H. Lowry Tribble, Jr., P.E.
William F. Hodges, P.E.
W. Michael Stubbs, P.E.
R. Brant Lane, P.E.
Clint L. Courson, CHMM
K. Matthew Cheek, P.E.
Daniel E. Cheek, P.E.

HHNT
Hodges, Harbin, Newberry & Tribble, Inc.
Consulting Engineers

Nathan D. Dunn, P.E.
Kevin G. Berry, P.E.
Ryan S. Willoughby, P.E.
William A. Granich, P.E.

February 4, 2014

Received 2/4/2014 DIN 20560 SWS 0803-MSWLF-1993

Mr. Edward F. Mussler, III, P.E.
NCDENR
1646 Mail Service Center
Raleigh, NC 27699-1646

Re: East Carolina Regional MSW Landfill
Permit No. 08-03
Bertie County, North Carolina
Permit to Construct Renewal
HHNT Project No. 6703-260-01/6703-563-01

Dear Mr. Mussler:

On behalf of Republic Services of NC, LLC we have completed a review of pertinent facility plans including, but not limited to, the facility Operation and Waste Screening Plans. We have enclosed one hard copy and one PDF copy of the updated Operation Plan which has been revised and updated to address minor changes related to site operations. All other plans have been determined to be consistent with existing site operations and it is our professional opinion that no other plans require updating at this time.

Therefore, we request that the facility's Permit to Construct for Phase 5 be renewed for an additional 5-year term.

Should you have any questions, please call.

Sincerely,

HODGES, HARBIN, NEWBERRY & TRIBBLE, INC.

William F. Hodges, P.E.
Professional Engineer

WFH/kw

cc: John Murray, P.E. (w/ enclosure)
Matt Einsmann, P.E. (w/ enclosure)
Ray Hoffman, P.E. (w/ electronic copy only)
Matt East (w/ enclosure)

OPERATION PLAN

EAST CAROLINA REGIONAL LANDFILL- PHASE 5
FACILITY PERMIT NO. 08-03
BERTIE COUNTY, NORTH CAROLINA

FOR

REPUBLIC SERVICES OF NORTH CAROLINA, LLC
DBA
EAST CAROLINA ENVIRONMENTAL

JANUARY 2014

HHNT

HODGES, HARBIN, NEWBERRY & TRIBBLE, INC.

Consulting Engineers

NORTH CAROLINA PROFESSIONAL SEAL 16146 ENGINEER WILLIAM F. HODGES

NORTH CAROLINA PROFESSIONAL SEAL 32249 ENGINEER K. MATTHEW CHEEK

NC Corp License No. C-0813

© Republic Services, Inc. (2014)

3920 Arkwright Road, Suite 101 | Macon, Georgia | Phone: (478) 743-7175 | Fax: (478) 743-1703

TABLE OF CONTENTS

I. INTRODUCTION 1
A. Ownership and Operation 1
B. Objectives 1
C. Regulatory Authority 2
D. Landfill Restrictions 2
E. Landfill Operator Responsibilities 3
F. Owner Responsibilities 4
G. Training 4

II. SITE OPERATION & MAINTENANCE 6
A. Landfill Equipment 6
B. Facilities Maintenance 6

III. ANTICIPATED LAND USE DURING POST-CLOSURE 8

IV. ANTICIPATED LIFE EXPECTANCY 9

V. METHOD OF OPERATION - MSW LANDFILL 10
A. Landfilling/Operations 10
B. Daily Operations 10
C. Cell Filling/Stormwater Management 15
D. Leachate Management 15
E. Leachate Recirculation 20
F. Random Inspection Program 24
G. Waste Solidification 26
H. Storm Drainage 26
I. Monitoring 26
J. Final Grades 27
K. Seeding 28
L. Maintenance 28
M. Fire Hazard 28
N. Open Burning 29
O. Fire Prevention 29
P. Odor Control 29
Q. Vector Control 29
R. Insect Control 29
S. Litter Control 29
T. Dust Control 30
U. Landfill Gas Management 30
V. Access Roads 30
W. Equipment 30
X. Buildings and Structures 30
Y. Security 31
Z. Signs 31
AA. Phasing and Sequence of Fill 31

VI. COMPLIANCE WITH THE SEDIMENTATION POLLUTION CONTROL ACT OF 1973 32

VII. COMPLIANCE WITH DESIGN REQUIREMENTS 33
A. Compliance with Explosive Gas Requirements 33
B. Compliance with Surface Water Requirements 33
C. Compliance with Ground Water Requirements 33
D. Compliance with Permit Requirements 33

VIII. SOIL MATERIAL TYPES AVAILABLE FOR BORROW 34

IX. CLOSURE AND POST-CLOSURE PLANS 35
A. Purpose 35
B. Closure Plan 35
C. Post-Closure Activities 37

X. OTHER ISSUES 39
A. Borrows Areas 39
B. Engineering Plan 39
C. Storm Debris Storage 40

XI. CLOSURE OF LEACHATE STORAGE FACILITIES 41

XII. PETROLEUM CONTAMINATED SOIL ALTERNATE DAILY COVER 42

XIII. POSI-SHELL COVER SYSTEM ALTERNATIVE DAILY COVER 44
A. Material Description 44
B. Requirements for Alternative Daily Cover 44
C. Procedures 44
D. Trial Period 45
E. Final Documentation 45

XIV. APPENDIX 46
- Permit to Operate (Cell 13)
- Waste Solidification Plan
- Random Waste Inspection Forms
- Petroleum Contaminated Soil Monthly Acceptance Log
- Leachate Recirculation Log Form
- Plan of Operation for Fighting Fires
- Posi-Shell Material Information

I. INTRODUCTION

The East Carolina Regional Landfill site is located north of Windsor, N.C. The MSW landfill is discussed in this Operation Plan.

