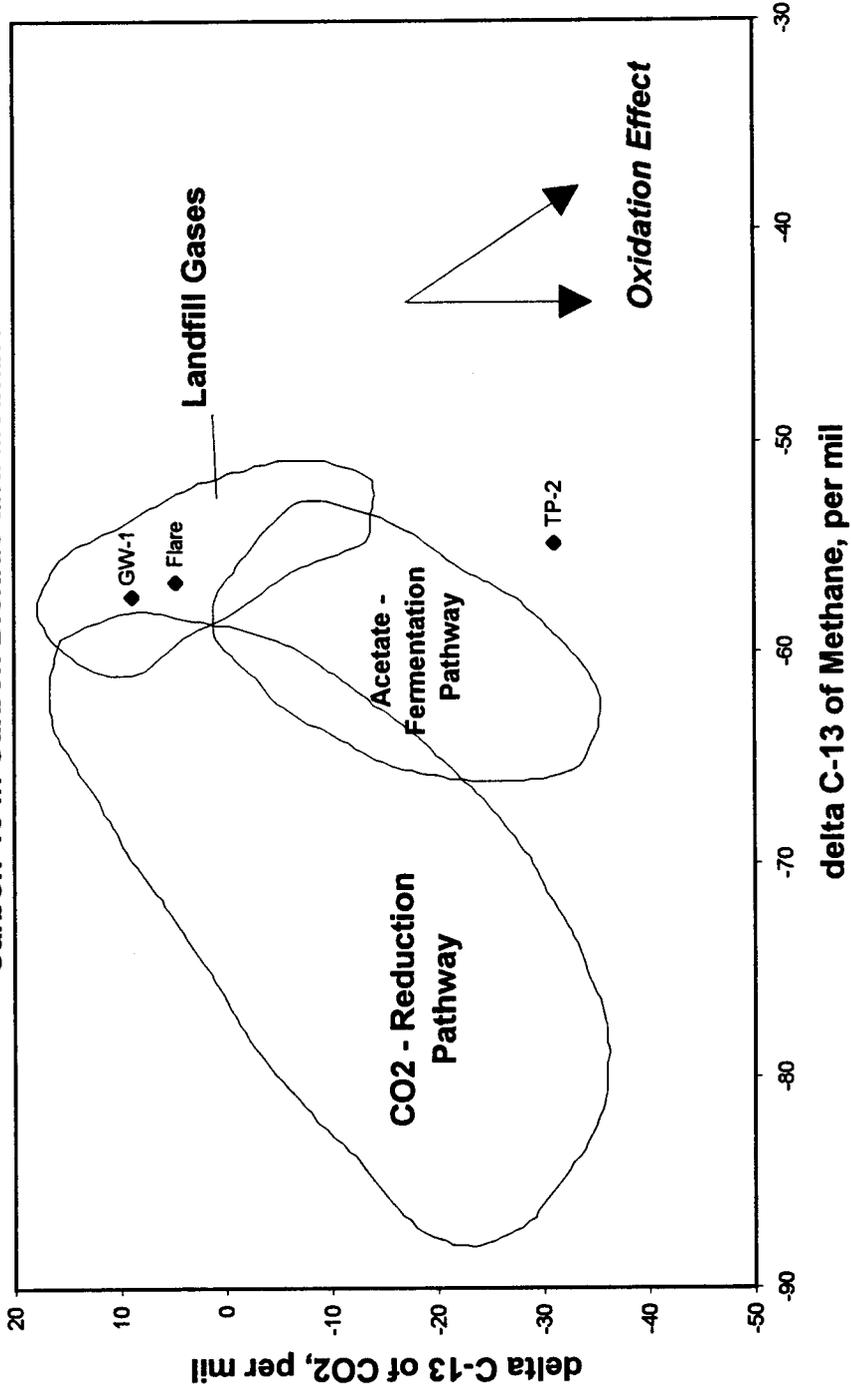
PIEDMONT LANDFILL

Carbon and Hydrogen Isotopes of Methane

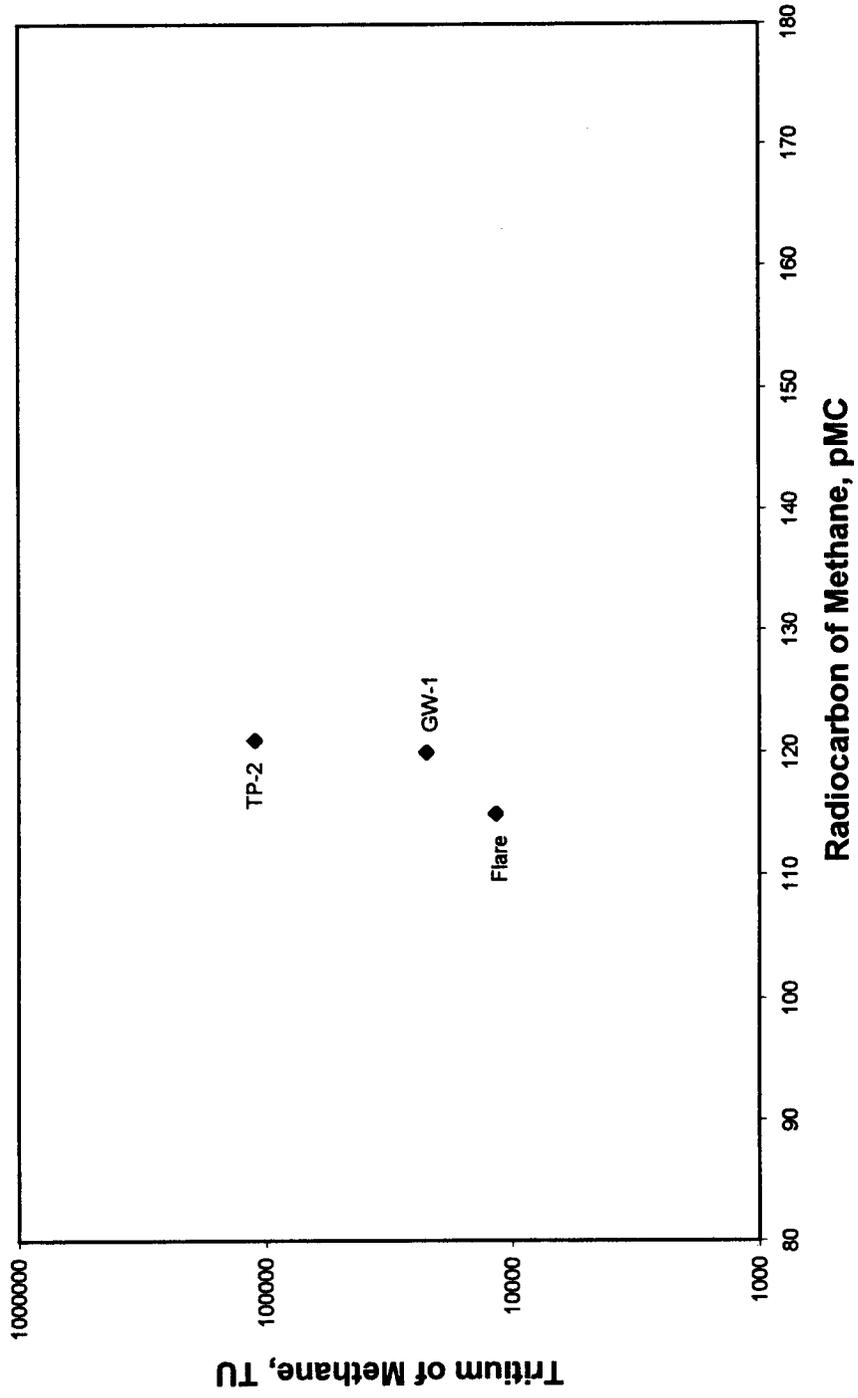


Piedmont Landfill

Carbon-13 in Carbon Dioxide and Methane



PIEDMONT LANDFILL



APPENDIX C

**WMX Environmental Monitoring Laboratories
Groundwater Geochemical/Isotope Assessment Report**

GROUNDWATER INVESTIGATION AT PIEDMONT LANDFILL
USING GEOCHEMICAL AND ISOTOPE DATA

Prepared for:

Piedmont Landfill & Recycling Center
9900 Freeman Road
Kernersville, NC 27284

Prepared by:

WMX Technology Center, Inc.
Geneva, IL 60134

John A. Baker
Principal Environmental Scientist



Jeff Holmgren
Project Engineer

March 1997

I. INTRODUCTION

Waste Management of Carolinas, Inc. owns and operates a municipal solid waste landfill in Kernersville, North Carolina under the name Piedmont Landfill & Recycling Center (PLFRC). In performing one of their routine, groundwater detection monitoring events in 1996, one volatile organic compound (VOC), chloroethane, was detected in a downgradient well, MW09. This caused the PLFRC to enter into assessment monitoring in accordance with North Carolina solid waste regulations. In order to more quickly determine the source of the chloroethane, the PLFRC retained the services of the WMX Technology Center, Inc. to investigate this matter. This investigation consists of the assessment of the geochemical properties of the groundwater and leachate to determine the whether the source is landfill leachate.

Specifically, the assessment consisted of analyzing the groundwater from background groundwater quality (MW01, MW06), downgradient groundwater quality (MW09), the landfill leachate contained in the cell most likely to impact MW09, (Phase 1, Module 5 & 6), and the landfill gas being generated from area adjacent to MW09. The results of this investigation and assessment follows.

II. BASIS OF GEOCHEMICAL INVESTIGATION

Plotting Certain Geochemical Parameters: Stiff and Trilinear Diagrams

In order to determine if the source of the chloroethane in MW09 was leachate, the geochemistry of the PLFRC's groundwater and leachate was studied. Since the groundwater is protected by an engineered liner system in Phase 1, Modules 5 & 6, the landfill and leachate are considered to be separate from the underlying groundwater regime and therefore by analyzing certain parameters, it becomes a useful tool in determining if "mixing" is occurring between adjacent aquifers (or water bearing zones such as landfill leachate collection layers), or if hydraulic connection has occurred vertically between aquifers or different water bearing zones (*Davis and De Wiest, 1966*). Major anions and cations (i.e., Ca, Mg, Na, K, SO₄, Cl, & alkalinity) were chosen because these parameters have been shown in the past to be reliable leachate indicators.

Once the chemical analysis was complete, the data was plotted on two types of diagrams. The first type (known as Stiff diagrams) uses shapes or patterns to determine "mixing". Similar shapes or patterns on these Stiff diagrams suggest water of the same origin or groundwater

bearing zone while waters with different patterns most likely are from unique geologic water bearing zones.

The chemical data is also plotted on another type diagram (called Trilinear or Piper diagrams). Groundwater that shows distinct aquifers or distinct origins of groundwater will plot in separate clusters. Mixing of two different water bearing zones will be shown as a straight line joining the "clusters" of data on different areas of the diagram (*Piper, 1944 and Hill, 1940*). Leachate data is plotted as a distinct water bearing zone and evaluated as in *Baedecker and Back, 1979*.

These methods also can be used to observe geochemical changes laterally along groundwater flowpaths from recharge to discharge areas. According to *Freeze and Cherry, "Groundwater", 1979*, recharge of precipitation that infiltrates through the soil zone (or vadose zone) undergoes a net loss of mineral matter to the flowing water. As groundwater moves along flowlines in the aquifer matrix (i.e., soil and/or rock) from recharge to discharge areas, its chemistry is altered by the effects of a variety of geochemical processes. These geochemical processes are described in detail in *Chapter 7, Geochemical Evolution of Natural Groundwater, of Freeze and Cherry*. In general, groundwater in a recharge area is lower in total dissolved solids than groundwater in the discharge area in the same aquifer or water bearing geologic unit. As groundwater "ages" from transport through the flowpath, mineralization occurs from the soil and/or rock type in the water bearing geologic unit.

Evaluation of Stable and Radioactive Isotopes

Stable and radioactive isotopes can be used in interpreting the geochemistry at the PLFRC. Stable isotopes are useful in determining if groundwater in different lateral or vertical locations has been derived from precipitation from different climatic periods over geologic time. The use of natural isotopes in investigating a variety of groundwater issues is discussed in detail in "*Application of Natural Isotopes in Groundwater for Solving Environmental Problems*" by *Michael Szpakiewicz, March, 1990, National Institute for Petroleum and Energy Research, Bartlesville, Oklahoma, NTIS, NIPER-450 (DE90000223)*. Isotopes are atoms of the same element that have a different number of neutrons in the nuclei and therefore different atomic weights (shown as a superscript in front of the element's symbol). Isotopes may be "stable" or "radioactive". Environmental isotopes considered under this study included the isotopes of the following elements: carbon (^{12}C , ^{13}C , ^{14}C), hydrogen (^1H , ^2H , ^3H), oxygen (^{16}O , ^{18}O). The average terrestrial abundance for the isotopes of these three elements are:

Carbon-12 (^{12}C).....	98.89%
Carbon-13 (^{13}C).....	1.11%
Carbon-14 (^{14}C).....	trace (radioactive)
Hydrogen (^1H).....	99.984%

Deuterium (^2H).....	0.015%
Tritium (^3H).....	trace % (radioactive)
Oxygen-16 (^{16}O).....	99.76%
Oxygen-18 (^{18}O).....	0.2%

(Source: Illinois State Geologic Survey)

The concentrations of stable isotopes of an element in coexisting chemical phases or reacting chemical compounds vary slightly because of the differences in the mass of the isotopes. In general, for those elements undergoing the transition from the solid, liquid, and gaseous phases over a range of temperature, the heavier isotope will be concentrated in the solid phase where it is more strongly bound. Heavier isotopes also tend to be concentrated in the more oxidized phase of an element. Isotopic distributions in biological systems (such as photosynthesis or bacterial reactions) are primarily a result of kinetic effects or, in other words, differences between the reaction rates of the isotopes. In general, the lighter isotope will have the faster reaction rate and will be concentrated in the main reaction product relative to the source materials.

Carbon-13

The ^{13}C of dissolved carbonate species (mostly bicarbonate) in the ocean is about 0 per mill (o/oo), and of atmospheric CO_2 , about -7 per mill. The $^{13}\text{C}/^{12}\text{C}$ ratio (referred to the Peedee belemnite carbonate or PDB standard) is subject to fractionation effects in living organisms; thus this ratio indicates not only whether dissolved carbon is of organic origin (light) or inorganic origin (heavy) but also the relative concentrations of each type to mixtures. Dissolution of carbonate minerals also is a significant factor in the evolution of groundwater and ^{13}C . In this investigation, Carbon-13 will be used to confirm the findings of the results found in the above mentioned Stiff and Trilinear plots.

Baedecker and Back, 1979 also have shown that landfill leachate is enriched in ^{13}C showing ^{13}C levels up to +30 o/oo. (Most natural groundwater formations such as that at PLFRC should have ^{13}C levels from -10 to -25 o/oo.) Potentially, the groundwater at the downgradient well, MW09, may be different since it is screened in rock compared to the upgradient wells being screened in soils. If calcium carbonates are found in bedrock, C-13 could be from -15 to 0 o/oo. Landfill impacts to groundwater tend to enrich background groundwater and "shift" ^{13}C into positive readings at impacted wells.

Oxygen and Hydrogen Isotopes

The processes of evaporation, condensation and precipitation as well as the temperature at which these processes take place significantly affect the isotopic composition ($^2\text{H}/^1\text{H}$ and $^{18}\text{O}/^{16}\text{O}$) of meteoric water. Oxygen and hydrogen isotopes in precipitation from around

the world follow a consistent relationship characteristic of latitude and climatic conditions (Craig, 1961). This relationship results in a straight line represented by the following equation:

$$^2\text{H}/^1\text{H} = 8(^{18}\text{O}/^{16}\text{O}) + 10$$

This line is referred to as the "meteoric water line". The ^{18}O and ^2H values are generally preserved in meteoric water after it enters the soil zone and infiltrates to the groundwater table. Significant deviations from the meteoric line are caused by physical and chemical processes which affect the isotopic composition of the water subsequent to precipitation. The conservative nature of ^{18}O and ^2H allows these isotopes to be used in leakage or mixing studies between two reservoirs of water that may be isotopically distinct. Paleoclimatic and seasonal effects can be also be seen from these data in changes along the meteoric line. Data plotted in the more positive reaches of the line (or towards 0 for both parameters) indicates water of origins from warmer climates whereas data plotted along the meteoric line towards more negative values may indicate water from colder climates. Groundwater present from the glacial periods may indicate more negative results than more recent groundwater or precipitation. In a relative sense, these parameters can be used to age-date the groundwater.

