

4 Johnston Cor. 51-01  
1987

(5101 1987)



North Carolina Department of Human Resources  
Division of Health Services  
P.O. Box 2091 • Raleigh, North Carolina 27602-2091

*John*  
*Permits*  
*51-01*

James G. Martin, Governor  
David T. Flaherty, Secretary

September 3, 1987

Ronald H. Levine, M.D., M.P.H.  
State Health Director

Johnston County Courthouse  
P.O. Box 1049  
Smithfield, N.C. 27577  
Attn: Mr. Richard Self

RE: Revision of Construction Plans, Johnston County Sanitary Landfill, Permit #51-01

Dear Mr Self:

The proposed revisions to the construction plan for the referenced facility have been reviewed. The revisions propose the use of a synthetic material as a daily cover and an additional 10' lift.

The use of a synthetic material for daily cover is not approved for the following reasons:

- (1) Adequate soil is available on-site and performs various functions: Minimization of rainfall infiltration, prevention of insect and rodent problems, protection against the spread of fire, control of blowing litter, suppression of odors, etc.
- (2) Operational problems with the use of synthetic cover have been experienced at other landfills. N.C. State University is presently evaluating the proper uses and operational procedures for synthetic materials. Their conclusions will determine future uses and applications in North Carolina.

The Branch has recently adopted a policy for all new permits or amendments to existing permits which limits their issuance for a period not to exceed 5 years. This policy is of tremendous benefit to those cities and counties with less than 5 years remaining landfill capacity. It allows the utilization of the existing landfill, and thereby provides the time necessary to develop a solid waste management plan which will be in compliance with forthcoming, much more stringent rules and regulations.

However, the policy offers a different and less advantageous alternative to counties such as Johnston County, which have more than 5 years remaining landfill capacity. If the Branch issues an Amendment to Permit for the referenced landfill, it will be limited to 5 years from the date of issuance.

If the proposed revisions to the construction plan are still desirable from an operational stand point, the county should inform the Branch of its

intent to pursue the Amendment to Permit and the Branch will complete its review.

If there are any questions, please contact me at (919) 733-2178.

Sincerely,

  
James C. Coffey, Environmental Engineer  
Solid & Hazardous Waste Management Branch  
Environmental Health System

JCC/mj



# RAGSDALE CONSULTANTS, P.A.

310 E. JOHNSTON STREET

P. O. BOX 1749

SMITHFIELD, N. C. 27577

TELEPHONE (919) 934-7154

June 16, 1987



Mr. Gordon Layton, Environmental Engineer  
Solid & Hazardous Waste Management Branch  
Division of Health Services  
P.O. Box 2091  
Raleigh, North Carolina 27602-2091

Ref: Johnston County Landfill  
(Permit No. 51-01)

Dear Mr. Layton:

On behalf of our client Johnston County, North Carolina we ask that you inform us of the status of our March 30, 1987 request for the extension of the life of the Johnston County landfill.

Sincerely,

RAGSDALE CONSULTANTS, P.A.

G. Wayne Cody, P.E.

GWC/nc

cc: Mr. Richard Salf  
Mr. Jeff Coutu  
Mr. Tim Broome  
Mr. Gene Cobb

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March 30, 1987



Mr. Gordon Layton, Environmental Engineer  
Solid & Hazardous Waste Management Branch  
Division of Health Services  
P.O. Box 2091  
Raleigh, North Carolina 27602-2091

Ref: Johnston County Landfill  
(Permit No. 51-01)

Dear Mr. Layton:

We have been asked by our client, Johnston County, North Carolina, to evaluate landfill operations over the first two years with emphasis on extending the life of the landfill as mentioned in the original Engineering Report for Phase IV operations.

Pursuant to the County's request we mapped the landfill operations in December 1986, and together with the recent mapping and site visits we have made an evaluation of the landfill operation.

We have determined the following for Section 1 (Operations have not yet begun for Section 2):

Total Fill @ Site	=	275,516	CY
Stockpiles	=	- 34,456	
Dike fill	=	- <u>34,000</u>	

Net Fill @ Site		207,060	CY
Undercut (Plan) Volume	=	195,347	

Total Fill Including Undercut Volume	=	402,407	CY
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Excavation from Site	=	39,253	CY
Loss (Clearing, etc.)	=	- <u>20,000</u>	

Cover = Undercut Site Cut = 195347 + 19253 = 214,600 CY

Stockpiles	=	- 34,456	
Dike volume	=	- <u>34,000</u>	

Net Cover Material Used = 146,144 CY

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Mr. Gordon Layton  
 March 30, 1987  
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Current Fill/Cover Ratio = 402,407/146, 144 cy = 2.75

This is higher than projected in the initial permit application.