The Landfill Operation Plan is a document to guide the facility operators in their daily activities. As such, it should be as comprehensive and as up-to-date as possible. The document should be updated during the construction period and during the facility operating life. As the Section rules change, revisions should be reflected in the updated document. Before operations begin, additional guidance documents on employee safety, environmental protection and monitoring, emergency procedures, fire fighting and prevention, hazardous waste identification, leachate pump/haul management, record keeping, and other subjects may be appended to this document.

This Operation Plan describes how the Facility, Engineering, and Closure Plans prepared for the East Carolina Regional Landfill will be implemented during the life of the facility. The plan has been prepared in compliance with Rules .1625 and .1626 of the North Carolina Solid Waste Management Regulations and consists of drawings and accompanying text that illustrates existing conditions, cell progression, waste placement and daily operations, leachate management, special waste management, buffer zones and soil borrow procedures.

A. OWNERSHIP AND OPERATION

Ownership of the facility will be in the name of Republic Services of North Carolina, LLC, DBA East Carolina Environmental. Operational responsibilities will be handled by the Division Manager, 252-348-3322 (phone), 252-348-3395 (fax). This facility is located at 1922 Republican Road, Aulander, North Carolina 27805.

The landfill is open to private and public waste haulers and the general public from 7:00 a.m. to 5:00 p.m. Monday through Friday, and on Saturday from 7:30 a.m. to 2:00 p.m. Three holidays are observed; Thanksgiving, Christmas and New Year's Day. These hours may be adjusted to meet unusual circumstances, operational needs or emergencies.

B. OBJECTIVES

The objectives of the Landfill Operation Plan are to:

1. Protect the environment.
2. Provide the operator with the intended methodology for operating the landfill efficiently.
3. Provide information about the site.
4. Provide operational parameters for State review.
5. Appropriately manage leachate at the facility.

C. REGULATORY AUTHORITY

The Division of Waste Management - Solid Waste Section (Section) is the principal permitting and regulatory authority in North Carolina for solid waste management and disposal.

D. LANDFILL RESTRICTIONS

The East Carolina Regional Landfill can only accept those solid wastes which it is permitted to receive. The landfill owner or operator shall notify the Section within 24 hours of attempted disposal of any waste the landfill is not permitted to receive, including waste from outside the area the landfill is permitted to serve. A description of wastes which may be disposed of at this facility is included in this document. Also included in this document is a description of the Waste Screening Program for the site and a description of prohibited wastes.

The proposed landfill is permitted to receive municipal solid waste from North Carolina Counties and businesses. No radioactive waste, hazardous waste, yard waste, white goods, regulated PCB contaminated waste, lead acid batteries, or liquid waste material shall be disposed of on the landfill site. Any waste suspected of containing free liquids must be subjected to the “Paint Filter Liquids Test”, and any material with free liquids shall not be disposed of in this facility. Any liquid containers five gallons or larger shall be empty, flattened, perforated, or rendered unable to contain liquids before they are accepted at the landfill for disposal.

Liquid/semi-solid materials may be solidified in accordance with the Waste Solidification Plan, attached in the Appendix. Only non-hazardous materials may be solidified. Following solidification, material will be subjected to a paint filter liquids test and, if the material no longer contains any free liquids, it may then be placed in the active landfill.

Asbestos waste that is packaged in accordance with 40 CFR 61, which is adopted by reference in accordance with G.S. 150B-14(c), may be disposed at the facility. In accordance with Section .1626(1),(d), the asbestos waste shall be covered immediately with soil in a manner that will not cause airborne conditions and must be disposed of separate and apart from the other solid waste at the bottom of the working face or in an area not contiguous with other disposal areas. Separate areas shall be clearly designated so that asbestos is not exposed by future land disturbing activities. A copy of 40 CFR Part 61 Subpart M – National Emission Standards for Asbestos will be utilized for guidance.

Spoiled foods, animal carcasses, abattoir waste, hatchery waste, and other animal waste delivered to the facility should be covered immediately. This immediate attention will reduce odors and the potential for vector feeding.

Wastewater treatment sludges may only be accepted for disposal in accordance with the following conditions:

- Utilized as a soil conditioner and incorporated into or applied onto the vegetative growth layer of the final or intermediate cover, in no case greater than 6" in depth.

- Co-disposed with Municipal Solid Waste since the facility meets the requirements of Rule .1624.

Industrial solid waste means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/ foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste, or oil and gas waste.

The operator should utilize the Waste Screening Plan for non-MSW type waste acceptance.