Tritium

This radioactive isotope has been most commonly applied in environmental studies. Understanding the regional and time-dependent distribution of all atmospheric environmental isotopes in rainfall is crucial for their application as a quantitative or semiquantitative tool in studies of aquifer degradation. Average tritium concentration in precipitation, corrected for radioactive decay since 1963, was very different in Northern and Southern Hemispheres until 1968. Peak values for the thermonuclear tritium (^3H) in rainfall reached several thousand tritium units (TU) during the 1960s. The global distribution of the yearly average tritium concentration in precipitation during 1969 has varied. The tritium levels have not declined to less than 100 tritium units (TU) in temperate latitudes of the northern hemisphere. If tritium is detected at or near detection limits, the groundwater is older than 40 years old. Detectable tritium above background levels indicates water aged between the present and 40 years ago. Also, the half-life of tritium is 12.5 years.

III. RESULTS OF THE GEOCHEMICAL AND ISOTOPIC GROUNDWATER STUDY AT THE PIEDMONT LANDFILL AND RECYCLING CENTER

Select monitoring wells and leachate samples were sampled for geochemical and isotopic parameters at PLFRC. Appendix II of this report contains the laboratory analysis, field forms, and chain of custody reports. A summary of this data is in Table 1. Groundwater monitoring

well MW01 and MW06 are located hydraulically upgradient from the facility, screened in the overburden. These wells serve as background groundwater quality sample points for the unconfined aquifer. Groundwater sample point MW09 is downgradient for the waste unit, and screened in groundwater in bedrock and also screened 18 to 19 feet in the vadose of the overburden. See Appendix I for the well construction log for this well. MW09 has shown detections of chloroethane and thus is the impetus of this study. A leachate sample was obtained from the primary sump that drains the area of the landfill directly upgradient from MW09. This area is known as Phase 1, Modules 5 & 6. It was planned to analyze the liquid in the secondary sump for this module but at the time of sampling this sump was dry. The objective of this study was to determine if the landfill leachate was the source of the detection of chloroethane concentrations at MW09 or if there was another contributing source.

Geochemistry

Trilinear Diagrams

The data from the four sample points were plotted on a Trilinear (Piper) diagram as shown on Figure 1. (This also was done in a memo report on July, 1996). The leachates are similar in composition being primarily sodium chloride type water and plot on the far right side of the quadrilateral. The background groundwaters are very pure and low in TDS. The downgradient well is much higher in TDS and is dominated by alkalinity, with lesser levels of calcium and magnesium respectively. These differences may be due to a bedrock well, MW09, compared to wells in the overburden. As in the above mentioned July report, no shifts in geochemistry have occurred, and the upgradient wells plot between the leachate sample and the downgradient well. If significant leachate impacts were occurring, the downgradient well would plot on a flow-line between the upgradient well and the leachate (*Baedecker and Back, 1979*), which it is not.

Since the landfill leachate geochemical parameters are greatly elevated over background data, it is anticipated that a release from the landfill would elevate chloride and tritium concentrations in levels between one to two orders of magnitude to match the ratio of chloroethane in leachate and groundwater.

Stiff Plots

The results for the Stiff plots (Figure 2) confirm that the groundwater in monitoring well MW09 are bicarbonates of calcium and magnesium, and the leachate sample is primarily sodium potassium-chloride type water. These plots are useful in describing the water composition and allowing comparisons between sample points. The Stiff plots for the groundwater at MW09 do not resemble the patterns observed from the leachate compositions. Typically, the ratio of sodium to chloride shifts in groundwater impacts to a

similar ratio in leachate (i.e., 2 parts sodium to 3 parts chloride). The MW09 sodium/chloride ratio is greater than 2 to 1. Therefore, no mixing of leachate is evident using this method of evaluation.

Stable and Radioactive Isotopes

Deuterium vs. ^{18}O

The attached graph (Figure 3) plots the isotopic composition of the water from the groundwater sample points and the leachate. The conservative nature of the water isotopes allows them to be used in mixing studies of isotopically distinct water sources. Water that has originated from precipitation should plot on the meteoric water line. Significant deviations from the meteoric water line are caused by physical and chemical processes that affect the isotopic composition of the water. The leachates and groundwater plot parallel to the meteoric water line, showing its origins from precipitation. The leachate is shifted to the upper part of the global meteoric line as expected due to methanogenesis. This is due to natural hydrogen being assimilated into methane gas increasing the heavier deuterium in leachate. Had landfill leachate impacted the groundwater, the affected well would plot on a vertical mixing line between the meteoric line and the leachate. Instead, MW09 plots on the other side of the upgradient wells.

Carbon-13 Isotope

The ^{13}C isotope results were graphed against chloride and alkalinity (Figures 4 and 5). Carbon-13 amounts in the groundwater are controlled by dissolution, precipitation, and fractionation processes. The leachates are enriched in the heavier ^{13}C isotope since the lighter isotopes are preferentially utilized in the biological decay process. The ^{13}C is enriched above the background levels in MW09, but is negative. This may indicate spatial differences due to calcium carbonate in bedrock at MW09 as indicated in the geochemistry. No certain evidence of leachate mixing with MW09 is indicated by this method of evaluation. If leachate was mixing with groundwater, MW09 would plot on a "mixing-line" between the upgradient wells and the leachate sample.

The graph for alkalinity vs. C-13 shows a "mixing-line" relationship with MW09 and leachate. The elevated concentrations of alkalinity at MW09 are almost at 50% of the concentrations in leachate. This may be due to mixing of carbon dioxide from landfill gas that was detected in the monitoring well head-space samples at MW09 (up to 30% methane). If the landfill leachate was mixing up to 50% with groundwater, the chloride concentrations would be at 216 ppm (half of the concentrations of chloride in leachate) at MW09, not 5.8 ppm chloride in the most recent sample (Table I). Chloride is more mobile than alkalinity and would show increasing concentrations in advance of increases in alkalinity.

Tritium

Studies conducted by WMX of landfill leachates from older sites have shown tritium levels ranging from 200 to 10,000 TU, with the PLFRC leachate at 3,259 TU range. Background tritium levels in groundwater at the PLFRC is 9.4 to 10 TU as expected for a unconfined aquifer. Impacts from an older landfill leachate will greatly elevate these levels in downgradient wells.

Tritium was also plotted against chloride and bicarbonate alkalinity (Figures 6 and 7). Tritium, like chloride, is an excellent tracer in groundwater because it moves in the aquifer as part of the water molecule. Since tritium is at elevated levels in the leachate, groundwater contaminated with leachate would show indications of tritium above background concentrations. The tritium concentration at the downgradient sample point, however, was 58.7 TU, which is above background groundwater levels. Therefore, the tritium data may indicate a slight mixing of leachate and the groundwater. Mass balance calculations to determine the degree of mixing of leachate with the groundwater at MW09 were done and are summarized in Table 2. Mixing equations were performed on three conservative leachate indicator parameters, chloride, tritium, and carbon-13. The extent of potential mixing is indicated to be 1-2%. The calculations used both background wells to provide a range, since the alkalinity in the background water varies between MW01 and MW06. Although chloroethane is found in leachate, the levels are much too low to account for over half the concentrations in groundwater. If chloroethane was from the landfill leachate, the tritium levels would have to be above 1600 TU to account for the degree of mixing expected.

IV. CONCLUSIONS AND RECOMMENDATIONS

A multi-media environmental study was conducted at PLFRC to determine if the landfill leachate is the source of the chloroethane in groundwater at monitoring well MW09. Landfill leachate and groundwater from select wells were sampled for geochemical parameters and isotopes. These parameters were chosen because they have been shown in the past to be reliable leachate indicators.

An evaluation of all the data using several different methods, in addition to the site specific hydrogeologic conditions indicated that the source of the chloroethane may not be from the landfill leachate, but from landfill gas. Before a more definitive conclusion can be made, however, the results of a landfill gas study must be evaluated. This is presently being conducted by RUST E & I, Inc. and WMX Technology Center, Inc. with the report to be submitted to the NCDEHNR Solid Waste Section shortly.

References

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- Craig, H., (1961) "Isotopic Variations in Meteoric Water", *Science*, 133. 1702-1703
- Davis, S. and DeWeist, R.J.M., (1966) Hydrology, John Wiley and Sons, New York.
- Freeze, R.A. and Cherry, J.A., (1979) Groundwater, Prentice Hall, Englewood Cliffs, NJ.
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- Piper, A.M., (1944) "A Graphic Procedure in the Geochemical Interpretation of Water Analysis", *Trans. Amer. Geophys. Union*, 25, 914-928
- Szpakiewicz, M. (1990) "Application of Natural Isotopes in Groundwater for Solving Environmental Problems", National Institute for Petroleum and Energy Research, Bartlesville, Oklahoma, NTIS, NIPER-450 (DE90000223).

Table 1: Geochemical Isotope Data for PLFRC

Sample Point	Alkalinity ppm	Ca ppm	Cl ppm	delta O-18 per mil	delta C-13 per mil	delta D per mil	Mg ppm	K ppm	Na ppm	TDS ppm	SC umhos/cm	SO4 ppm	Tritium TU
MW01	49	5.61	3.2	-6.55	-22.73	-36.6	<5	7.24	8.33	65	111	<8	10
MW06	7.7	<5	2.3	-6.70	-22.25	-44.6	<5	<5	<5	31	56	<8	9.4
MW09	245	55.2	5.8	-6.73	-3.37	-38.1	21.1	<5	12.7	284	590	9.3	58.7
SUM56P	541	56.6	432	-6.00	16.76	-32.0	39.8	28.2	272	1150	1601	<20	3259