Using a current fill/cover ratio of 2.7, a revised population growth of 1.6% per year and 300 working days per year, the projected landfill life is as follows:

The projected average solid waste for a ten year period (1987 to 1997) is 75,000 tons annually; or, with the assumptions of 1000 pounds/cy, 150,000 cy annually.

	<u>Section 1</u>	<u>Section 2</u>
Total Cut	539,079 cy	527,590 cy
Fill for Dikes	-102,627	- 154,277
Cover used to date	<u>-146,144</u>	<u>-0-</u>
Remaining cover	290,308 cy	373,313 cy
Total Fill @ 2.7:1	783,832 cy	1,007,945 cy
Solid Waste	493,524 cy	634,632 cy
Project Life	3.3 yrs	4.2 yrs
Total Projected Life Section 1 & 2	=	7.5 years

To extend the life of the landfill even further, the use of a geotextile fabric is proposed. The fabric would be used for daily cover with a 6" earth cover to be used at the end of a working week.

This analysis is as follows for the addition of a 10' working lift of landfill:

	<u>Section 1</u>	<u>Section 2</u>
Available Remaining Earth	290,308 cy	373,313 cy
Final Cover (2')	- 88,000	- 76,500
Dikes	- 60,000	- 56,000
Site Grading for Drainage	<u>-0-</u>	<u>-15,800</u>
Available Working Cover	142,308 cy	225,013 cy
Initial Landfill Volume (Incl. Final + Working Cover) - dikes	919,072 cy	769,014 cy
10' additional lift (Not incl. dike vol.)	<u>336,000</u>	<u>287,000</u>
Total Landfill	1,255,072 cy	1,056,014 cy

Mr. Gordon Layton  
March 30, 1987  
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Available Working Cover	- 142,308	- 225,013
Final Cover	- <u>88,000</u>	- <u>76,500</u>
Net Solid Waste Volume	1,024,764 cy	754,501 cy
Projected Life of Landfill	6.8 yrs	5.0 yrs.
Total Projected Life	11.8 years	

To gain the maximum landfill life at the existing site it is recommended that geotextile fabric be used. We understand that this fabric is not being widely used for this purpose in North Carolina, but would be considered by the Solid and Hazardous Waste Management Branch on a case by case basis. We have discussed this use with a manufacturer of a 100% continuous filament polyester fabric (samples of which are attached), and we recommend a trial use of fabric style S1114 for reasonable durability and economy. Although this fabric is somewhat permable, it should shed water during heavy rainfall. However, should the operational use not prove satisfactory, the use of fabric style S1125 will be tried. If possible, we recommend the re-use of the fabric to the extent practice dictates. We recommend that earth cover be used for cover at the end of a working week, and we estimate that the earth cover required for weekly cover to be 60,000 cy for Section and 44,000 cy for Section 2. The available earth is more than ample for this purpose and should be used to minimize the amount of geotextile fabric required.

We request your approval for the extension of the landfill life to 11.7 years from December 1986 (date of mapping) by raising the furnished grades by a 10' lift and using geotextile fabric with weekly earth cover.

We are enclosing 3 sets of drawings showing the proposed, revised grading and  $\frac{Z}{Z}$  samples of the proposed geotextile fabric.

Please note that we are submitting the entire set of drawings of the originally planned landfill with revised sheets marked accordingly.

Mr. Gordon Layton  
March 30, 1987  
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If you have any questions or need additional information, do not hesitate to contact us.

Sincerely,

RAGSDALE CONSULTANTS, P.A.

*G. Wayne Cody*

G. Wayne Cody, P.E.

GWC\nc

Enclosures

cc: Mr. Richard Self  
Mr. Jeff Coutu  
Mr. Timothy Broome  
Mr. Gene Cobb



*Johnston*

North Carolina Department of Human Resources  
Division of Health Services  
P.O. Box 2091 • Raleigh, North Carolina 27602-2091

James G. Martin, Governor  
Phillip J. Kirk, Jr., Secretary

Ronald H. Levine, M.D., M.P.H.  
State Health Director

February 9, 1987

R.B. Howell  
Johnston County Landfill  
PO Box 1052  
Smithfield, NC 27577

NOTICE OF DEFICIENCY: Regarding ground-water monitoring wells at Johnston County Landfill.

Dear Mr. Howell:

A recent inspection at the above referenced facility indicates the following problems associated with the operation and subsequent maintenance of the existing ground-water monitoring wells.

1. Broken or damaged lid(s) for the outer casing.

Because these problems significantly influence and affect the integrity and validity of the analytical results, it is of the utmost importance that these deficiencies be corrected as soon as possible. Your prompt attention to this matter is greatly appreciated.

Yours sincerely,

*Thomas F. Will*

Tom Will, Hydrogeological Technician  
Solid & Hazardous Waste Management Branch  
Environmental Health Section

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cc: M.L. Babuin