Republic Services of North Carolina has developed a Waste Screening Program in accordance with North Carolina's Solid Waste Management Regulations, Rule .1626(1)(f). This rule states that owners/operators of MSWLFs must implement a program at the facility for detecting and preventing the disposal of hazardous and liquid wastes, except as specifically authorized by the facility permit or by the Section. This program includes:

- Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous or liquid wastes, or regulated PCB wastes;

- Records of any inspections;

- Training of facility personnel to recognize regulated hazardous waste, liquid waste, and PCB wastes; and

- Development of a contingency plan to properly manage any identified hazardous and/or liquid wastes.

The Random Inspection Program is detailed in Section V. (F) of this Operation Plan.

E. LANDFILL OPERATOR RESPONSIBILITIES

The landfill operator has the authority and responsibility to accept or reject wastes as he deems necessary to comply with requirements of the permit and Section rules. The operator also has the authority to control waste received to ensure that unauthorized,

difficult to manage, or prohibited waste will not be disposed of in the landfill. Responsibilities of the operator are to:

1. Determine whether waste brought to the landfill is to be placed in the landfill,
2. Provide proper maintenance,
3. Provide for satisfactory monitoring, and
4. Inform the Section within 24 hours of operational problems or violations, and maintain records in accordance with permit requirements and Section rules.

In accordance with NCGS 130A-309.09D, on or before August 1 of each year, Republic Services of North Carolina will report to the Solid Waste Section the amount of waste received in tons at this facility and disposed in the landfill units. Data will be transmitted on forms prescribed by the Section. The report will include the following:

- The reporting period shall be for the previous year beginning July 1 and ending on June 30.
- The amount of waste received and landfilled in tons, compiled on a monthly basis by county or transfer station of origin and by specific waste type if diverted to a specific unit within the permitted facility; and
- The completed report shall be forwarded to the Regional Waste Management Specialist for the facility.

F. OWNER RESPONSIBILITIES

An agreement exists between Republic Services of North Carolina, LLC and the Bertie County Board of Commissioners. In the agreement, Republic Services of North Carolina, LLC is responsible for developing and operating the Landfill and related facilities.

Tipping fees will be set according to type of waste and quantity of waste. Other responsibilities of Republic Services of North Carolina, LLC are to provide manpower and equipment for the landfill directly or through contract operations, and to set operations policy.

G. TRAINING

Republic Services of North Carolina, LLC will utilize both internal company training and outside continuing education for the landfill operations personnel. The operations personnel operating the site will be supervised and trained by certified landfill operators. These personnel will receive internal company training in operations, reporting, monitoring, environmental compliance, and facility maintenance.

This internal training will be repeated and updated on a periodic basis.

Off-site outside training will be scheduled as course offerings are announced.

Operation of the site will include specialized training in the operation and maintenance of the following:

1. Leachate pump stations / sideslope riser pumps / gravity leachate sewer collection systems.
2. Leachate storage tanks/secondary containment system.
3. Stormwater management.
4. Hazardous waste identification.
5. Prohibited waste identification.
6. Leachate recirculation
7. Waste solidification
8. Tipper operation
9. Landfill gas operations

Records of personnel training shall be maintained in the facility operating record.

II. SITE OPERATION & MAINTENANCE

A. LANDFILL EQUIPMENT

Operation and maintenance of the site will be the responsibility of the landfill Division Manager. Typical heavy equipment available are as follows:

1. An Excavator with an off-road haul truck
2. Water Truck
3. Farm Tractor, and Mower
4. Steel Wheel Compactors
5. Dozers
6. Pick-up Trucks
7. Trailer Tippers
8. Mechanic's Service Truck
9. Posi-Shell Application Equipment (optional)

Other equipment will be purchased or rented as required for the facility operations.

B. FACILITIES MAINTENANCE

The following is a list of maintenance duties of the operator:

1. Maintain paved, graveled, and temporary roads in and to landfill operations to ensure safe and unencumbered movement of traffic.
2. Maintain condition, visibility, and integrity of informational signs.
3. Maintain physical barriers to discourage unauthorized entry onto landfill property by unauthorized vehicles.
4. Maintain slopes by filling and (re)establishing vegetative cover to prevent erosion and/or exposure of refuse.
5. Maintain grassed areas.
6. Maintain drainage features such as swales, stormwater conveyance channels, and slope drains to ensure efficient management of stormwater.
7. Maintain site in a sanitary condition.
8. Maintain windscreens and keep blown litter from leaving site by frequent policing efforts within landfill and on adjacent property.
9. Maintain effective rodent and vector control measures.
10. Maintain communication with fire department personnel and establish a plan of operations for fighting fires.
11. Maintain and protect landfill cells and embankments against erosion and damage.
12. Maintain (regrade subsided) or settlement fill areas.
13. Maintain sediment storage volume of sediment basins.
14. Maintain the landfill scales.
15. Maintain and operate the leachate management system.

16. Maintain appropriate records and operations demonstrations.
17. Use temporary control measures to prevent stormwater from contacting the waste and becoming leachate.
18. Maintain support facilities.
19. Maintain the landfill gas system.
20. Maintain wetland boundaries.

III. ANTICIPATED LAND USE DURING POST-CLOSURE

After completion of the landfill, the projected land use will be to return the land to greenway and to woodlands, grasslands, or wetlands elsewhere on the property. The final closure will be completed to reduce maintenance during the post-closure care period. All areas of the closed site will be vegetated to reduce the long term potential of erosion. All Post Closure uses of the property must be approved by the Section.