Figure 1: Piper (Trilinear) Diagram of Select Wells and Leachate at PLFRC

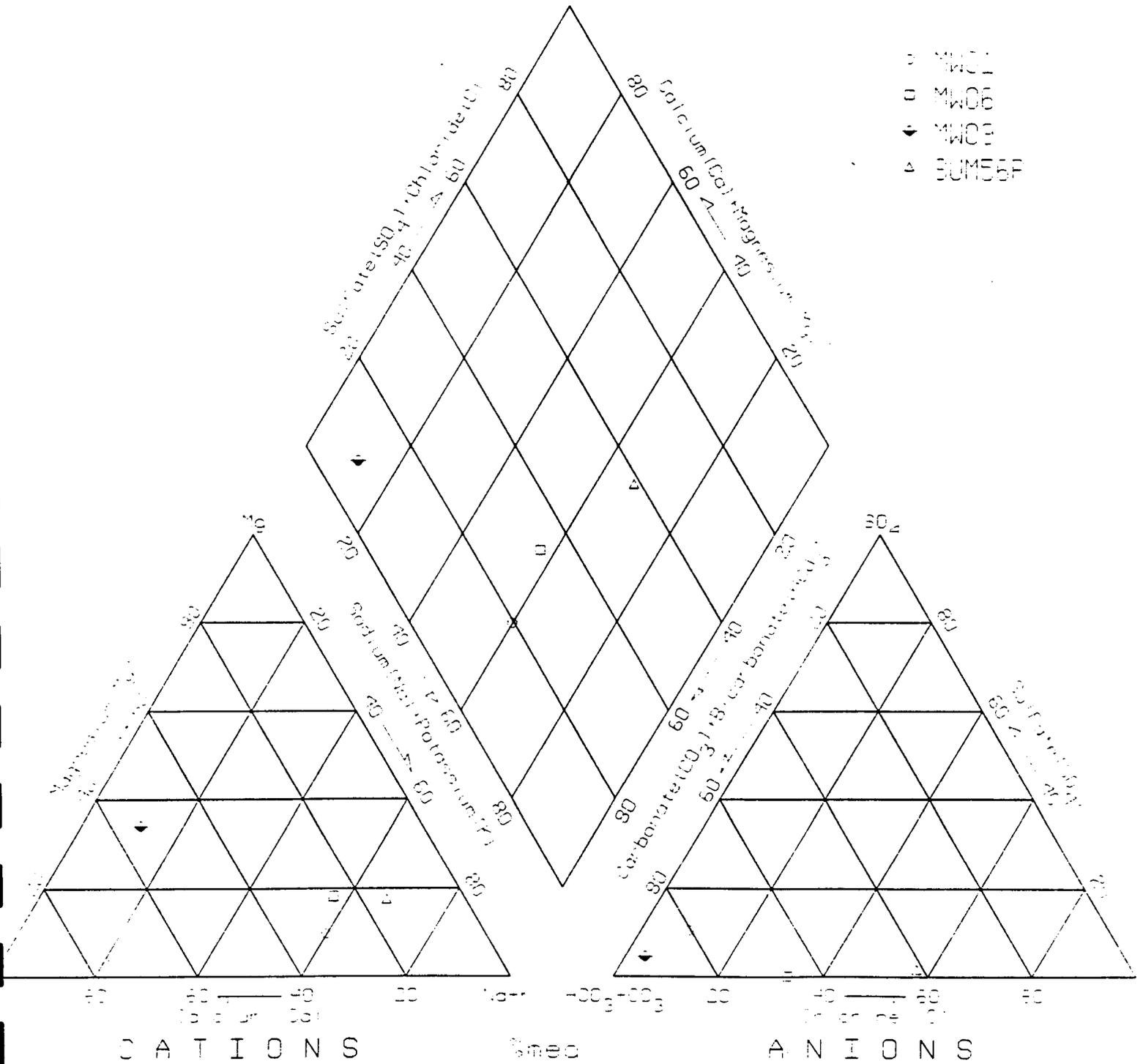


Figure 2: Stiff Diagrams of Select Wells and Leachate at PLFRC

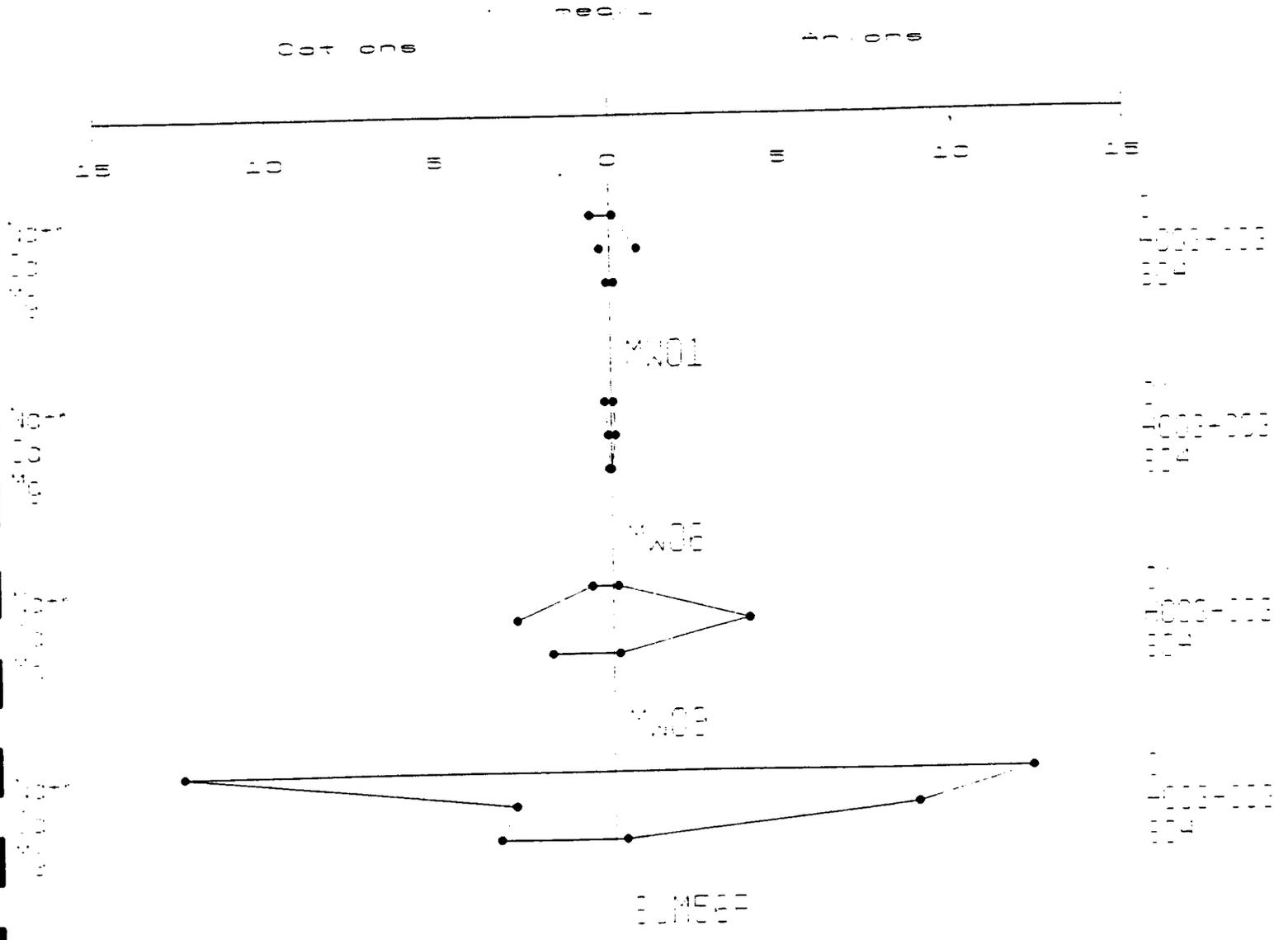


Figure 3: Isotopic Composition of Groundwaters at PLFRC

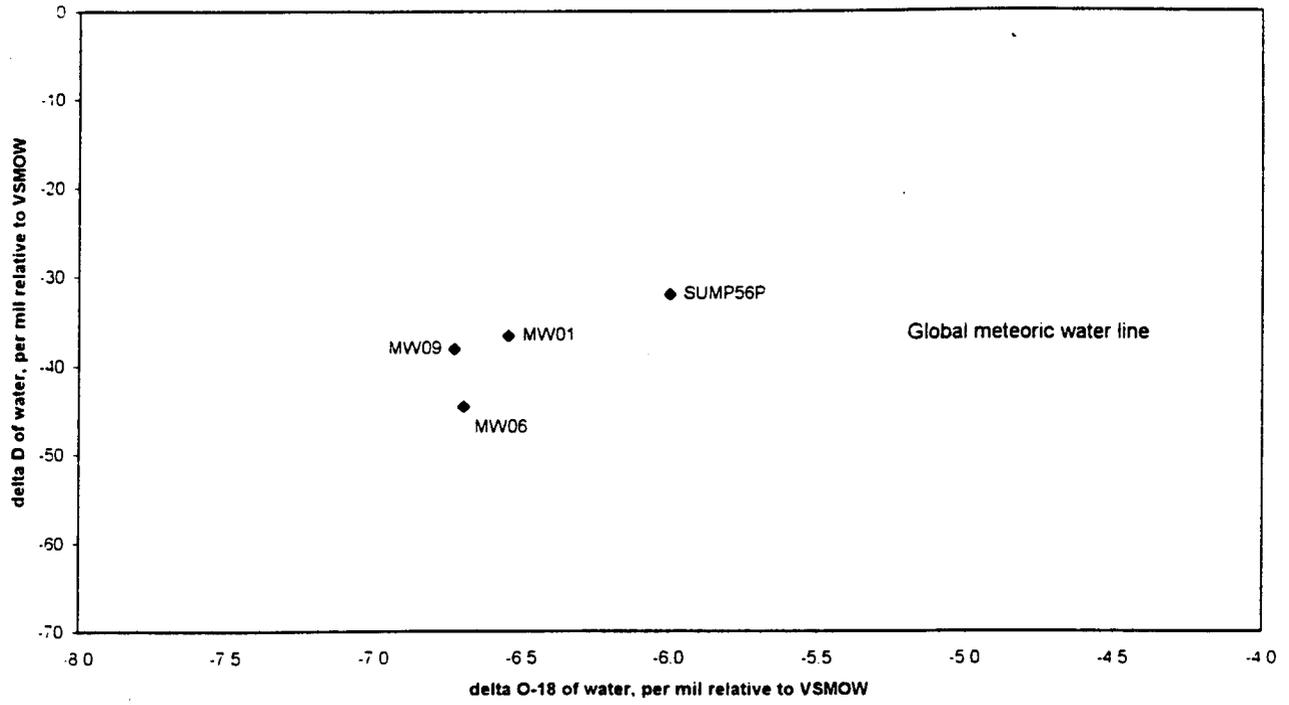


Figure 4: Chloride Versus Carbon-13 for Groundwaters and Leachate at PLFRC

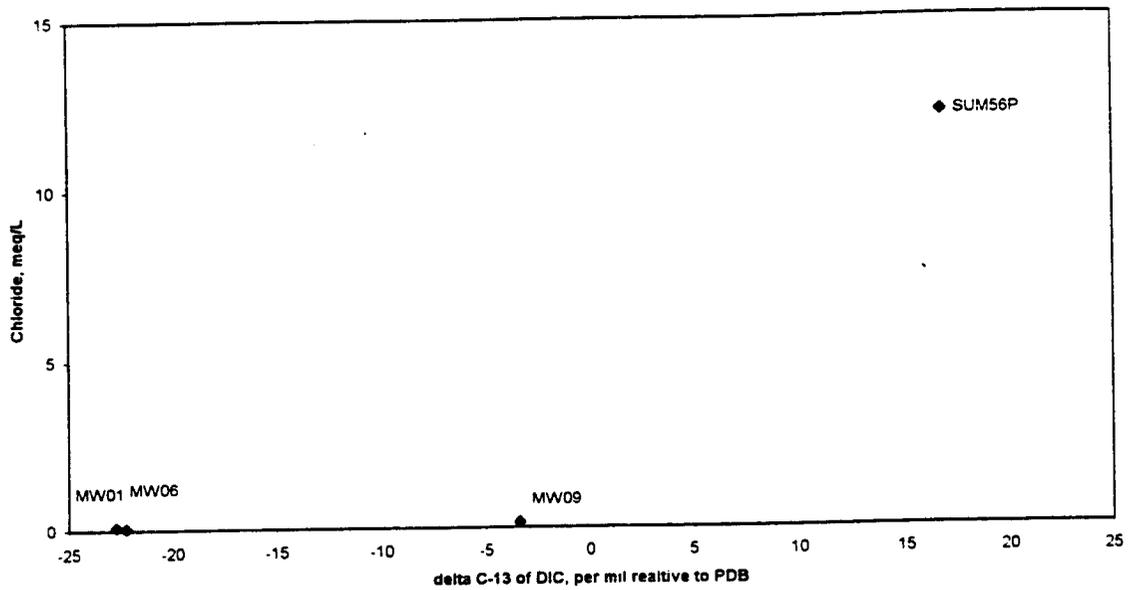


Figure 5: Bicarbonate Alkalinity Versus Carbon-13 for Groundwaters and Leachate at PLFRC

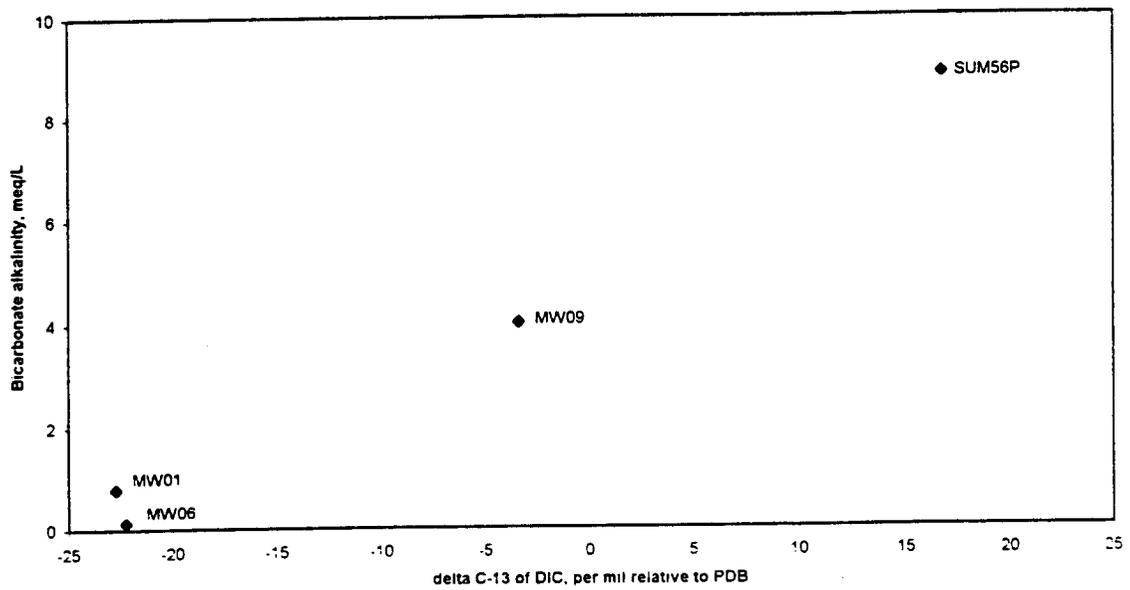


Figure 6: Chloride versus Tritium for Groundwaters and Leachate at PLFRC

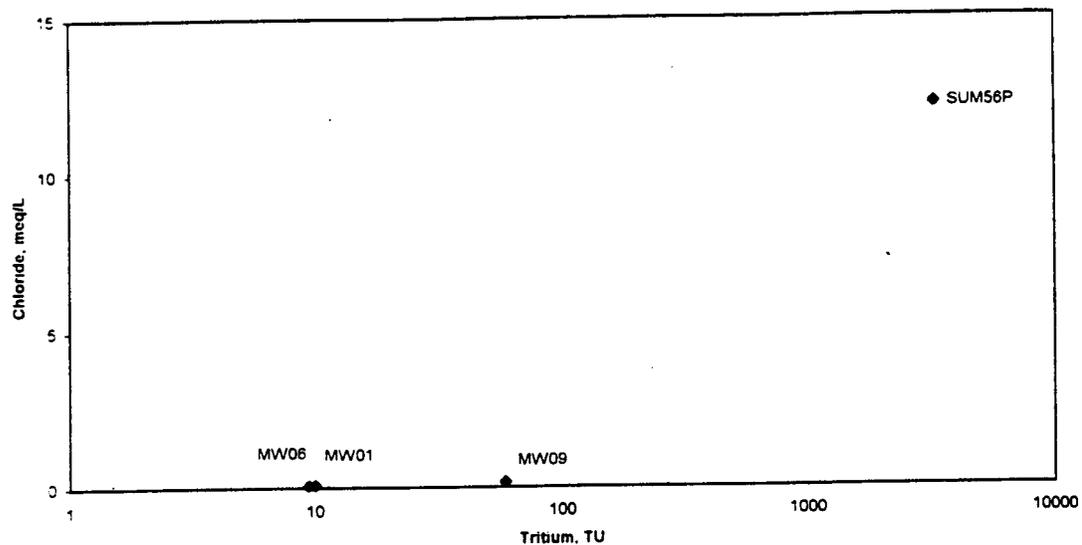


Figure 7: Bicarbonate versus Tritium for Groundwaters and Leachate at PLFRC

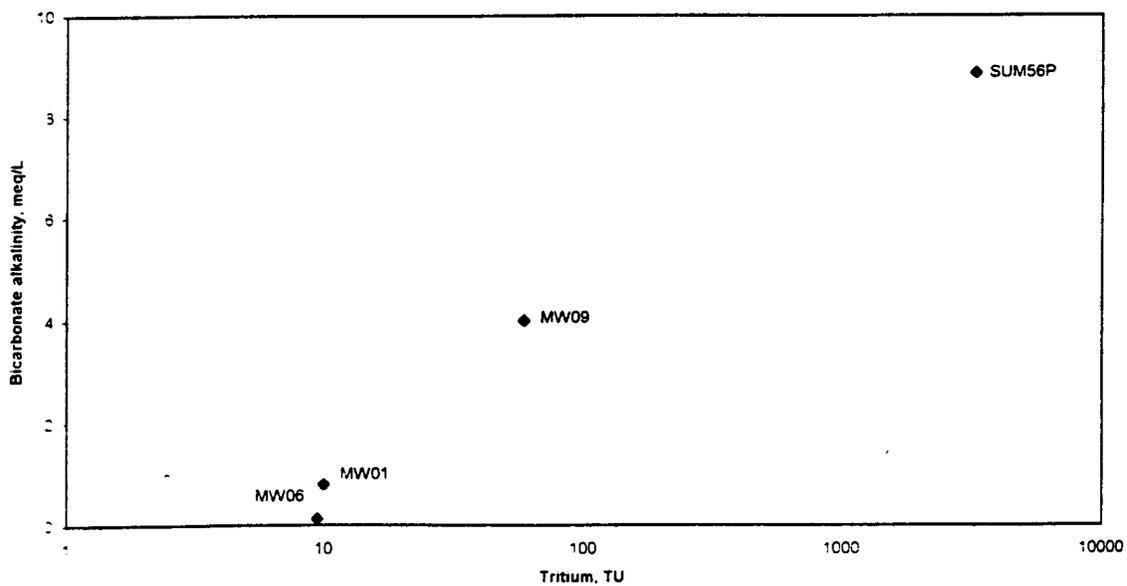


TABLE 2

Percent Leachate Mixing with Groundwater at MW09 Based on Three Conservative Parameters, Chloride, Tritium, and Carbon-13

Scenario 1:

End members used in mixing equations MW01 and SUM56P		
Chloride	Tritium	Carbon-13
0.6%	1.5%	2.8%

Scenario 2:

End members used in mixing equations MW06 and SUM56P		
Chloride	Tritium	Carbon-13
0.8%	1.5%	0.0%

APPENDIX I

Well Construction Log for MW09

Well No.: MW-9

Boring No. X-Ref: MW-9

MONITORING WELL CONSTRUCTION SUMMARY

Survey Coords: 892,202.753 N
1,690,947.720 E

Elevation Ground Level: 767.82
Top of Casing: 770.62

Drilling Summary:

Total Depth: 35.0 ft.
Borehole Diameter: HSA - 11 inches
Casing Stick-up Height: +2.8 ft.
Driller: Graham & Currie
Rig: CME
Bit(s): 6.25-in. I.D. HSA
Drilling Fluid: N/A
Protective Casing: 5.0 ft. x 4.0 in. x 4.0 in. anodized aluminum

Well Design & Specifications

Basis: Geologic Log: Geophysical Log:
Casing String (s): C = Casing S = Screen

Depth	String(s)	Elevation
+2.80 - 2.20	C1	770.62 - 765.62
+2.80 - 19.81	C2	770.62 - 748.01
19.81 - 34.81	S1	748.01 - 733.01
-	-	-
-	-	-

Casing: C1 5.0 ft. x 4.0 in. x 4.0 in. anodized aluminum
C2 2.0 in. I.D. Schedule 40 PVC
Screen: S1 2.0 in. I.D. Schedule 40 PVC
S2 0.010 in. slot

Filter Pack: 35.00 to 18.08 ft.: medium sand. 18.08 to 17.58 ft.: fine sand. 14.42 to 13.83 ft.: fine sand.
Grout Seal: 13.83 to 0.0 ft.: bentonite/cement grout
Bentonite Seal: 17.58 to 14.42 ft.: bentonite pellets

Comments: Surface seal = 3 ft. x 3 ft. x 3 in. concrete pad with protective post.

Construction Time Log:

Task	Start		Finish	
	Date	Time	Date	Time
Drilling	8/29/94	12:30	8/30/94	14:45
Geophys. Logging:	NA	NA	NA	NA
Casing:	8/30/94	15:00	8/30/94	15:15
Filter Placement:	8/30/94	15:15	8/30/94	15:45
Bentonite Seal:	8/30/94	15:45	8/30/94	16:30
Grout:	8/30/94	16:30	8/30/94	17:30
Development:	9/1/94	16:00	9/7/94	16:18

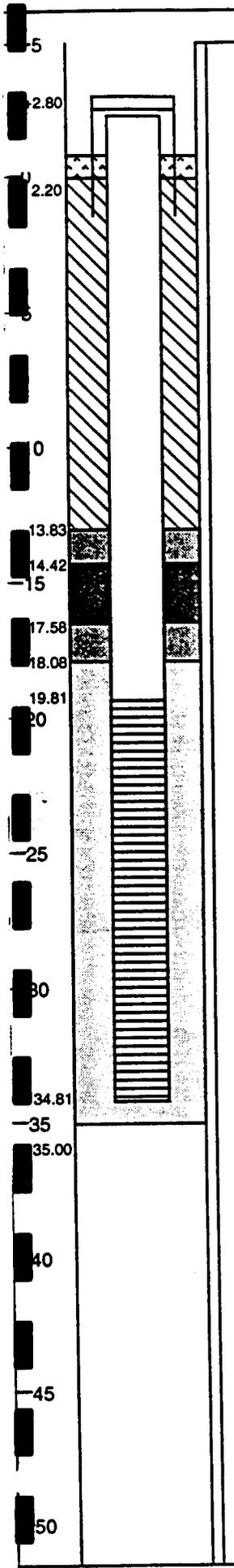
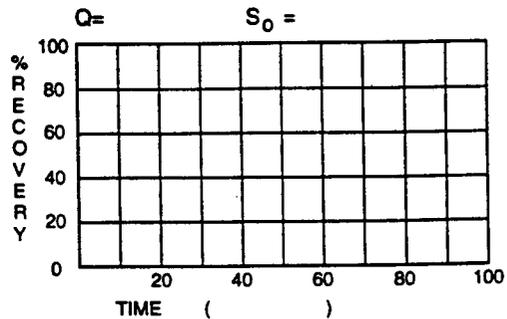
Well Development:

Bailer/Grundfos
Total gallons removed = 105 gallons

Stabilization Test Data: *9/1/94, v 9/7/94

Time	pH	Spec. Cond.	Temp (C)
16:08*	6.42	530	--
16:40*	6.15	290	--
17:20*	6.01	260	--
15:13v	6.10	280	21
16:18v	6.12	260	20

Recovery Data:



SITE NAME: Piedmont Landfill
LOCATION: Kernersville, N.C.