IV. ANTICIPATED LIFE EXPECTANCY

Based upon available data provided by the State of North Carolina, a waste generation rate of 5 lbs/capita/day was used to calculate yearly volume of waste. A projected waste volume compaction rate of 1,775 lbs/cy of in-place waste was used to calculate the volume needed in the landfill to dispose of the waste. The life of the landfill was calculated by using waste stream projections. It has been estimated that the total life of the landfill will be over 25 years. The estimated life for the renewed Phase 5 will be approximately five years. During the next five years, it has been estimated that Bertie County and the region serving the facility will generate approximately 822,500 cy/year of compacted solid waste to be landfilled at the site. The area to be served by the facility includes all cities, counties and commercial / industrial facilities in North Carolina.

V. METHOD OF OPERATION - MSW LANDFILL

A. LANDFILLING/OPERATIONS

The landfilling operation will be comprised of solid waste being deposited on the working face of the landfill. Steel wheel compactors will be used to obtain maximum compaction of the waste by compacting at two to six foot depths of waste at a time, and by confining the area to be compacted daily. The exception to this is the first lift which will be installed approximately eight feet deep with limited steel wheel compaction. This initial eight foot lift (known as a fluff lift) will generally be placed with dozers since this greatly reduces the risk to the liner system. Once fill reaches approximately eight feet, steel wheel compactors will be used to place and compact the waste. If the working face is confined to a minimum area on a daily basis, this will economize the amount of daily cover or alternative daily cover (ADC) required. Per North Carolina State Regulations, a daily cover of six inches of compacted soil or an alternative daily cover must be placed on top of the daily landfill operation to protect the landfilled garbage from exposure to rain and becoming windborne, and to prevent rodent and insect propagation or infestation. Once an area of the landfill is complete, that is, achieves final grades, a cover system (cap) will be placed as final cover and this will be seeded and stabilized. A sequence or phasing of the filling operations and final cover (cap) cross-sections are indicated in the Engineering Plans. Compost materials may be included in the final cover top layer if first demonstrated to the Section, then approved by the Section.

B. DAILY OPERATIONS

1. Placement of solid waste will begin in the initial fill area of the landfill.

2. Wastes should be kept to the minimum surface area possible and compacted via numerous passes of the steel-wheel compactor. Surface area (active landfill area) should be kept to a minimum for two reasons: (1) to minimize the amount of daily cover soils or ADC needed and, (2) to maximize the amount of garbage (not soils) being placed; thereby, increasing the life of the landfill.

   Waste placed against the outer berms along the permanent outer edge of the cell shall be no closer than 15' to this edge of liner. By stopping at the inside edge of this berm, the operator will be placing waste no closer than 15' from the permanent edge. Waste placed against the interior berms between cells, shall be no closer than 10' to this edge. This will allow ample room for new liner to be tied to existing liner in the future cells.

   After the first lift is in place, compaction berms may be installed at the outer edge. Trucks will unload their waste at the working face. The waste will be compacted against the compaction berm and up the working face. These outside compaction berms will serve several purposes:

a. The small berms give the operator guidance on where to place waste to ensure that the outside slope can be constructed quickly and accurately and,

b. The small berms give the operator a structure to compact against, keeping him from pushing waste out and over the outer slope of the landfill.

The phasing plan in the Engineering Plans should be followed. It is the intent (to the extent that safe operations on a sloped surface allow) that an area be brought to the maximum elevation possible before moving landfilling operations into an adjacent area. Further, it is intended that final contours be achieved as early as possible so as to direct run-off of stormwater away from the working area.

Sequencing of areas in the proper order is necessary to manage the storm water.

3. It is important to remember that decaying wastes will eventually generate leachate and methane (landfill gas). Methane is an explosive gas which is lighter than air and thus can be trapped underneath structures and equipment. The operator should have the landfill boundaries and structures tested for methane gas concentrations at least quarterly and instruct all personnel in its dangers. Methane is a component of landfill gas that is odorless and thus cannot be detected except by proper equipment.

a. Gas Monitoring Procedures:

Landfill gas monitoring at the East Carolina Regional Landfill will be performed during the active life of the landfill and throughout the post-closure care period. At a minimum, quarterly monitoring will be conducted at all subsurface methane gas monitoring probes and in all structures located on the landfill property.

Methane gas monitoring probes will be installed on the site as additional phases are constructed. They will be designed to extend to a depth at least equal to the maximum depth of waste in the area of the monitoring point or the water table, whichever is encountered first. Probe locations will likely be field engineered due to varying topography adjacent to expansion areas that may limit access with a drill rig. A methane gas monitoring probe detail can be found in the Engineering Plans. Construction records for the methane gas monitoring probes will be submitted to the Section upon completion.

Active landfill gas extraction wells have been and will continue to be installed in the waste mass prior to closure in accordance with the

facility's Air Quality Title V Operation Permit and Air Quality Permit No. 08849T07 dated August 7, 2013. Construction details of these wells is included in the NSPS design plans. Any expansion or addition to the existing landfill gas collection system will be submitted to the Solid Waste Section prior to implementation.

1. Record Keeping: The operator will record the date, time, location, sampling personnel, atmospheric temperature, reported barometric pressure, and general weather conditions at the time of sampling, in addition to the concentration of combustible gases. The records will be maintained in the facility operating record.

2. On-site Structures: Gas monitoring in on-site structures will attempt to identify the "worst case" concentrations. The monitoring locations will be in corners along floors and ceilings, at cracks in the floor, and at other areas likely to accumulate gas. Gas monitoring will also be conducted in any confined space requiring the entry of personnel for maintenance or inspection. The monitoring will take place prior to entry by personnel in accordance with OSHA regulations.

3. Methane gas monitoring probes: Gas monitoring in probes will consist of attaching the combustible gas monitor to each tubing within the probes, and recording both the initial concentration and steady state concentration of combustible gases.

4. Equipment: A portable combustible gas monitor, measuring the concentration of combustible gases in units of percent of lower explosive limit, shall be used to conduct gas monitoring. Lower explosive limit (LEL) means the lowest percent by volume of a mixture of combustible gas in air that will propagate a flame at 25 degrees Celsius and atmospheric pressure. The gas monitor shall be calibrated to methane using the manufacturer's calibration kit and procedure before the monitoring activities begin.

b. Response to Landfill Gas Exceedances

The regulatory maximum levels for explosive gas are the LEL at the facility boundary and 25% LEL in on-site structures. At a minimum, the following actions will be taken if methane gas levels exceed those standards:

1. The Section will be notified immediately;
2. Immediate steps necessary to protect human health will be identified and implemented. If the standard in structures is exceeded, these will include:
   - Elimination of smoking materials and all ignition sources;
   - Evacuation of all personnel;
   - Ventilation of the structure;
   - Personnel will not be allowed to re-enter the building except to perform gas monitoring until the results of additional monitoring indicate that methane concentrations are stabilized below 25% LEL;
   - Assessing the origin and pathways of the gas migration.

Within seven days of detection, the monitoring results will be placed in the facility operating record, and Republic Services of North Carolina will indicate actions taken and actions proposed to resolve the problem. Within 60 days of detection, Republic Services of North Carolina will develop and implement a landfill gas remediation plan for the combustible gas releases, place a copy of the plan in the operating record, and notify the Section that the plan has been implemented. The plan will describe the nature and extent of the problem and the proposed remedy.

4. Daily cover soil for operations will be obtained from the future cell areas or other sources. A grading plan has been developed to define excavation limits (see Phase 5 Engineering Drawings) and to designate the three principal soils applications: (1) topsoils, (2) clays for liner construction, and (3) soils for daily cover. Prudent excavation and control of drainage from the excavation will save considerable construction costs on the landfill.

   The operator may also choose to use alternative daily cover. Alternative cover will not be allowed in place of intermediate or final cover. Use of alternative cover will be specified in the permit and is subject to the Section's approval. Currently at this facility, tarps, petroleum contaminated soils (PCS), and posi-shell are approved for use as alternate daily cover (ADC). The site may use additional alternative daily covers, such as yard waste type compost/mulch, automotive shredder residue (ASR), foam, shredded wood, crushed gypsum, C&D fines, foundary sand, paper pulp sludge, and alum sludge in the future. Prior to incorporating any of these additional ADC's , proper notification will be provided to the Section in accordance with the rules.

The daily working face shall be minimized at all times. This working face will include the top surface and sloped face to be covered at the end of each day.

ADC is intended to reduce the facility's reliance on soil cover and to reduce the air space consumption by daily soil cover. However, should the ADC prove unsuccessful, the daily cover consisting of a minimum of 6" of soil must be utilized.

Alternative covers may be approved by the Section if the owner or operator demonstrates that the alternative material and thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment.

Republic Services of North Carolina may utilize tarps, approved PCS, and posi-shell as described below.

- If a tarp ADC is used, the cover shall be deployed over the deposited solid waste at the end of each day by pulling the cover into position by the available heavy equipment and anchoring by placing soil over the corners of the fabric. The tarps are not expected to exceed 250 feet by 250 feet in size and can be easily placed by the available personnel and equipment. Multiple smaller tarps may also be used in accordance with the method described above. Prior to depositing solid waste the next working day, the tarp will be pulled from the waste with the available heavy equipment and stored in accordance with the manufacturer's recommendation.

- Use of Petroleum Contaminated Soil (PCS) as daily cover materials is a beneficial reuse of soil with relatively low levels of petroleum in the soil. The approved maximum petroleum contaminant level of soil will be 3,000 parts per million (ppm) when analyzed by EPA Method 8015C. Conditions for the use of petroleum contaminated soils as alternate daily cover (ADC) are included in Section XII of this Operation Plan. A form for use during acceptance of PCS soils is attached in the Appendix.

- When posi-shell ADC is used, the posi-shell cover shall be placed in accordance with prior approved plans as stated in the approved permit.

When weather and soil conditions so dictate, daily cover soils are available from the stockpiles. The operator should replenish depleted stockpiles by excavating from the future cell areas or permitted borrow areas to the limits indicated.

5. It will be necessary for operators to grade, repair and smooth the landfill surface as needed and to capture and replace soils that may have migrated to the surface drainage features or sediment basins and traps. These materials should be stockpiled, allowed to drain and utilized for daily cover.

C. CELL FILLING/STORMWATER MANAGEMENT

The landfill cells will be typically filled from the lower elevations toward the upper elevations in initial lifts of approximately eight feet. No steel wheel compaction equipment shall be placed in the landfill cell until there is an eight foot (plus or minus) lift of waste in that portion of the cell. Care shall be used to assure that the material placed in this initial lift will not be capable of penetrating the protective cover over the liner. Penetration of waste through this protective cover could damage the FML liner component.