SUPERVISED BY: Heidi Baughman
DATE: 8/29/94

APPENDIX II

Laboratory Analysis, Field Forms, Chain-of-Custody Forms

LEACHATE INDICATOR ANALYSIS FOR MW-1, MW-6, MW-9
with Field Forms and chain of custody forms

DATA QUALIFIER REPORT

Site: 134 - Piedmont Landfill

ENS: 97-10458

Report Date: 19-FEB-1997

Sample Pt	Sam Date	Analyte	Method	Comment	Additional Comments Explanations (NQ/DL)
MW01	22-JAN-1997	ALKALINITY, CARBONATE (AS CACO3)	INALKCOA01 NQ	Carbonate alkalinity equals 0 mg/L because sample pH < 8.3.	
MW01	22-JAN-1997	SULFATE	INSULFX01 DL,NQ	Dilution factor 2 applied.	
MW01	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBTKNITRGN SB,NQ	The sample was diluted due to apparent matrix interferences.	
MW01	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBTRITSCRN SB,NQ	SAVANNAH	
MW01	22-JAN-1997	TRITIUM IN WATER	SBTRITSCRN SB,NQ	ISOTECH	
MW06	22-JAN-1997	ALKALINITY, CARBONATE (AS CACO3)	INALKCOA01 NQ	Carbonate alkalinity equals 0 mg/L because sample pH < 8.3.	
MW06	22-JAN-1997	SULFATE	INSULFX01 DL,NQ	Dilution factor 2 applied.	
MW06	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBTKNITRGN SB,NQ	The sample was diluted due to apparent matrix interferences.	
MW06	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBTRITSCRN SB,NQ	SAVANNAH	
MW06	22-JAN-1997	TRITIUM IN WATER	SBTRITSCRN SB,NQ	ISOTECH	
MW09	22-JAN-1997	ALKALINITY, CARBONATE (AS CACO3)	INALKCOA01 NQ	Carbonate alkalinity equals 0 mg/L because sample pH < 8.3.	
MW09	22-JAN-1997	SULFATE	INSULFX01 DL,NQ	Dilution factor 2 applied.	
MW09	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBTKNITRGN SB,NQ	The sample was diluted due to apparent matrix interferences.	
MW09	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBTRITSCRN SB,NQ	SAVANNAH	
MW09	22-JAN-1997	TRITIUM IN WATER	SBTRITSCRN SB,NQ	ISOTECH	
MW09	22-JAN-1997	TRITIUM IN WATER	SBTRITSCRN SB,NQ	RESULT IS +/- 3.7 TU.	

DATA QUALIFIER REPORT

ENS: 97-10458

Report Date: 19-FEB-1991

Site: 134 - Piedmont Landfill

Code	Data Qualifier Comment Code Definition
DL	Sample diluted; reporting limits have been adjusted where necessary.
NQ	No standard qualifier code is in use for this qualification. See the associated comment.
SB	The analysis of this sample was performed by an approved subcontract laboratory.



CUSTOM EVENT SUMMARY REPORT

Site: 134 - Piedmont Landfill
 Disposal Facility
 9900 Freeman Road
 Kernersville NC 27284

ENS: 97-10458
 MP: 134971
 Rev / Task: 00 / 03
 Sample Type: WELL
 Reported: 19-FEB-1997

Analyte	Sample Point: Sample Number: Sampled:	134-MW01 AQ7819 22-JAN-1997	EML RL	134-MW06 AQ7820 22-JAN-1997	EML RL	134-MW09 AQ7818 22-JAN-1997	EML RL	Units
FIELD DATA:								
ACTUAL VOLUME PURGED		4.8		5.0		1.8		GALLONS
DEPTH TO WATER FROM TOP OF CASING		39.40		19.40		31.30		FT
ELAPSED HOURS		0.25		0.6		0.3		HRS
GROUNDWATER ELEV.		784.53		781.42		739.32		FT MSL
PH FIELD		6.93		5.57		6.19		PH UNITS
PURGE DATE (YY/MM/DD)		97-01-22		97-01-22		97-01-22		YY/MM/DD
PURGING DEVICE		C		C		C		
PURGING EQUIPMENT DEDICATED		Y		Y		Y		
PURGING MATERIAL		A		A		A		
SAMPLING DEVICE		C		C		C		
SAMPLING EQUIPMENT DEDICATED		Y		Y		Y		
SAMPLING MATERIAL		A		A		A		
SPECIFIC CONDUCTANCE FIELD		111		56		590		UMHOS/CM
TUBING-PURGING		G		G		G		
TUBING-SAMPLING		G		G		G		
WATER TEMPERATURE IN DEG. CELSIUS FIELD		14.2		14.8		14.8		DEGREES C
WELL DEPTH TOTAL		49.00		29.60		35.00		FT
CHEMICAL METHODS & ROBOTICS:								
NITROGEN, AMMONIA		0.078	0.020	ND	0.020	0.13	0.020	MG/L
TOTAL ORGANIC CARBON		ND	1.0	ND	1.0	1.5	1.0	MG/L
TOTAL ORGANIC CARBON		ND	1.0	ND	1.0	1.4	1.0	MG/L
INORGANICS:								
ALKALINITY (AS CaCO3)		49.0	5.0	7.7	5.0	245	5.0	MG/L
ALKALINITY, BICARBONATE (AS CaCO3)		49	10.	ND	10.	245	10.	MG/L
ALKALINITY, CARBONATE (AS CaCO3)		ND	10.	ND	10.	ND	10.	MG/L
CALCIUM-DISSOLVED		5610	5000	ND	5000	55200	5000	UG/L
CHLORIDE		3.2	0.5	2.3	0.5	5.8	0.5	MG/L
IRON-DISSOLVED		ND	100.	ND	100.	6610	100.	UG/L
MAGNESIUM-DISSOLVED		ND	5000	ND	5000	21100	5000	UG/L
MANGANESE-DISSOLVED		ND	15.0	ND	15.0	1140	15.0	UG/L
NITROGEN, NITRATE		0.95	0.050	1.00	0.050	0.68	0.050	MG/L
PH		7.29	0.05	5.97	0.05	6.33	0.05	PH UNITS
POTASSIUM-DISSOLVED		7240	5000	ND	5000	ND	5000	UG/L
SODIUM-DISSOLVED		8330	5000	ND	5000	12700	5000	UG/L
SOLIDS, TOTAL DISSOLVED		65	5	31	5	284	5	MG/L
SPECIFIC CONDUCTANCE		113	1.0	34.4	1.0	491	1.0	UMHOS/CM
SULFATE		ND	8.0	ND	8.0	9.3	8.0	MG/L
SUB-CONTRACT DATA:								
NITROGEN, TOTAL KJELDAHL		.35	0.200	.27	0.200	1.3	0.200	HG/L
TRITIUM IN WATER		10.0	10.0	ND	10.0	58.7	10.0	TU

NA = Not Analyzed ND = Not Detected TBK = Trip Blank s = EML Subcontract Data

LEACHATE INDICATOR ANALYSIS FOR LEACHATE SUMP 5,6 (PRIMARY)
with Field Forms and chain of custody forms

ISOTOPE ANALYSIS FOR LEACHATE SUMP 5,6 (PRIMARY)
with field forms and chain of custody forms



DATA QUALIFIER REPORT

Site: 134 - Fiedmont Landfill

ENS: 97-10461

Report Date: 11-FEB-1997

Sample Pt	Samp Date	Analyte	Method	Comment	Additional Comments Explanations (NQ/DL)
SUM56P	23-JAN-1997	CYANIDE, TOTAL	CRCNANL01 MX		
SUM56P	23-JAN-1997	TIN-TOTAL	INICPTOTSN MX		
SUM56P	23-JAN-1997	3-METHYLPHENOL	SVMSLDX917 MP		
SUM56P	23-JAN-1997	4-METHYLPHENOL	SVMSLDX917 MP		
SUM56P	23-JAN-1997	BIS(2-ETHYLHEXYL) PHTHALATE	SVMSLDX917 PL		
SUM56P	23-JAN-1997	DIPHENYLAMINE	SVMSLDX917 NN		
SUM56P	23-JAN-1997	HEXACHLOROETHANE	SVMSLDX917 NN		
SUM56P	23-JAN-1997	N-NITROSODIPHENYLAMINE	VOMSBAD508 DL		
SUM56P	23-JAN-1997	EVERY ANALYTE FOR THIS METHOD	VOMSBAD508 NQ		
SUM56P	23-JAN-1997	ACROLEIN			
SUM56P	23-JAN-1997	ACRYLONITRILE	VOMSBAD508 NQ		
SUM56P	23-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBTRITSCRN SB,NQ		
SUM56P	23-JAN-1997	TRITIUM IN WATER	SBTRITSCRN SB,NQ		
SUM56P	23-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBH2OISTPS SB,NQ		
SUM56P	23-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBGFAATOB SB,NQ		
SUM56P	23-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBGFAATONC SB,NQ		
SUM56P	23-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBGCXHRB05 SB,NQ		
SUM56P	23-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBSULFIDE1 SB,NQ		
TBK-SUM56P	23-JAN-1997	ACROLEIN	VOMSBAD508 NQ		
TBK-SUM56P	23-JAN-1997	ACRYLONITRILE	VOMSBAD508 NQ		

SL
 Dilution factor 4.0000 applied.
 Analyzed by approved screen methodology per EPA Method 624 or analyz
 quantitatively per SW-846 methods.
 Analyzed by approved screen methodology per EPA Method 624 or analyz
 quantitatively per SW-846 methods.
 ISOTECH
 RESULT IS +/- 31 TU.
 ISOTECH
 SAVANNAH G
 SAVANNAH G
 SAVANNAH
 SAVANNAH
 Analyzed by approved screen methodology per EPA Method 624 or analyz
 quantitatively per SW-846 methods.
 Analyzed by approved screen methodology per EPA Method 624 or analyz
 quantitatively per SW-846 methods.



WMX TECHNOLOGY CENTER, INC.

DATA QUALIFIER REPORT

Site: 134 - Piedmont Landfill

ENS: 97-10461

Report Date: 11-FEB-1997

Data Qualifier Comment Code Definition

Code

DL	Sample diluted; reporting limits have been adjusted where necessary.
MP	3-methylphenol and 4-methylphenol co-elute under the analytical conditions of the method, and cannot be differentiated solely on the basis of their mass spectra. The concentrations reported may be either or both isomers.
MX	This sample was used as a matrix spike. The percent recovery did not meet the acceptance criteria of the method. The analysis of a quality control sample showed the analytical system was in control. The result reported may therefore be affected by matrix interferences.
NN	N-nitrosodiphenylamine cannot be distinguished from diphenylamine using gas chromatography. The concentration reported may be either or both compounds.
NQ	No standard qualifier code is in use for this qualification. See the associated comment.
PL	This result may be a product of contamination from phthalate plasticizers, which are a common lab contaminant.
SB	The analysis of this sample was performed by an approved subcontract laboratory.

EVENT SUMMARY REPORT

Site: 134 - Piedmont Landfill
 Disposal Facility
 9900 Freeman Road
 Kernersville NC 27284

FNS: 97-10461
 MP: 134973
 Rev / Task: 00 / 01
 Sample Type: LEACHATE
 Reported: 11-FEB-1997

Analyte	Sample Point: Sample Number: Sampled:	134-SUM56P AQ7827 23-JAN-1997	EML RL	TBK-SUM56P AQ7827 23-JAN-1997	EML RL	Units
FIELD DATA:						
DEPTH TO LEACHATE	NA					FT
LEACHATE ELEVATION	NA					FT MSL
PH FIELD	NA					PH UNITS
SAMPLING EQUIPMENT	NA					
SAMPLING MATERIAL	NA					
SPECIFIC CONDUCTANCE FIELD	NA					UMHOS/CM
WATER TEMPERATURE IN DEG. CELSIUS FIELD	NA					DEGREES C
CHEMICAL METHODS & ROBOTICS:						
CYANIDE, TOTAL	ND		0.020			MG/L
INORGANICS:						
ANTIMONY-TOTAL	ND		6.00			UG/L
ARSENIC-TOTAL	ND		10.0			UG/L
BARIUM-TOTAL	992		500.			UG/L
CADMIUM-TOTAL	2.5		1.00			UG/L
CHROMIUM-TOTAL	ND		10.0			UG/L
COPPER-TOTAL	ND		200.			UG/L
LEAD-TOTAL	18.9		10.0			UG/L
MERCURY-TOTAL	ND		0.20			UG/L
NICKEL-TOTAL	ND		50.0			UG/L
SELENIUM-TOTAL	ND		20.0			UG/L
SILVER-TOTAL	ND		10.0			UG/L
THALLIUM-TOTAL	ND		2.00			UG/L
TIN-TOTAL	ND		100.			UG/L
ZINC-TOTAL	133		50.0			UG/L
SUB-CONTRACT DATA:						
2, 4, 5-TRICHLOROPHENOXYACETIC ACID	.57	S				UG/L
2, 4-DICHLOROPHENOXYACETIC ACID	0	S				UG/L
2-(2, 4, 5-TRICHLOROPHENOXY)PROPIONIC ACID	0	S				UG/L
BERYLLIUM-TOTAL	ND	S	2.00			UG/L
COBALT-TOTAL	ND	S	5.00			UG/L
DELTA 0-18 IN WATER	-6.00	S				PER MIL
DELTA C-13 IN WATER	16.76	S				PER MIL
DELTA D IN WATER	-32.0	S				PER MIL
DINOSORB	0	S				UG/L
SULFIDE	ND	S	1.00			MG/L
TRITIUM IN WATER	3259	S	10.0			TU
VANADIUM-TOTAL	ND	S	10.0			UG/L
SEMI-VOLATILE ORGANICS:						
1, 2, 4, 5-TETRACHLOROBENZENE	ND		10.			UG/L
1, 2, 4-TRICHLOROBENZENE	ND		10.			UG/L
1, 2-DICHLOROBENZENE	ND		5.00			UG/L
1, 3-DICHLOROBENZENE	ND		10.			UG/L
1, 3-DINITROBENZENE	ND		10.			UG/L
1, 4-DICHLOROBENZENE	ND		5.00			UG/L

NA = Not Analyzed ND = Not Detected TBK = Trip Blank S = EML Subcontract Data



EVENT SUMMARY REPORT

Site: 134 - Piedmont Landfill
 Disposal Facility
 9900 Freeman Road
 Kernersville NC 27284

ENS: 97-10461
 MP: 134973
 Rev / Task: 00 / 01
 Sample Type: LEACHATE
 Reported: 11-FEB-1997