The operator must use extreme care in managing the initial cell filling. In the area of the cell above the waste being placed in an initial lift, the operator shall have installed stormwater rain flaps to prevent stormwater from flowing onto the cell area being filled.

The stormwater rain flaps should be placed so no area larger than two acres can drain directly into the leachate collection system. Based on a 5 inch storm event, up to 272,000 gallons could enter the leachate collection and storage system. It is unlikely that this full amount of rainfall would enter the system since any open cell will have some waste in it and even limited amounts of waste and sand will retain a percentage of the rainfall event.

Stormwater above each of these rain flaps shall either be diverted, or pumped from the cell. Once this initial lift of waste is in place with an intermediate layer of soil, gravity drainage on top of the intermediate cover will be used.

The stormwater rain flaps will be removed as the waste filling progresses to their location. In addition to their removal, the leachate collection pipe shall be connected to drain the leachate from that next portion of the cell. The stormwater rain flaps serve only the initial lift of the landfill.

As a rule, any water that directly contacts waste will be defined as leachate. Any water that is diverted away from the waste, and does not contact any waste, is defined as stormwater. Leachate will be managed in the leachate management system and stormwater shall be directed to the stormwater management system.

D. LEACHATE MANAGEMENT

Leachate is the liquid waste generated as stormwater passes through the landfill waste mass. In the landfill, this leachate is collected by a system of perforated pipes and sand media on top of the base liner system. In cells 3 through 11, the leachate flows by

gravity through this system to a leachate penetration assembly and then leaves the lined landfill via gravity mains to leachate pumping stations. The leachate is pumped from the pumping stations to one of two leachate storage tanks. In cells 12 through 14, leachate will flow by gravity to a leachate sump where it will be pumped through a force main into a leachate manhole located due west of cell 11. From there it will travel via gravity mains to existing leachate pumping stations and from there to the leachate storage tanks. Leachate will be stored in the tanks until it is periodically transported to an acceptable treatment facility, or is recirculated or irrigated onto the lined cell areas. The leachate storage tanks are glass lined steel tanks capable of holding at least thirty days volume of leachate. For this site, a 250,000 gallon tank and a 162,000 gallon tank are provided. These tanks have separate secondary containment structures capable of holding 110% of the tank volume. This is a sealed containment so it will be the operator's responsibility to pump off uncontaminated stormwater from the secondary containment. These tanks have been designed so that leachate may be transferred from one tank to the other to aid in leachate management.

The chemical composition of untreated leachate generated will be analyzed, at a minimum, semi-annually. The leachate samples will be collected from the leachate storage tank sampling port and shall be analyzed for the Detection Monitoring constituents (EPA Appendix I list for Detection Monitoring as incorporated by reference in Rule.1633), as well as pH, specific conductance, BOD, COD, TSS, phosphate, nitrate, sulfate. Test results will be submitted to the Section.

The leachate management system is sized based on the "Hydraulic Evaluation of Landfill Performance Model" (HELP Model), developed by the U.S. Army Corp of Engineers for the Environmental Protection Agency. The HELP Model cases, runs, and results are included with the leachate system design calculations.

In addition to using the HELP Model to size the leachate management systems, the following design standards, which exceed the North Carolina minimum design standards, shall be incorporated.

1. All leachate collection lines shall be a minimum of 8" diameter instead of the North Carolina minimum of 6" diameter.
2. All leachate lines shall have a minimum 8' wide leachate collection column of ASTM #57 stone to serve as both a filter for the leachate pipe and as a redundant flow path for leachate in the event the leachate pipe somehow becomes clogged. This column shall extend from the base liner upward for at least the height of the protective cover or 24". This gravel redundant flow area is roughly 50 percent void space of the 16 square foot gravel column for an 8 square foot flow area, which is many times the area of the 8" diameter leachate pipe and an even greater ratio when compared to the North Carolina standard 6" diameter leachate collection pipe.

3. Where a protective cover system which utilizes natural sand, manufactured sand, or native soils is used, there shall be a 2 foot minimum thickness of ASTM #78 or #89 stone filter media to assure fines in the protective cover system do not enter the ASTM #57 gravel column.
4. All sideslope riser sumps shall have a double layer of Geosynthetic-Clay Liner (GCL) above the clay or low permeability soil liner and below the Flexible Membrane Liner (FML).
5. All sideslope riser pumps shall have a flow meter which shall be monitored no less than weekly, with the results to be placed in a tabular chart in the Facility Operating Record.
6. If at any time North Carolina Department of Environmental and Natural Resources – Solid Waste Section has evidence of a line blockage, based on their observations and review of the records, the landfill will upon receipt of a written request for a camera inspection, conduct same within 90 days of such written request, with the tape/disk of the inspection made available to the Solid Waste Section.

The site currently contracts with a third-party vendor to perform inspections and maintenance on the pump and control system on a semi-annual basis. In addition, the facility will continue monitoring leachate flows in those cells with sideslope riser pumps and the tank levels on a weekly basis. The pump inspections will record flow data, pump hours, and leachate levels on a leachate pump log. This log will continue to be reviewed on a monthly basis for flow and pump issues. This data is compared to historical leachate generation data to understand and predict existing and future flows. In cells with sideslope riser pumps, monitoring of the pump hour meter and flow meter provides a good early warning system when pumps are down. If the pump hour meter is changing and the flow meter is not, this indicates a possible blockage at the check valve. If neither the pump hour meter nor the flow meter are changing, this indicates a possible electrical or pump control issue. Leachate flows in cells with penetration assemblies will be monitored by visual observation at each manhole. Valves in these gravity lines will be tested to ensure proper functioning.

Pump drawdown tests are performed in cells with sideslope riser pumps when observations indicate a significant drop in daily flows from a particular cell or when pump hour meter readings are higher in a given month than normal. The test is performed by manually operating the pump and timing the drawdown to a lower level and then timing how long it takes for the level to recharge back to the higher level. The test is repeated three to four times. A fast drawdown and recharge time typically indicates sediment build-up and reduced storage volume in the sump area. When this condition is encountered, a vacuum truck is scheduled to come and vacuum out the sump. The pump drawdown tests are repeated to verify proper functioning. If pump drawdown tests results have not improved, jet cleaning of the sump and lines may be performed.

All future leachate collection lines after Cell 12 shall be designed and constructed to permanently allow cleaning and remote camera inspection. Remote camera inspections

of the leachate collection lines shall occur upon completion of the construction and at least once every 5 years thereafter until such time as may be determined by the Section that camera inspections are no longer necessary. Cleaning and periodic maintenance of all readily accessible leachate collection lines will be conducted as necessary for proper functioning and to and address buildup of leachate over the liner.

The site currently contracts with a third-party vendor for semi-annual maintenance inspection of leachate collection pumps and leachate transfer area pumps. These inspections included a detailed checklist of the control panel, electrical, pump, flow meter, risers, wet wells, and additional items. All data collected is compared to the last system inspection report and a detailed service report record is generated for each pump. These reports will be included in the facility operating record.

The operations of the leachate storage and treatment plan should include the following:

1. The tank filling is handled by automatic level controls on the leachate pumps.
2. When the combined tank capacity reaches 50%, removal of leachate should begin.
3. Should the tank filling exceed 60% of the capacity of both tanks during normal operations, the operator should utilize additional measures to expedite removal of the leachate.
4. Unless other provisions are made, all leachate shall be transported to an approved wastewater treatment facility, or it shall be recirculated into the waste mass.
5. On a weekly basis, inspect the secondary containment systems and the tanks for any leaks. If none are present, record the inspection, and then pump off any accumulated stormwater. Place the inspection reports in the operating record.
6. Records shall be maintained by the landfill operator of the following:

    a. Daily volume of leachate generated
    b. Daily volume of leachate recirculated into the waste mass
    c. Analytical records of leachate quality
    d. Records of days when stormwater is pumped from the secondary containment systems
    e. Weekly inspections of the leachate tanks
    f. Daily inspections of the leachate pump stations or sideslope riser pumps
    g. Weekly volume of leachate in the tank
    h. Records of any equipment breakdowns
    i. Maintenance records

Special attention should be given to managing rainfall events to reduce, as much as possible, the surge volumes caused by these events. A major part of this leachate management is discussed in item C - Cell Filling/Stormwater Management. In that

discussion, it is recognized that it is possible that a 5 inch rainfall event (over a 2 acre subcell) could create a surge of up to approximately 272,000 gallons of stormwater (initial lift only) that would require treatment as leachate. This event could be handled by all components of the leachate management system including the storage tanks if leachate is removed from the tanks during and immediately following the rainfall event.

Operations require the normal level of the combined tanks to be below 50% full. And in addition, the operations require expedited removal of leachate any time the tanks approach a 60% full condition. The 50% full tanks would have a remaining volume of about 206,000 gallons. This, along with short term storage available in the cells, would be adequate to hold the surge volumes discussed in this section.

Should this storm surge occur when the filling was being done in the initial lift of a cell, it would produce a very low strength or very dilute leachate. As a contingency, Republic Services of North Carolina, LLC will continue discussions with alternative wastewater treatment facilities to accept this potential surge volume of dilute leachate. Also, this leachate can be recirculated through the waste mass. Leachate recirculation will be accomplished by returning the leachate to the landfill where it will be distributed through a leachate recirculation trench or irrigated onto grassed areas of the lined cells.

Also, Republic Services of North Carolina, LLC may negotiate contracts with commercial handlers of industrial wastewater for the treatment of any surge volumes.

Areas of special attention by the landfill operator include:

1. Maintain the cell internal stormwater rain flaps to assure segregation of stormwater from the leachate. The operator should use reasonable measures to minimize leachate generation throughout the landfill operating life.
2. Maintain cross slope and surface drainage on the landfill top to promote run-off of stormwater. Any stormwater that can be drained from the surface above the waste will not contribute to the leachate generation.
3. Pump off stormwater in the cell that is segregated from contact with the waste fill area.
4. Inspect the leachate storage tanks and the secondary containment systems. Maintain removal of leachate from the tanks, and pump off stormwater from the secondary containment system.

   With aggressive leachate management activities by the operations personnel, stormwater surges caused by rainfall events as great as the 25 year rainfall event can be handled by the system. Contingency for events that potentially exceed this event include:

   a. Establish relationships with other leachate treatment facilities to handle potential surge volumes of leachate.
   b. Establish a relationship with a commercial wastewater handler for potential surge volumes of leachate.