Analyte	Sample Point: Sample Number: Sampled:	134-SUM56P AQ7827 23-JAN-1997	EML RL	TBK-SUM56P AQ7827 23-JAN-1997	EML RL	Units
1, 4-NAPHTHOQUINONE		ND	10.			UG/L
1-NAPHTHYLAMINE		ND	10.			UG/L
2, 3, 4, 6-TETRACHLOROPHENOL		ND	10.			UG/L
2, 4, 5-TRICHLOROPHENOL		ND	50.			UG/L
2, 4, 6-TRICHLOROPHENOL		ND	10.			UG/L
2, 4-DICHLOROPHENOL		ND	10.			UG/L
2, 4-DIMETHYLPHENOL		ND	50.			UG/L
2, 4-DINITROPHENOL		ND	10.			UG/L
2, 4-DINITROTOLUENE		ND	10.			UG/L
2, 6-DICHLOROPHENOL		ND	10.			UG/L
2, 6-DINITROTOLUENE		ND	10.			UG/L
2-ACETYLAMINOFLUORENE		ND	10.			UG/L
2-CHLORONAPHTHALENE		ND	10.			UG/L
2-CHLOROPHENOL		ND	10.			UG/L
2-METHYLNAPHTHALENE		ND	10.			UG/L
2-METHYLPHENOL		ND	10.			UG/L
2-NAPHTHYLAMINE		ND	50.			UG/L
2-NITROANILINE		ND	10.			UG/L
2-NITROPHENOL		ND	20.			UG/L
3, 3'-DICHLOROBENZIDINE		ND	10.			UG/L
3, 3'-DIMETHYLBENZIDINE		ND	10.			UG/L
3-METHYLCHOLANTHRENE		ND	10.			UG/L
3-METHYLPHENOL		ND	50.			UG/L
3-NITROANILINE		ND	0.1			UG/L
4, 4'-DDD		ND	0.1			UG/L
4, 4'-DDE		ND	0.1			UG/L
4, 4'-DDT		ND	50.			UG/L
4, 6-DINITRO-2-METHYLPHENOL		ND	10.			UG/L
4-AMINOBIPHENYL		ND	10.			UG/L
4-BROMOPHENYL-PHENYL ETHER		ND	10.			UG/L
4-CHLORO-3-METHYLPHENOL		ND	10.			UG/L
4-CHLOROANILINE		ND	10.			UG/L
4-CHLOROPHENYL PHENYL ETHER		ND	10.			UG/L
4-METHYLPHENOL		ND	50.			UG/L
4-NITROANILINE		ND	50.			UG/L
4-NITROPHENOL		ND	10.			UG/L
5-NITRO-O-TOLUIDINE		ND	10.			UG/L
7, 12-DIMETHYLBENZ [A] ANTHRACENE		ND	10.			UG/L
ACENAPHTHENE		ND	0.050			UG/L
ACENAPHTHYLENE		ND	0.050			UG/L
ACETOPHENONE		ND	10.			UG/L
ALDRIN		ND	2.00			UG/L
ALPHA-BHC		ND	2.00			UG/L
ANTHRACENE		ND	2.00			UG/L
AROCLOR 1016		ND	2.00			UG/L
AROCLOR 1221		ND	2.00			UG/L
AROCLOR 1232		ND	2.00			UG/L
AROCLOR 1242		ND	2.00			UG/L

NA = Not Analyzed ND = Not Detected TBK = Trip Blank s = EML Subcontract Data



EVENT SUMMARY REPORT

Site: 134 - Piedmont Landfill
Disposal Facility
9900 Freeman Road
Kernersville NC 27284

ENS: 97-10461
MP: 134973
Rev / Task: 00 / 01
Sample Type: LEACHATE
Reported: 11-FEB-1997

Analyte	Sample Point: Sample Number: Sampled:	134-SUM56P AQ7827 23-JAN-1997	EML RL	TBK-SUM56P AQ7827 23-JAN-1997	EML RL	Units
AROCLOR 1248	ND	2.00			UG/L	
AROCLOR 1254	ND	2.00			UG/L	
AROCLOR 1260	ND	2.00			UG/L	
BENZO[A]PYRENE	ND	10.			UG/L	
BENZO[B]FLUORANTHENE	ND	10.			UG/L	
BENZO[G,H,I]PERYLENE	ND	10.			UG/L	
BENZO[K]FLUORANTHENE	ND	10.			UG/L	
BENZYL ALCOHOL	ND	10.			UG/L	
BENZ[A]ANTHRACENE	ND	10.			UG/L	
BETA-BHC	ND	0.050			UG/L	
BIS(2-CHLOROETHOXY)METHANE	ND	10.			UG/L	
BIS(2-CHLOROETHYL)ETHER	ND	10.			UG/L	
BIS(2-CHLOROISOPROPYL)ETHER	ND	10.			UG/L	
BIS(2-ETHYLHEXYL)PHTHALATE	ND	50.			UG/L	
BUTYLBENZYLPHTHALATE	ND	10.			UG/L	
CLORDANE	ND	0.500			UG/L	
CHLOROBENZILLATE	ND	10.			UG/L	
CHRYSENE	ND	10.			UG/L	
DELTA-BHC	ND	0.05			UG/L	
DI-N-BUTYLPHTHALATE	ND	10.			UG/L	
DI-N-OCTYLPHTHALATE	ND	10.			UG/L	
DIALLATE	ND	10.			UG/L	
DIBENZOFURAN	ND	10.			UG/L	
DIBENZ[A,H]ANTHRACENE	ND	10.			UG/L	
DIELDRIN	ND	0.1			UG/L	
DIETHYLPHTHALATE	ND	10.			UG/L	
DIMETHOATE	ND	10.			UG/L	
DIMETHYLPHTHALATE	ND	10.			UG/L	
DIPHENYLAMINE	ND	10.			UG/L	
DISULFOTON	ND	10.			UG/L	
ENDOSULFAN I	ND	0.100			UG/L	
ENDOSULFAN II	ND	0.1			UG/L	
ENDOSULFAN SULFATE	ND	0.1			UG/L	
ENDRIN	ND	0.1			UG/L	
ETHYL METHANESULFONATE	ND	10.			UG/L	
FAMPHUR	ND	10.			UG/L	
FLUORANTHENE	ND	10.			UG/L	
FLUORENE	ND	10.			UG/L	
HEPTACHLOR	ND	10.			UG/L	
HEPTACHLOR EPOXIDE	ND	0.05			UG/L	
HEXACHLOROBENZENE	ND	0.100			UG/L	
HEXACHLOROBUTADIENE	ND	10.			UG/L	
HEXACHLOROCYCLOPENTADIENE	ND	10.			UG/L	
HEXACHLOROETHANE	ND	50.			UG/L	
HEXACHLOROPROPENE	ND	10.			UG/L	
INDENO[1,2,3-CD]PYRENE	ND	10.			UG/L	
ISODRIN	ND	10.			UG/L	



EVENT SUMMARY REPORT

Site: 134 - Piedmont Landfill
Disposal Facility
9900 Freeman Road
Kernersville NC 27284

ENS: 97-10461
MP: 134973
Rev / Task: 00 / 01
Sample Type: LEACHATE
Reported: 11-FEB-1997

Analyte	Sample Point: Sample Number: Sampled:	134-SUM56P AQ7827 23-JAN-1997	EML RL	TBK-SUM56P AQ7827 23-JAN-1997	EML RL	Units
ISOPHORONE		ND	10.			UG/L
ISOSAFROLE		ND	10.			UG/L
KEPONE		ND	50.			UG/L
LINDANE (GAMMA-BHC)		ND	0.050			UG/L
METHAPYRILENE		ND	1.00			UG/L
METHOXYCHLOR		ND	10.			UG/L
METHYL METHANESULFONATE		ND	10.			UG/L
METHYL PARATHION		ND	10.			UG/L
N-NITROSODI-N-BUTYLAMINE		ND	10.			UG/L
N-NITROSODI-N-PROPYLAMINE		ND	10.			UG/L
N-NITROSODIETHYLAMINE		ND	10.			UG/L
N-NITROSODIMETHYLAMINE		ND	10.			UG/L
N-NITROSODIPHENYLAMINE		ND	10.			UG/L
N-NITROSOMETHYLETHYLAMINE		ND	10.			UG/L
N-NITROSOPIPERIDINE		ND	10.			UG/L
N-NITROSOPYRROLIDINE		ND	10.			UG/L
NAPHTHALENE		ND	10.			UG/L
NITROBENZENE		ND	10.			UG/L
O,O-O-TRIETHYL PHOSPHOROTHIOATE		ND	10.			UG/L
O-TOLUIDINE		ND	10.			UG/L
P-(DIMETHYLAMINO)AZOBENZENE		ND	10.			UG/L
P-PHENYLENEDIAMINE		ND	100			UG/L
PARATHION		ND	10.			UG/L
PENTACHLOROBENZENE		ND	10.			UG/L
PENTACHLORONITROBENZENE		ND	10.			UG/L
PENTACHLOROPHENOL		ND	50.			UG/L
PHENACETIN		ND	10.			UG/L
PHENANTHRENE		ND	10.			UG/L
PHENOL		ND	10.			UG/L
PHORATE		ND	20.			UG/L
PRONAMIDE		ND	10.			UG/L
PYRENE		ND	10.			UG/L
SAFROLE		ND	10.			UG/L
SYM-TRINITROBENZENE		ND	10.			UG/L
THIONAZIN		ND	10.			UG/L
TOXAPHENE		ND	2.00			UG/L
VOLATILE ORGANICS:						
1,1,1,2-TETRACHLOROETHANE		ND	5	ND	5	UG/L
1,1,1-TRICHLOROETHANE		ND	5	ND	5	UG/L
1,1,2,2-TETRACHLOROETHANE		ND	5	ND	5	UG/L
1,1,2-TRICHLOROETHANE		ND	5	ND	5	UG/L
1,1-DICHLOROETHANE		ND	5	ND	5	UG/L
1,1-DICHLOROETHENE		ND	5	ND	5	UG/L
1,1-DICHLOROPROPENE		ND	10.	ND	10.	UG/L
1,2,3-TRICHLOROPROPANE		ND	15.0	ND	15.0	UG/L
1,2-DIBROMO-3-CHLOROPROPANE		ND	25.0	ND	25.0	UG/L
1,2-DIBROMOETHANE		ND	5.00	ND	5.00	UG/L

NA = Not Analyzed ND = Not Detected TBK = Trip Blank s = EML Subcontract Data



EVENT SUMMARY REPORT

Site: 134 - Piedmont Landfill
 Disposal Facility
 9900 Freeman Road
 Kernersville NC 27284

FNS: 97-10461
 MP: 134973
 Rev / Task: 00 / 01
 Sample Type: LEACHATE
 Reported: 11-FEB-1997

Analyte	Sample Point: Sample Number: Sampled:	134-SUM56P AQ7827 23-JAN-1997	EML RL	TBK-SUM56P AQ7827 23-JAN-1997	EML RL	Units
1,2-DICHLOROETHANE		ND	5	ND	5	UG/L
1,2-DICHLOROPROPANE		ND	5	ND	5	UG/L
1,3-DICHLOROPROPANE		ND	10.	ND	10.	UG/L
2,2-DICHLOROPROPANE		ND	10.	ND	10.	UG/L
2-BUTANONE		ND	100.	ND	100.	UG/L
2-CHLORO-1,3-BUTADIENE		ND	5	ND	5	UG/L
2-HEXANONE		ND	50.0	ND	50.0	UG/L
3-CHLOROPROPENE		ND	10.	ND	10.	UG/L
4-METHYL-2-PENTANONE		ND	100.	ND	100.	UG/L
ACETONE	1500	ND	100.	ND	100.	UG/L
ACETONITRILE	ND	ND	200	ND	50.	UG/L
ACROLEIN	ND	ND	100	ND	100	UG/L
ACRYLONITRILE	ND	ND	100	ND	100	UG/L
BENZENE	11	ND	5	ND	5	UG/L
BROMOCHLOROMETHANE	ND	ND	5.00	ND	5.00	UG/L
BROMODICHLOROMETHANE	ND	ND	5	ND	5	UG/L
BROMOFORM	ND	ND	5	ND	5	UG/L
BROMOMETHANE	ND	ND	10.	ND	10.	UG/L
CARBON DISULFIDE	ND	ND	100.	ND	100.	UG/L
CARBON TETRACHLORIDE	ND	ND	10.0	ND	10.0	UG/L
CHLOROETHANE	ND	ND	5	ND	5	UG/L
CHLOROETHENE	63	ND	10.	ND	10.	UG/L
CHLOROFORM	ND	ND	5	ND	5	UG/L
CHLOROMETHANE	ND	ND	10.	ND	10.	UG/L
CIS-1,2-DICHLOROETHENE	ND	ND	5.00	ND	5.00	UG/L
CIS-1,3-DICHLOROPROPENE	ND	ND	10.0	ND	10.0	UG/L
DIBROMOCHLOROMETHANE	ND	ND	5	ND	5	UG/L
DIBROMOMETHANE	ND	ND	10.	ND	10.	UG/L
DICHLORODIFLUOROMETHANE	ND	ND	10.	ND	10.	UG/L
ETHYL METHACRYLATE	ND	ND	10.	ND	10.	UG/L
ETHYLBENZENE	ND	ND	5	ND	5	UG/L
IODOMETHANE	ND	ND	10.	ND	10.	UG/L
ISOBUTYL ALCOHOL	ND	ND	200	ND	50.	UG/L
METHACRYLONITRILE	ND	ND	50.	ND	50.	UG/L
METHYL METHACRYLATE	ND	ND	50.	ND	50.	UG/L
METHYLENE CHLORIDE	ND	ND	10.0	ND	10.0	UG/L
PROPIONITRILE	ND	ND	20.	ND	20.	UG/L
STYRENE	ND	ND	10.0	ND	10.0	UG/L
TETRACHLOROETHENE	ND	ND	5	ND	5	UG/L
TOLUENE	6	ND	5	ND	5	UG/L
TRANS-1,2-DICHLOROETHENE	ND	ND	5.00	ND	5.00	UG/L
TRANS-1,3-DICHLOROPROPENE	ND	ND	5	ND	5	UG/L
TRANS-1,4-DICHLORO-2-BUTENE	ND	ND	100.	ND	100.	UG/L
TRICHLOROETHENE	ND	ND	5	ND	5	UG/L
TRICHLORODIFLUOROMETHANE	ND	ND	5.00	ND	5.00	UG/L
VINYL ACETATE	ND	ND	50.0	ND	50.0	UG/L
VINYL CHLORIDE	ND	ND	10.	ND	10.	UG/L
XYLENE (TOTAL)	68	ND	9.60	ND	5.00	UG/L

WMX

Subcontract To: _____
Technology Center, Inc.

AquaPak™ PREP # 502
AquaPak™ # _____
Date Sealed 9/7/97
Seal # 112484

FIELD CHAIN-OF-CUSTODY RECORD

SITE/FACILITY # 11341 SITE NAME Piedmont Landfill

Sample Point: C5UM56P
Source Code

WMX TECHNOLOGY CENTER, INC.
SAMPLE POINT LABEL
Sample Team: Attach this label to CC form when sampling begins at the Sample Point specified.

SAMPLE DATE: 970123



SAMPLE TIME: 14:30 MATRIX CODE: C

Water Soil (W) (S) Leachate Other (X)

Source Codes
Well, Dewatering Pressure Relief, Surface Water Impoundment, Leachate System, Gas Condensate, Air, Pretreatment Facility, Influent, Effluent, River Stream Brook, Lake or Ocean, Outfall, Soil, Bottom Sediment, Noise, Generation Pt, Other, Spec N

ENS # *97-10461 AquaPak™ CONTENT 14 Day TAT

SAMPLE I.D.	# OF BOTTLES	BOTTLE TYPE	PRESERVATIVE TYPE	ANALYTES/LAB GROUPS	FILTER Y-N	FIELD COMMENTS	E.M.L. COMMENTS
AQ7827-A ✓	01	P	NaOH 4C	CRCNMANL01	Y N	EML	ASC KIT
AQ7827-B ✓	01	P	HNO3	IN 14 METHODS	Y N	EML	
AQ7827-C II ✓	02	G	NONE 4C	SVGC1PTP06	Y N	EML	
AQ7827-D II ✓	02	G	NONE 4C	SVMSLDX917	Y N	EML	
AQ7827-E III ✓	03	G	HCL 4C	VOMSBAD508	Y N	EML	
AQ7827-F ✓	01	P	NONE	SBTRITBCRN	Y N	ISOTECH	
AQ7827-G ✓	01	P	NONE	SBH20ISTPS	Y N	ISOTECH	
AQ7827-H ✓	01	P	HNO3	SB 02 METHODS	Y N	SAVANNAH G	
AQ7827-I II ✓	02	G	NONE 4C	SBGCXHRB05	Y N	SAVANNAH G	
AQ7827-J ✓	01	P	ZnAc/NaOH	SBSULFIDE1	Y N	SAVANNAH G	
AQ7827-K	01	G	HCL 4C	VOMSBAD508	Y N	EML ABX RQ 26mm TBK	1/24/97
					Y N		
					Y N		
					Y N		
					Y N		
					Y N		
					Y N		

Trip Blank has pea size bubble (827-K)

CHAIN OF CUSTODY CHRONICLE

1. AquaPak™ Opened By: (print) EDWARD GIBSON Date: 1/20/97 Time: 14:00
Signature: [Signature] Seal #: 112484 Intact: Yes
2400 HR

I have received these materials in good condition from the above person.
2. Name: _____ Signature: _____
Date: 1/1/97 Time: _____: _____
2400 HR. Remarks: _____

I have received these materials in good condition from the above person.
3. Name: _____ Signature: _____
Date: _____ Time: _____: _____
2400 HR. Remarks: _____

4. AquaPak™ Sub Contr # APO502 Sealed By: ED GIBSON Date: 1/23/97 Time: 16:30
Signature: [Signature] Seal #: 116220 Intact: Yes
2400 HR

LAB USE ONLY
Opened By: [Signature] Date: 1/24/97 Time: 10:44
2400 HR
AquaPak™ Sub Contr # 502 Temp °C 3 Seal # 116220 Intact: Y

ISOTOPE ANALYSIS FOR MW-1, MW-6, MW-9
with Field Forms and chain of custody forms



DATA QUALITY REPORT

Site: 134 - Fleckent Landfill

ENS: 97-10459

Report Date: 11/11/97

Sample Pt.	Sample Date	Analyte	Method	Comment	Additional Comments Explanations (NQ/DI)
MW01	22-JAN-1997	CYANIDE, TOTAL	CRCNTLX01 NQ		Due to interferences, results were determined via manual distillation by EPA method 335.2; analysis by EPA method 335.3.
MW01	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SVGC1FIP06 SU		
MW01	22-JAN-1997	3-METHYLPHENOL	SVMSLDX917 MP		
MW01	22-JAN-1997	4-METHYLPHENOL	SVMSLDX917 MP		
MW01	22-JAN-1997	BIS(2-ETHYLHEXYL) PHTHALATE	SVMSLDX917 PL		
MW01	22-JAN-1997	DIPHENYLAMINE	SVMSLDX917 NN		
MW01	22-JAN-1997	HEXACHLOROETHANE	SVMSLDX917 NN		
MW01	22-JAN-1997	N-NITROSODIPHENYLAMINE	VOMSRAD508 NQ		Analyzed by approved screen methodology per EPA Method 624 or analysis quantitatively per SW-846 methods.
MW01	22-JAN-1997	ACROLEIN	VOMSRAD508 NQ		Analyzed by approved screen methodology per EPA Method 624 or analysis quantitatively per SW-846 methods.
MW01	22-JAN-1997	ACRYLONITRILE	VOMSRAD508 NQ		ISOTECH
MW01	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBTRITSCRN SB, NQ		RESULT IS +/- 3.1 TU.
MW01	22-JAN-1997	TRITIUM IN WATER	SBTRITSCRN SB, NQ		ISOTECH
MW01	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBH2OISTPS SB, NQ		SAVANNAH
MW01	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBGFAATOBE SB, NQ		SAVANNAH
MW01	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBGFAATONC SB, NQ		SAVANNAH
MW01	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBGCXHRB05 SB, NQ		SAVANNAH
MW01	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBSULFIDE1 SB, NQ		SAVANNAH
MW06	22-JAN-1997	CYANIDE, TOTAL	CRCNTLX01 NQ		Due to interferences, results were determined via manual distillation by EPA method 335.2; analysis by EPA method 335.3.
MW06	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SVGC1FIP06 SU		
MW06	22-JAN-1997	3-METHYLPHENOL	SVMSLDX917 MP		
MW06	22-JAN-1997	4-METHYLPHENOL	SVMSLDX917 MP		
MW06	22-JAN-1997	BIS(2-ETHYLHEXYL) PHTHALATE	SVMSLDX917 PL		
MW06	22-JAN-1997	DIPHENYLAMINE	SVMSLDX917 NN		
MW06	22-JAN-1997	HEXACHLOROETHANE	SVMSLDX917 NN		
MW06	22-JAN-1997	N-NITROSODIPHENYLAMINE	SVMSLDX917 NN		
MW06	22-JAN-1997	ACROLEIN	VOMSRAD508 NQ		Analyzed by approved screen methodology per EPA Method 624 or analysis quantitatively per SW-846 methods.
MW06	22-JAN-1997	ACRYLONITRILE	VOMSRAD508 NQ		ISOTECH
MW06	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBTRITSCRN SB, NQ		RESULT IS +/- 3.10 TU.
MW06	22-JAN-1997	TRITIUM IN WATER	SBTRITSCRN SB, NQ		ISOTECH
MW06	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBH2OISTPS SB, NQ		SAVANNAH
MW06	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBGFAATOBE SB, NQ		SAVANNAH
MW06	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBGFAATONC SB, NQ		SAVANNAH
MW06	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SBGCXHRB05 SB, NQ		SAVANNAH
MW09	22-JAN-1997	CYANIDE, TOTAL	CRCNTLX01 NQ		Due to interferences, results were determined via manual distillation by EPA method 335.2; analysis by EPA method 335.3.
MW09	22-JAN-1997	EVERY ANALYTE FOR THIS METHOD	SVGC1FIP06 SU		
MW09	22-JAN-1997	3-METHYLPHENOL	SVMSLDX917 MP		
MW09	22-JAN-1997	4-METHYLPHENOL	SVMSLDX917 MP		
MW09	22-JAN-1997	BIS(2-ETHYLHEXYL) PHTHALATE	SVMSLDX917 PL		
MW09	22-JAN-1997	DIPHENYLAMINE	SVMSLDX917 NN		
MW09	22-JAN-1997	HEXACHLOROETHANE	SVMSLDX917 NN		
MW09	22-JAN-1997	N-NITROSODIPHENYLAMINE	SVMSLDX917 NN		
MW09	22-JAN-1997	ACROLEIN	VOMSRAD508 NQ		Analyzed by approved screen methodology per EPA Method 624 or analysis quantitatively per SW-846 methods.
MW09	22-JAN-1997	ACRYLONITRILE	VOMSRAD508 NQ		ISOTECH



NOVA ENVIRONMENTAL

DATA QUALIFIER REPORT

ENS: 97-10459

Site: 134 (Leachment Landfill)

Report Date: 11-11-88

Data Qualifier Comment Code Definition

Code:

MP	2-methylphenol and 4-methylphenol co-elute under the analytical conditions of the method, and cannot be differentiated solely on the basis of their mass spectra. The concentrations reported may be either or both isomers.
NN	N-nitrosodiphenylamine cannot be distinguished from diphenylamine using gas chromatography. The concentration reported may be either or both compounds.
NQ	No standard qualifier code is in use for this qualification. See the associated comment.
PL	This result may be a product of contamination from phthalate plasticizers, which are a common lab contaminant.
SB	The analysis of this sample was performed by an approved subcontract laboratory.
SU	The analysis of the surrogate with this sample did not meet the acceptance criteria of the method.



MAX FLOLO...NTB...NC.

EVENT SUMMARY REPORT

Site: 134 - Piedmont Landfill
Disposal Facility
9900 Freeman Road
Kernersville NC 27284

ENS: 97-10459
MP: 134971
Rev / Task: 00 / 03
Sample Type: WELL
Reported: 11-FEB-1997

Analyte	Sample Point: Sample Number: Sampled:	134-MW01 AQ7823 22-JAN-1997	EML RL	134-MW06 AQ7822 22-JAN-1997	EML RL	134-MW09 AQ7821 22-JAN-1997	EML RL	Units
TRITIUM IN WATER		10.0	10.0	ND	10.0	58.7	10.0	TU
VANADIUM-TOTAL		ND	10.0	ND	10.0	ND	10.0	UG/L
SEMI-VOLATILE ORGANICS:								
1, 2, 4, 5-TETRACHLOROBENZENE		ND	10.	ND	10.	ND	10.	UG/L
1, 2, 4-TRICHLOROBENZENE		ND	10.	ND	10.	ND	10.	UG/L
1, 2-DICHLOROBENZENE		ND	5.00	ND	5.00	ND	5.00	UG/L
1, 3-DICHLOROBENZENE		ND	10.	ND	10.	ND	10.	UG/L
1, 3-DINITROBENZENE		ND	10.	ND	10.	ND	10.	UG/L
1, 4-DICHLOROBENZENE		ND	5.00	ND	5.00	ND	5.00	UG/L
1, 4-NAPHTHOQUINONE		ND	10.	ND	10.	ND	10.	UG/L
1-NAPHTHYLAMINE		ND	10.	ND	10.	ND	10.	UG/L
2, 3, 4, 6-TETRACHLOROPHENOL		ND	10.	ND	10.	ND	10.	UG/L
2, 4, 5-TRICHLOROPHENOL		ND	10.	ND	10.	ND	10.	UG/L
2, 4, 6-TRICHLOROPHENOL		ND	50.	ND	50.	ND	50.	UG/L
2, 4-DICHLOROPHENOL		ND	10.	ND	10.	ND	10.	UG/L
2, 4-DIMETHYLPHENOL		ND	10.	ND	10.	ND	10.	UG/L
2, 4-DINITROPHENOL		ND	50.	ND	50.	ND	50.	UG/L
2, 4-DINITROTOLUENE		ND	10.	ND	10.	ND	10.	UG/L
2, 6-DICHLOROPHENOL		ND	10.	ND	10.	ND	10.	UG/L
2, 6-DINITROTOLUENE		ND	10.	ND	10.	ND	10.	UG/L
2-ACETYLAMINOFLORENE		ND	10.	ND	10.	ND	10.	UG/L
2-CHLORONAPHTHALENE		ND	10.	ND	10.	ND	10.	UG/L
2-CHLOROPHENOL		ND	10.	ND	10.	ND	10.	UG/L
2-METHYLNAPHTHALENE		ND	10.	ND	10.	ND	10.	UG/L
2-METHYLPHENOL		ND	10.	ND	10.	ND	10.	UG/L
2-NAPHTHYLAMINE		ND	10.	ND	10.	ND	10.	UG/L
2-NITROANILINE		ND	50.	ND	50.	ND	50.	UG/L
2-NITROPHENOL		ND	10.	ND	10.	ND	10.	UG/L
3, 3'-DICHLOROBENZIDINE		ND	20.	ND	20.	ND	20.	UG/L
3, 3'-DIMETHYLBENZIDINE		ND	10.	ND	10.	ND	10.	UG/L
3-METHYCHOLANTHRENE		ND	10.	ND	10.	ND	10.	UG/L
3-METHYLPHENOL		ND	10.	ND	10.	ND	10.	UG/L
3-NITROANILINE		ND	50.	ND	50.	ND	50.	UG/L
4, 4'-DDD		ND	0.1	ND	0.1	ND	0.1	UG/L
4, 4'-DDE		ND	0.1	ND	0.1	ND	0.1	UG/L
4, 4'-DDT		ND	0.1	ND	0.1	ND	0.1	UG/L
4, 6-DINITRO-2-METHYLPHENOL		ND	50.	ND	50.	ND	50.	UG/L
4-AMINOBIIPHENYL		ND	10.	ND	10.	ND	10.	UG/L
4-BROMOPHENYL-PHENYL ETHER		ND	10.	ND	10.	ND	10.	UG/L
4-CHLORO-3-METHYLPHENOL		ND	10.	ND	10.	ND	10.	UG/L
4-CHLOROANILINE		ND	10.	ND	10.	ND	10.	UG/L
4-CHLOROPHENYL PHENYL ETHER		ND	10.	ND	10.	ND	10.	UG/L
4-METHYLPHENOL		ND	10.	ND	10.	ND	10.	UG/L
4-NITROANILINE		ND	50.	ND	50.	ND	50.	UG/L
4-NITROPHENOL		ND	50.	ND	50.	ND	50.	UG/L
5-NITRO-O-TOLUIDINE		ND	10.	ND	10.	ND	10.	UG/L
7, 12-DIMETHYLBENZ[A]ANTHRACENE		ND	10.	ND	10.	ND	10.	UG/L

NA = Not Analyzed ND = Not Detected TBK = Trip Blank s = EML Subcontract Data

APPENDIX D

**Temporary Monitoring Well
Construction Summaries**

-End of Booklet-

34-06

Piedmont Landfill and Recycling Center

April, 1997

**Piedmont Landfill
and Recycling Center**
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735



A Waste Management Company

April 3, 1997

Ms. Sherri Coghill
North Carolina Dept. of Environment, Health, and Natural Resources
Division of Waste Management (DWM)
401 Oberlin Road
Raleigh, NC 27611

Re: Closure/Post Closure (C/PC) Submittal Requirements; Piedmont Landfill & Recycling Center (PLFRC), Kernersville, NC

Dear Ms. Coghill:

As required by 15A NCAC 13B .1628 (a) (5), the PLFRC hereby submits three (3) copies of the PLFRC's 1997 C/PC cost estimates and evidence of financial assurance, for your records.

As you will see, the *closure* cost estimate has been *decreased* due to the fact we have recently constructed 24 acres of the final cover. On the other hand, the *post closure* cost estimate has been *increased* due to the addition of the gas control system.

If you have any questions, feel free to contact either Ed Gibson or myself @ (910) 595-6677.

Sincerely,

William R. Lewis, P.E.
Division President & General Manager



cc: Ed Gibson
Operating Record

COST ASSUMPTIONS FOR CLOSURE/POST CLOSURE ESTIMATES FOR: 1997

Site Name: Piedmont Landfill & Recycling Ctr
Site Location: Kernersville, NC
Division President: William Lewis, P.E.
Prepared By: William Lewis, Ed Gibson
Date Prepared: Apr-97

Projected Closure Date: 2000
Area Requiring Closure, acres: 68
Area closed as of 3/31/97, acres: 24
Remaining Area to be Closed, acres: 44
Period of Post Closure Care, Years: 30
Basis for PC Period: North Carolina Solid Waste Regulations

CLOSURE

All final cover costs are based upon actual construction costs incurred when constructing the first phase of final cover in 1996-7, totalling 24 acres.
See attached FIGURE 1 for details.

COST TO CONSTRUCT PER ACRE, Total:	\$129,792
REMAINING AREA TO CONSTRUCT:	44
REMAINING CONSTRUCTION COSTS:	\$5,710,848



POST CLOSURE:

Sediment Ponds Currently Permitted: 3

of G/W Mon Wells Currently Permitted: 15
Capital Cost per G/W Well: \$8,500

of Gas Probes Currently Constructed 10
Capital Cost per Gas Probe: \$1,500

Leachate Sumps Currently Permitted: 8
Leachate Pump Capital Cost: \$7,500
Capital - Leachate Tank #1: \$7,000
Capital - Leachate Tank #2: \$7,000
Capital - Leachate Tank #3: \$7,000
Capital - Leachate Tank #4: \$7,000
Capital - Leachate Tank #5: \$7,000
Misc Capital - Leachate System:

Capital in Gas Mgmt System to date:	\$506,000	
G/W Monitoring cost per well per event:	\$1,200	
Freq. Events/Year, First 10 yr:	2	
Surface Mon Points currently Permitted:	5	
Surf Water Mon Cost per point per event:	\$900	
Freq. Events/Year, First 10 yr:	2	
Landfill Gas Mon. Cost per Event:	\$600	(2 men @ \$35 each; 8 hrs/event, \$50 expenses)
Annual Leachate Mon. Cost:	\$3,000	
Synthetic Cap Acres:	68	
Leachate from other areas (gal):	0	
Cost per gal to Haul Leachate:	\$0.0200	(Present cost)
Cost per gal to Treat Leachate:	\$0.0470	(Present cost)

FIGURE 1

FOR CLOSURE COST ESTIMATE ONLY

31-Mar-97

Phase 1 Closure Costs for the Piedmont Landfill & Recycling Center

Size of Phase 1 Area, acres: **24**

ITEM	BUDGET
CONSTRUCTION PLANS/SPECIFICATIONS	\$ 25,000
<i>CONSTRUCTION PLANS/SPECS TOTAL:</i>	<i>\$25,000</i>
CONSTRUCTION MANAGEMENT	\$45,000
<i>CONSTRUCTION MANAGEMENT TOTAL:</i>	<i>\$45,000</i>
EARTHWORK MOBILIZATION	\$35,000
EARTHWORK QUALITY ASSURANCE	\$25,000
EARTHWORK CONSTRUCTION STAKING	\$21,000
EARTHWORK PROJECT ADMINISTRATION	\$6,400
EARTHWORK EROSION CONTROL	\$35,000
EARTHWORK FERTILIZATION AND SEEDING	\$56,000
COVER SOIL	\$226,900
PROTECTIVE VEGETATIVE SOIL	\$228,300
PROTECTIVE PLYWOOD	\$19,400
EARTHWORK CUT	\$89,000
EXCAVATE AND BACKFILL ANCHOR TRENCH	\$27,000
<i>EARTHWORK TOTAL:</i>	<i>\$769,000</i>
RUST CQA	\$100,000
<i>CQA TOTAL:</i>	<i>\$100,000</i>
40 MIL COVERSEAL	\$415,000
TEXNET GEOCOMPOSITE	\$ 660,000
BENTOFIX	\$ 545,000
GEOSYNTHETICS TAX, FREIGHT, STANDBY, OTHER	\$ 150,000
<i>GEOSYNTHETICS TOTAL:</i>	<i>\$1,770,000</i>
GAS CONTROL SYSTEM (excl flare)	\$ 406,000
<i>GAS CONTROL SYSTEM TOTAL:</i>	<i>\$ 406,000</i>
GRAND TOTAL:	\$3,115,000
Per acre Cost:	\$129,792

Note: All geosynthetic prices include material and installation

WMI LANDFILL CLOSURE COST ESTIMATE SUMMARY

SITE: Piedmont Landfill & Recycling Ctr
LOCATION Kernersville, NC
DIV. PRES: William Lewis, P.E.
PREPARED BY: William Lewis, Ed Gibson DATE: Mar-97

FINAL COVER PROFILE:

Cohesive Soil Thickness (in): 10
Geomembrane: 40 mil COVERSEAL
Geosynthetic Clay Liner: Bentofix
Drainage Layer: Texnet
Protective Soil Thickness (in): 24

I. CLOSURE DATA

PROJECTED CLOSURE DATE: 2000
AREA REQUIRING CLOSURE: 68 ACRES
AREA CLOSED AS OF 3/31/97: 24 ACRES
AREA REMAINING TO BE CLOSED: 44 ACRES

II. CLOSURE COSTS

SEE ATTACHED **FIGURE 1**

WMI LANDFILL POST-CLOSURE COST ESTIMATE SUMMARY

TERM = 30 YEARS

Site: Piedmont Landfill & Recycling Ctr
Location: Kernersville, NC
Div. Pres.: William Lewis, P.E.
Prepared By: William Lewis, Ed Gibson Date: 4/1/97

I. CLOSURE DATA

Date of Closure: 2000
Period of Post-Closure Care: 30 YEARS
Basis for Period: North Carolina Solid Waste Regulations

II. MAINTENANCE COSTS

Security, Fencing, Gates, Signs, Access, Etc.	<u>\$15,000</u>
Erosion Repair, Settlement Repair, Revegetation	<u>\$95,000</u>
Surface Water Control Maintenance	<u>\$90,000</u>
Monitoring System Maintenance, Repair, Replacement	<u>\$213,750</u>
Leachate Collection System Maintenance, Repair, Replacement	<u>\$28,500</u>
Gas Control System Maintenance, Repair, Replacement	<u>\$303,600</u>

III. MONITORING COSTS

Groundwater & Surface Water	<u>\$1,350,000</u>
Landfill Gas	<u>\$36,000</u>
Air Quality	<u>\$0</u>
Leachate Analysis	<u>\$90,000</u>
Inspection Costs	<u>\$20,000</u>

WMI LANDFILL POST-CLOSURE COST ESTIMATE SUMMARY
Piedmont Landfill & Recycling Ctr
Page 2

IV. ENVIRONMENTAL PROTECTION COSTS

Leachate Management	<u>\$463,899</u>
Gas Control	<u>\$0</u>
Surface Water Management	<u>\$0</u>
Groundwater Management	<u>\$0</u>

V. EXCEPTIONAL ITEMS

\$40,000

TOTAL:

\$2,745,749

TERM (YEARS): 30

II - MAINTENANCE COSTS

SECURITY, FENCING, ETC:

Estimated cost per year	\$500	x TERM=	\$15,000
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EROSION, SETTLEMENT REPAIR & REVEGETATION,(Includes Vegetative Maintenance Progra

\$10,000/yr for 1st 5 years			
\$5,000/yr for 2nd 5 years			
\$1,000/yr for last 20 years			
		TOTAL	\$95,000

SURFACE WATER CONTROL MAINTENANCE:

Number of Ponds at Closure, (Currently Permitted only):		3	
Events in Term @ 1 per 5 years:		6	
Cost per Pond per Event: 50 Hours per Pond @ \$100:		\$5,000	
# of Ponds x Events x Cost:			\$90,000

MONITORING SYSTEM MAINT., REPAIR, REPLACEMENT:

# of GW Wells Curr. Permitted:		15	
Capital Investment/Well:	\$8,500	\$127,500	
# Gas Probes Curr. Permitted:		10	
Capital Investment/Probe:	\$1,500	\$15,000	
Total Capital, GW Wells & Probes:		\$142,500	
5% of Capital Per Year:		\$7,125	x TERM=
			\$213,750

LEACHATE COLLECTION SYSTEM MAINT, REPAIR, REPLACEMENT:

Leachate Sumps Permitted:	8		
Capital per pump (sump):	\$7,500		
Pump Capital:		\$60,000	
Leachate Tanks in Place:			
Capital - Leachate Tank #1:	\$7,000		
Capital - Leachate Tank #2:	\$7,000		
Capital - Leachate Tank #3:	\$7,000		
Capital - Leachate Tank #4:	\$7,000		
Capital - Leachate Tank #5:	\$7,000		
Tank Capital:	>>>>>>	\$35,000	
Misc Capital:		\$0	
TOTAL SYSTEM CAPITAL:		\$95,000	
1% of Capital:		\$950	x TERM= \$28,500

GAS CONTROL SYSTEM MAINT, REPAIR, REPLACEMENT:

Capital - Recovery Plant:	Assume Recovery Plants are self-supporting		
Capital - Mgmt System:		\$0	
Total Capital		\$506,000	
2% of Capital:		\$10,120	x TERM= \$303,600

III. MONITORING COST

GROUNDWATER & SURFACE WATER:

# of GW Wells Currently Permitted:	15
Cost per Well per Event:	\$1,200
Total Cost per Event:	\$18,000

Freq. Events/Year:	2
Events in 30 Years:	60

TOTAL EVENTS: 60

Total Events x Cost per Event: \$1,080,000

of Surf. Points Curr. Permitted: 5

Cost per Point per Event: \$900
Total Cost per Event: \$4,500

Freq. Events/Year: 2
Events in 30 Years: 60

TOTAL EVENTS: 60

Total Events x Cost per Event: \$270,000

TOTAL COST - GROUNDWATER & SURFACE WATER: \$1,350,000

LANDFILL GAS:

Cost per Event: \$600
Total Events in Term (same as G/W): 60 \$36,000

AIR QUALITY:

Not Required at Present \$0

LEACHATE ANALYSIS:

Annual Leachate Mon. Cost: \$3,000
Term 30
Cost x Term: \$90,000

INSPECTION COSTS

Freq. Events/Year, First 5 yrs: 4
Total evts, 1st 5 yrs: 20
Freq. Events/yr in Next 5 Years: 2
Total evts, 2nd 5 yrs: 10
Freq Events/yr for Remainder of Term: 1
Total evts, Remainder of Term: 20
TOTAL EVTS: 50
Labor/event: 1 Man @ \$50/hr, 8 hr inspection time: \$400

Total Inspection costs: \$20,000

IV. ENVIRONMENTAL PROTECTION COSTS

LEACHATE MANAGEMENT:

LEACHATE PRODUCTION RATES:

Clay Cap:	1 in/ac/yr	27,152.4 gal/ac/yr
Synthetic Cap:	0.125 in/ac/yr	3,394.1 gal/ac/yr

AREAS OF LANDFILL:

Synthetic Cap:	68 acres	230,795.4 gal/yr
Other Sources:	0	0.0 gal/yr
Totals:	68	230,795.4 gal/yr

Cost to haul:	\$0.0200 per gal
Cost to treat:	\$0.0470 per gal
Total:	\$0.0670 per gal

LEACHATE COST PER YEAR:	\$15,463	
LEACHATE COST FOR TERM:		\$463,899

V. EXCEPTIONAL ITEMS

POST CLOSURE CERTIFICATION: (includes deed notation), estimate	\$40,000
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TOTAL POST CLOSURE ESTIMATE:	\$2,745,749
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VIA FEDERAL EXPRESS



TO: Ed Gibson, PIEDMONT LRC, NORTH CAROLINA

FROM: Rosemary Kerrigan, WMI RISK MANAGEMENT *RK*

DATE: March 28, 1997

SUBJECT: Policy: CPCS94-0010, Endorsement #4
Site: PIEDMONT LANDFILL AND RECYCLING CENTER
For: \$8,456,597 Closure/Post-Closure
Term: 04/09/97 to 04/09/98
Prem: \$33,826.39
CO/PC: 740 740
GLA: 130-00

Attached are two Certified True and Correct Copies of Endorsement #4 decreasing financial assurance coverage as requested and extending the policy from 04/09/97 to 04/09/98. **The endorsement should be attached to the policy and become a part of it.** Two Copies are provided so that one Copy is available for sending to the State, if required. Please ensure that complete policy records are on file.

Also attached is an updated Certificate of Insurance reflecting revised policy limits. **The Certificate should be forwarded to the NORTH CAROLINA DEHNR as evidence of the revised coverage.** Photocopies for your records are included.

Premium will be charged to the CO/PC/GLA as noted.

If there are questions, contact me at 630/572-3025.

Attachment

cc: Mike Durham, WINSTON-SALEM, NC
Bill Lewis
John Toomey, OAK BROOK, IL, w/attachment

NATIONAL GUARANTY INSURANCE COMPANY
7 Burlington Square, 6th Floor
Burlington, VT 05401

Certified True & Correct Copy

adp 3/26/97

ENDORSEMENT

ENDORSEMENT #:

4

NAME OF INSURED:

Piedmont Landfill and Recycling Center,
A Division of Waste Management of Carolinas, Inc.

ADDRESS OF INSURED:

9900 Freeman Road, P.O. Box 1109 (27285)
Kernersville, North Carolina 27284

POLICY NO.:

CPCS94-0010

DATE OF ENDORSEMENT:

03/26/97

Effective 04/09/97, it is hereby understood and agreed that this policy's Closure Coverage amount is decreased from \$7,760,889.00 to \$5,710,848.00. Also, this policy's Post-Closure Coverage amount is increased from \$2,442,149.00 to \$2,745,749.00.

Additionally, this policy is extended from 04/09/97 to 04/09/98.

The premium amount charged for this renewal period is \$33,826.39. The premium tax amount charged on this premium is \$1,691.32.

All other terms and conditions remain unchanged.

Suzan D. Prescott
Authorized Representative

3/26/97
Date

This policy is issued pursuant to state surplus lines insurance law. This insurance is placed with an insurer not licensed, recognized, or admitted to write insurance by any state (with the exception of VERMONT where the company is admitted). The insurer is not under the jurisdiction of, or subject to supervision, regulation, or examination by the states. In case of dispute concerning the terms or conditions of this policy, or practices of the insurer, the states will be unable to assist the insured. In case of insolvency, payment of claims is not guaranteed and you will not be protected by any state guarantee funds (except in New Jersey).

NATIONAL GUARANTY INSURANCE COMPANY
7 Burlington Square, 6th Floor
Burlington, VT 05401

Certified True & Correct Copy

adp 3/26/97

ENDORSEMENT

ENDORSEMENT #: 4

NAME OF INSURED: Piedmont Landfill and Recycling Center,
A Division of Waste Management of Carolinas, Inc.

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Kernersville, North Carolina 27284

POLICY NO.: CPCS94-0010

DATE OF ENDORSEMENT: 03/26/97

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Additionally, this policy is extended from 04/09/97 to 04/09/98.

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All other terms and conditions remain unchanged.

Susan D. Prescott
Authorized Representative

3/26/97
Date

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NATIONAL GUARANTY INSURANCE COMPANY

7 BURLINGTON SQUARE, 6th FLOOR • BURLINGTON, VT 05401 • 1-800-876-6442

CERTIFICATE OF INSURANCE

CLOSURE AND POST-CLOSURE

Name and Address of Insurer (herein called the "Insurer"):

NATIONAL GUARANTY INSURANCE COMPANY

7 Burlington Square, 6th Floor, P.O. Box 530, Burlington, VT 05402-0530

Name and Address of Insured (herein called the "Insured"):

PIEDMONT LANDFILL AND RECYCLING CENTER, A DIVISION OF WASTE MANAGEMENT OF

CAROLINAS, INC., 9900 Freeman Road, Kernersville, North Carolina 27284

Facilities Covered:

SWS Permit Number: 34-06
Name: PIEDMONT LANDFILL AND RECYCLING CENTER
Address: 9900 Freeman Road, P.O. Box 1109 (27285)
Kernersville, North Carolina 27284
Closure: A. \$5,710,848.00
Post-Closure: B. \$2,745,749.00
Policy Face Amount: \$8,456,597.00
Policy Number: CPCS94-0010
Effective Date: April 9, 1994

The Insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance for closure and post-closure care for the facilities identified above.

The Insurer further warrants that such policy conforms in all respects with the requirements of Paragraph (e)(1) of this Rule, as applicable and as such regulations were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

Whenever requested by the North Carolina Division of Solid Waste Management (Division), the Insurer agrees to furnish to the Division a duplicate original of the policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in Paragraph (e)(2)(E) of this Rule as was constituted on the date shown immediately below.

John M. Toomey
Authorized signature for Insurer
John M. Toomey

April 9, 1997
Date
Vice President

Name of person signing

Title of person signing

Rosemary Kerrigan
Witness or Notary
Rosemary Kerrigan

NATIONAL GUARANTY INSURANCE COMPANY

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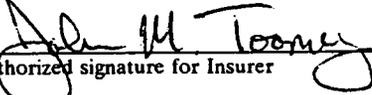
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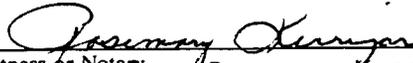
John M. Toomey

Name of person signing

April 9, 1997
Date

Vice President

Title of person signing


Witness or Notary

Rosemary Kerrigan

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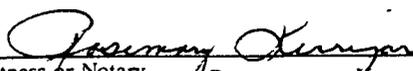
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April 9, 1997
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Title of person signing


Witness or Notary
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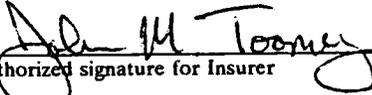
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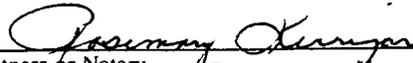
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Authorized signature for Insurer
John M. Toomey

April 9, 1997
Date
Vice President

Name of person signing

Title of person signing

Rosemary Kerrigan
Witness or Notary
Rosemary Kerrigan

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director



March 27, 1997

Mr. Edward L. Gibson, P.E.
Site Engineer
Piedmont Landfill and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284

Re: Modification to Permit No. 34-06
Use of Tire Chips as Protective Layer
Piedmont Landfill and Recycling Center

Dear Mr. Gibson:

The Solid Waste Section hereby approves your request of March 3, 1997, to use tire chips as an alternative to earthen material as the protective layer. One foot of washed river sand shall be maintained as a drainage layer below the tire chip protective layer. This letter will be added to the list of approved documents for the approved plan.

If you have any questions, please contact me at (919) 733-0692.

Sincerely,

James C. Coffey, Supervisor
Permitting Branch
Solid Waste Section

cc: Julian Foscue
Wayne Greene
Brent Rockett

Piedmont Landfill
and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735



A Waste Management Company

March 3, 1997

Ms. Sherri Coghill
North Carolina Dept of Environment, Health, and Natural Resources
Solid Waste Section (SWS)
401 Oberlin Road
Raleigh, NC 27611

Re: Request for Minor Design Modification: Use of Tire Chips as an Option in the Leachate Protective Layer, Piedmont Landfill & Recycling Center (PLFRC), Kernersville, NC

Dear Ms. Coghill:

Please consider this as a request for a minor design modification for the PLFRC. This request is for the use of tire chips in the *protective* layer that lies above the leachate collection system.

EXISTING, PERMITTED DESIGN

As shown in Note 2, Sheet 9 of the NCDEHNR permitted design plans by RUST E & I, Inc. (November, 1993), it was specified that earthen materials would be used in the protective layer. In the past, this material has been washed, river sand.

REQUESTED ALTERNATIVE DESIGN

The PLFRC requests to use tire chips as an alternative or option to this earthen material. We used tire chips in the past when we constructed the Phase II, Modules 1,2,3 (partial) protective layer and would like to continue this practice. It appears, however, that when we revised the plans in 1993-4 for the renewed permit, we had failed to include tire chips as an option.

Please let us know your decision concerning this matter as soon as possible. Thanks!

If you have any questions, feel free to contact either myself or Bill Lewis @ (910) 595-6677.

Sincerely,

Edward L. Gibson, P.E.
Site Engineer

cc: William R. Lewis

EcoLogic Associates, P.C.

2007 Yanceyville St., Suite 223
Greensboro, NC 27405-5004
(910)271-3093 Fax (910)271-3094
e-mail: 103417.427@compuserve.com

Sherrri
CF
34-04

February 26, 1997

Ms. Sherri Coghill
Solid Waste Section, DWM, DEHNR
P.O. Box 27687
Raleigh, NC 27611-7687

RE: Leachate Recirculation - Piedmont Landfill & Recycling Center

Dear Sherri:

EcoLogic Associates, P.C. is under contract with Piedmont Landfill & Recycling Center of Kernersville, NC to monitor and report on the progress of the leachate recirculation trial being conducted in Phase 3, Cell 2, Subcell 1. The purpose of this letter is to update you on the status of the recirculation trial, report a successful first 60 days, and formally request an extension to the trial period to accommodate unexpected down time for pump replacement.

The 120-day trial began on October 29, 1996. Leachate was last recirculated on December 16, 1996. Further attempts to recirculate leachate were unsuccessful due to insufficient pump capacity as a result of raising the distribution manhole with the fill. The trial has thus been suspended pending installation of a larger pump. The first 60 days of the trial period were successful in that no breakouts or seeps occurred and there were no indications of excessive head build-up on the liner based on remote, electronic liquid level monitoring. Piedmont Landfill requests that the trial be extended to accommodate a second 60-day period beginning with the first successful recirculation event following pump replacement. You will be notified in writing of the restart date.

In accordance with the requirements of Attachment 1 to Jim Coffey's approval letter dated December 21, 1995, an Interim Report of the first 60 days is being prepared by EcoLogic. Due to the complexities of the trial and the "expected engineering performance" to be addressed in the report, it has taken more time than expected to assemble and review the relevant data. The report should be complete and submitted to you within the next week to 10 days.

Sherri Coghill 2/26/97

Please advise at your earliest convenience of the Section's approval or denial of the requested extension to the trial period. Piedmont Landfill has proceeded with great care during the initial 60 days and anticipates a successful recirculation project based on preliminary results. Thank you for your consideration of this request. Should you have any questions, please don't hesitate to call me or Ed Gibson, PE at Piedmont Landfill.

Sincerely,



Mark A. Taylor, PE
President

mat

C: Ed Gibson, PE
Bill Lewis, PE

CF
34-06

sent to Jim Cole
2-17-93
sent to Richard Whinnit
3-5-93
to Rick Lane
3-23-93

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
RALEIGH DIVISION**

CIVIL ACTION NO. 92-683-CIV-5-D

FILED
FEB 1 1993
U.S. DISTRICT COURT
E. DIST. NO. CAR.

WASTE MANAGEMENT OF CAROLINAS,)
INC.,)
)
Plaintiff,)
)
v.)
)
JONATHAN HOWES, Secretary, North)
Carolina Department of Environment,)
Health, and Natural Resources,)
)
Defendant.)

CONSENT JUDGMENT

Waste Management of Carolinas, Inc. ("WMC"), plaintiff herein, and the State of North Carolina ("the State") through its agent and public officer Jonathan Howes, Secretary of the Department of Environment, Health, and Natural Resources, who is the nominal defendant in this case, by and through their attorneys, have consented to the entry of this final judgment.

STIPULATED FINDINGS OF FACT

The parties have agreed to the following stipulated facts which the Court has reviewed and adopted as its own:

- 1. Waste Management of Carolinas, Inc. ("WMC") is a corporation organized under the laws of the State of North Carolina. WMC operates a sanitary landfill known as the Piedmont Landfill and Recycling Center ("the Piedmont Facility") in Kernersville, Forsyth County, North Carolina pursuant to a permit (No. 34-06) issued by the North Carolina Department of Environment, Health, and Natural Resources.*
- 2. Permit No. 34-06 authorizes WMC to dispose of solid waste including municipal, industrial, and commercial non-hazardous waste. In its permit application, WMC advised the State that its market area would include North Carolina, South Carolina, Virginia, Kentucky, Tennessee, and West Virginia.*
- 3. The Piedmont Facility was designed and built with technology that satisfied the terms of the permit and the State's design standards applicable for such landfills when the permit was granted.*

4. *Permit No. 34-06 provided that acceptance of waste at the Piedmont Facility from states within the facility's market area was conditioned upon compliance with the requirements of N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108. The statute provides that:*

No permit shall be granted for any public or private sanitary landfill to receive solid non-radioactive waste generated outside the boundaries of North Carolina to be deposited, unless such waste has previously been inspected by the solid waste regulatory agency of that nation, state or territory, characterized in detail as to its contents and certified by that agency to be non-injurious to health and safety. The Commission [for Health Services] shall adopt rules to implement this subsection.

The administrative rule provides that such waste must be inspected and certified on a load-by-load basis before disposal. The requirements of the statute and administrative rule do not apply to solid waste generated and disposed in North Carolina.

5. *WMC challenged N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108 in this action on the ground that the requirements set forth in them burdens interstate commerce in violation of the Commerce Clause of the United States Constitution. U.S. Const., Art. I, Sec. 8, cl. 3.*

6. *This Court granted plaintiff a temporary restraining order on October 16, 1992, and a preliminary injunction on November 2, 1992, to prohibit the State from enforcing the statute and administrative rule during the pendency of this action. In its November 2, 1992 order, this Court preliminarily concluded that the statute and administrative rule facially discriminate against out-of-state waste, that the State could not justify this discrimination, and that WMC demonstrated a strong probability that it would succeed on the merits of its claim.*

7. *The State has not been able to present evidence that the waste which originates in the Piedmont Facility's market area outside North Carolina is inherently different or is more likely to contain waste types banned from disposal in North Carolina sanitary landfills for public health or environmental reasons than solid waste originating and disposed within the State. Nor has the State been able to present evidence that disposal at the Piedmont Facility of non-hazardous out-of-state solid waste possesses any greater threat of harm to the environment or human health than the disposal in the Piedmont Facility of non-hazardous in-state solid waste.*

AGREEMENTS OF THE PARTIES:

In consideration for entering into this Consent Judgment, the parties make the following agreements:

1. *The State agrees to entry of judgment declaring N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108 to be in violation of the Commerce Clause of the United States Constitution. U.S. Const., Art. I, Sec. 8, cl. 3.*

2. *The State agrees to entry of a permanent injunction prohibiting the State and its officers, agents, and employees from enforcing the provisions of N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108.*

3. *The State agrees to forego any appeal from this consent judgment.*

4. *WMC agrees that it will forego recovery of costs of this action, including attorney fees to which it may be entitled under 42 U.S.C. § 1988.*

5. *WMC agrees that, except for N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108, the provisions of Chapter 130A of the General Statutes, administrative rules, and other conditions in Permit No. 34-06 which are presently applied to waste originating within North Carolina shall apply to all waste to be disposed in the Piedmont Facility regardless of the state in which the waste originated, and all waste disposal at the Piedmont Facility shall be in accordance with all other laws of the State of North Carolina and duly enacted administrative rules enacted pursuant to such laws.*

6. *WMC agrees that it will not contract to accept waste which does not comply with the terms of Permit No. 34-06 and all applicable State laws and administrative rules enacted pursuant to law, other than N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108.*

7. *WMC agrees that Permit No. 34-06 may be amended to excise the requirement that acceptance of out-of-state waste must be in accordance with N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108 and to specify that the Piedmont Facility may accept waste originating only from North Carolina, South Carolina, Virginia, Kentucky, Tennessee, and West Virginia. During the period when the state and its officers, agents and employees process such amendments to the permit, WMC may continue to operate pursuant to the permit and the terms set forth in this consent judgment.*

8. *The terms of this agreement shall not constitute a waiver or otherwise prohibit WMC from challenging any statute, rule, or permit condition on its face, or as applied, as part of any other administrative or judicial proceeding.*

CONCLUSIONS OF LAW

Based on the foregoing stipulated findings of fact and the agreements of the parties, the court makes the following conclusions of law:

1. *Solid waste constitutes an article moving in interstate commerce and is subject to the provisions of the Commerce Clause of the United States Constitution. U.S. Const., Art. I, Sec. 8, cl. 3.*

2. *State statutes and administrative rules which discriminate against interstate movement and disposal of waste based solely on the state of origin of the waste violate the Commerce Clause of the United States Constitution unless the statutes or rules fit within a narrow exception articulated by the United States Supreme Court. See, City of Philadelphia v. New Jersey, 437 U.S. 617 (1978); Chemical Waste Management, Inc. v. Hunt, 112 S.Ct. 2009 (1992); Fort*

Gratiot Sanitary Landfill v. Michigan Department of Natural Resources, 112 S.Ct. 2019 (1992); and *Hazardous Waste Treatment Council v. South Carolina*, 766 F. Supp. 431 (D. S.C. 1991), *affirmed*, 945 F.2d 781 (4th Cir. 1991); *Government Suppliers Consolidating Service v. Bayh*, 753 F.Supp. 739 (S.D. Ind. 1990). The State has been unable to demonstrate that it can fit within a narrow exception to this rule by proving that N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108 are necessary to protect public health or the environment from out-of-state waste that has characteristics making it inherently more dangerous than in-state waste. *Fort Gratiot Sanitary Landfill, supra*; See also, *Maine v. Taylor*, 477 U.S. 131 (1986).

3. The provisions of N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108 facially discriminate against out-of-state waste, and therefore, facially discriminate against interstate commerce in violation of the Commerce Clause of the United States Constitution.

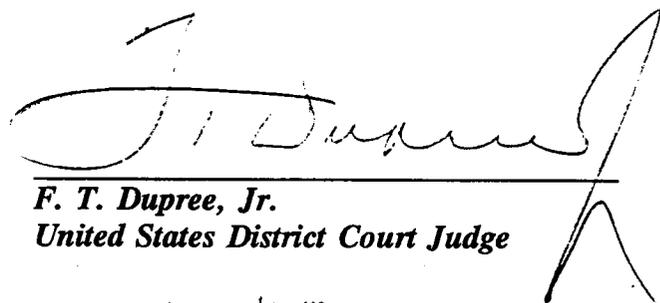
4. The State of North Carolina should be permanently enjoined from enforcing the provisions of N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108.

JUDGMENT

Based on the foregoing stipulated findings of fact, conclusions of law, and agreements of the parties, it is ORDERED, ADJUDGED, and DECREED:

1. That N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108 are declared to violate the Commerce Clause of the United States Constitution. U.S. Const., Art. I, Sec. 8, cl. 3;
2. That the State of North Carolina, its officers, agents, employees, and others acting in consort or participation with the State, including the nominal defendant Secretary of the Department of Environment, Health, and Natural Resources, are permanently enjoined from enforcing the provisions of N.C. Gen. Stat. §130A-294(a)(4a) and 15A NCAC 13B.0108; and
3. That the parties shall bear their own costs, including attorney fees, in this action.

This is the 3 day of February, 1993.



F. T. Dupree, Jr.
United States District Court Judge

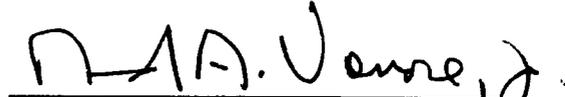
I certify the foregoing to be a true and correct copy of the original.
David W. Daniel, Clerk
United States District Court
Eastern District of North Carolina
By David W. Daniel
Deputy Clerk

WE CONSENT:

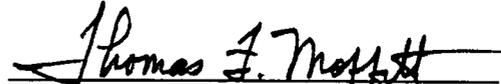

Mr. William D. Dannelly


MICHAEL F. EASLEY
ATTORNEY GENERAL


Jason S. Thomas


Andrew A. Vanore, Jr.
Chief Deputy Attorney General

Hunton & Williams
Post Office Box 109
Raleigh, North Carolina 27602

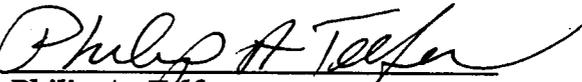

Thomas F. Moffitt
Special Deputy Attorney General

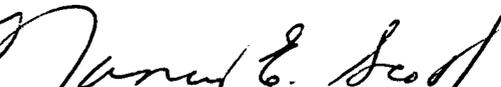
**ATTORNEYS FOR PLAINTIFF, WASTE
MANAGEMENT OF CAROLINAS, INC.**


Daniel C. Oakley
Special Deputy Attorney General

OF COUNSEL:

Andrew J. Pincus
Evan M. Tager
MAYER, BROWN & PLATT
2000 Pennsylvania Ave., N.W.
Suite 6500
Washington, D.C. 20006


Philip A. Telfer
Special Deputy Attorney General


Nancy E. Scott
Assistant Attorney General

North Carolina Department of Justice
Post Office Box 629
Raleigh, North Carolina 27602

**ATTORNEYS FOR THE STATE OF NORTH
CAROLINA AND DEFENDANT, SECRETARY
OF THE NORTH CAROLINA DEPARTMENT
OF ENVIRONMENT, HEALTH, AND NATU-
RAL RESOURCES**

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director



January 29, 1997

Mr. Edward L. Gibson, P.E.
Facility Engineering Manager
Piedmont Landfill and Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284

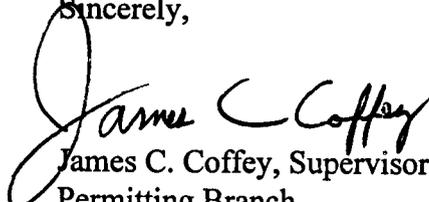
Re: Modification to Phase 3, Cell 2, Subcell 2A Configuration
Piedmont Landfill and Recycling Center
Permit No. 34-06

Dear Mr. Gibson:

The Solid Waste Section hereby approves your request of January 27, 1997, to modify the Phase 3, Cell 2, Subcell 2 configuration for the referenced landfill. The Section understands that subcell will be shortened in length only. No base grades will be changed. Also, Subcell 2A will be constructed along with Phase 3, Cell 1, Subcell 3.

If you have any questions or require additional information, please contact Sherri Coghill at (919) 733-0692, ext. 259.

Sincerely,


James C. Coffey, Supervisor
Permitting Branch
Solid Waste Section

cc: Julian Foscue
Wayne Greene
Brent Rockett

**Piedmont Landfill
and Recycling Center**
9900 Freeman Road
Kernersville, North Carolina 27284
910/595-6677
FAX: 910/595-9735



A Waste Management Company

January 27, 1997

Ms. Sherri Coghill
North Carolina Dept. of Environment, Health, and Natural Resources
Solid Waste Section (SWS)
401 Oberlin Road
Raleigh, NC 27611

Re: Change in Cell Configuration: Phase 3, Cell 2, Subcell 2, Piedmont Landfill & Recycling Center (PLFRC), Kernersville, NC. Permit Number 34-06

Dear Ms. Coghill:

As I briefly told you on the phone earlier, we are presently preparing to construct our next landfill cell, Phase 3, Cell 2, Subcell 2. This cell, as depicted on our permitted plans, Sheet No. 2, incorporates our maintenance building and wash pad. To avoid moving these facilities, we would like to construct a shortened configuration of this subcell. This present construction would cut off 2.8 acres located on the southeast corner of this subcell. Please understand that base grade configuration will remain the same throughout not only this shortened subcell but the remainder of this subcell when it is constructed along with Phase 3, Cell 1, Subcell 3.

As we understand the regulations and policies regarding this desired change, we need to submit to the SWS a plan showing the shortened cell interim contours. Attached please find three (3) copies of Sheet No. 4b that shows these new interim contours for this shortened subcell configuration. This Sheet replaces the presently permitted Sheet 4b.

If there is any other information you need or if you have any questions please do not hesitate to call either myself or Bill Lewis @ (910) 595-6677.

Sincerely,

Edward L. Gibson, P.E.
Facility Engineering Manager

cc: William R. Lewis

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director



CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 21, 1997

Ms. Norma H. Bodsford
Clerk, Guilford County Board of Commissioners
301 W. Market Street
PO Box 3247
Greensboro, North Carolina 27402

RE: Piedmont Landfill and Recycling Center
Site Study Application

Dear Ms. Bodsford:

In accordance with North Carolina General Statute 130A-294 (copy enclosed), the Division of Solid Waste Management, Solid Waste Section (Section) hereby forwards to you one copy of the Site Study Application for the proposed Piedmont Landfill and Recycling Center site expansion by Waste Management of Carolinas, Inc., on January 17, 1997.

N.C.G.S. 130-294(b1)(2) requires that the applicable unit of government(s) hold a public hearing when sufficient interest exists regarding the proposed landfill siting. If a public hearing has been held, please provide documentation of the public hearing, including minutes and comments received, to the Section. If a public hearing has not been held due to lack of sufficient interest, please provide correspondence to the Section advising of such.

Thank you for your cooperation in this matter. If you have any questions, please contact me at (919) 733-0692, ext. 259.

Sincerely,

Sherri L. Coghill
Environmental Engineer
Solid Waste Section

cc: William R. Lewis, PLFRC
Julian Foscue
Hugh Jernigan
Wayne Greene