Should this contingency plan ever be activated, records should be kept documenting all activities related to the event. These should be maintained in the operating record of the site.

E. LEACHATE RECIRCULATION

The Section approved leachate recirculation at the East Carolina Landfill as a liquids management tool in a letter dated May 28, 2003. At that time, no further reports regarding leachate recirculation were required to be submitted to the Section, although the right to ask for future reports was reserved.

1. The following conditions will be met and followed by East Carolina Environmental prior to and during the leachate recirculation:

   a. Rain Gauge and Thermometer:

      A rain gauge and thermometer will be installed near the landfill office. These instruments will be read daily at the start of business. The amount of rainfall and temperature will be recorded on the leachate recirculation log.

   b. Base Line Sampling of Leachate:

      The base line sampling of the leachate has been performed. This sampling and testing will continue on a semi-annual basis. The reports will be kept on file at the landfill office in the Facility Operating Record.

   c. Operational Procedures:

      Recirculation will be accomplished by pumping leachate from the leachate storage tank through dual contained piping from outside the leachate tank secondary containment to the landfill cell. Once inside the landfill cell, the pipe will not be dual contained. The leachate will be injected into a leachate recirculation trench (4' to 6' below top of waste surface) consisting of pipe, stone, and fabric. Alternatively, leachate may be used for irrigation of vegetated areas over the composite liner system.

      Leachate will only be recirculated over composite liner systems having a 2' thick clay liner with permeability # $1x10^{-7}$ cm/sec, a minimum of 60 mil FML liner, and a 2' protective cover material. Leachate recirculation will not be allowed over alternate liner systems unless specifically approved by the Section.

i. The procedures to be used for injection into the recirculation system are as follows:

a) Check the operation of the pump and valves at the leachate tank and the leachate recirculation trench.
b) Calculate the volume of leachate that the waste mass can accept.
c) Record the volume and method of leachate being recirculated into the landfill on the leachate recirculation log.
d) Distribute the leachate through the force main into the leachate recirculation entry point. This entry point will be either an above grade sprinkler system or an above grade vertical solid pipe where leachate can be discharged for entry into the subsurface leachate recirculation system. Care should be used to assure the pump's discharge rate does not exceed the entry point's capability to accept the leachate. Overflow of the entry point is not allowed.
e) At conclusion of recirculation activity, inspect cell for excess leachate concentrations or blow-outs. The recirculation system will be inspected daily to check for leachate overflows. These inspections will be recorded and maintained in the Facility Operating Record and the leachate recirculation log. Do not allow discharge of leachate outside the cell under any circumstances.

ii. Complete the Leachate Recirculation Log Form and make notes of problems or corrections needed. A copy of this form can be found in the Appendix of this Operation Plan. (Copies of these logs will also be maintained on-site for review by the Section.)

iii. The recirculation system and the area in which leachate is being recirculated will be inspected daily during recirculation operations to check for excess leachate concentrations, leachate run-off, or blow-outs. Results of these inspections will be recorded and maintained in the Facility Operating Record and the leachate recirculation log.

iv. Should run-off or side seepage be noticed, leachate recirculation will be ceased. Discharge of leachate outside the cell will not be allowed in any circumstances. Any seepage will be covered and compacted with 12" of soil and these remedial activities will be recorded and placed in the Facility Operating Record.

Recirculation will be accomplished by one of three methods: recirculation via subsurface infiltration trenches, irrigation of grassed

areas, or direct application to the working face using spray on methods.

Leachate will also be recirculated using an agricultural irrigation system which sprays leachate on areas of the landfill which have received intermediate cover and are grassed. Recirculation rates shall vary based on season and recent precipitation rates. Leachate will only be recirculated over cells with the composite liner systems having a 2' thick compacted clay liner with a maximum permeability of $1x10^{-7}$ cm/sec, a minimum of 60 mil FML, and a 2' thick protective cover material. Leachate recirculation will not be allowed over alternate liner systems unless specifically approved by the Section.

d. Suggested Equipment:

The following equipment may be used for leachate recirculation depending on the method utilized:

1. Centrifugal pump (mounted inside secondary containment of the leachate tank) with force main to landfill cell.
2. Drawings showing the recirculation lines, injection point and orientation to cell sideslopes.
3. Agricultural irrigation sprinkler system
4. Water Truck equipped with spray nozzles

e. Leachate Logs And Recordkeeping Forms:

Logs will be maintained for leachate production and leachate recirculation. These logs will be kept in the Facility Operating Record for review by the Section.

1. Daily/weekly record of leachate generated:
   Daily, the volume of leachate in the leachate storage tanks will be recorded on the leachate log. The leachate log will be made part of the Facility Operating Record.
2. Daily/weekly record of leachate recirculated:
   Daily, the volume of leachate recirculated will be recorded on the leachate log. The leachate log will be made part of the Facility Operating Record.
3. Weather conditions and other pertinent daily information:
   Daily, the weather conditions along with any other data pertinent to leachate recirculation will be recorded on the leachate log.

f. Operating Log and Record Keeping Forms:

A log will be kept for reporting operating or any other unusual problems for leachate recirculation. All actions taken to remediate

any problems due to leachate recirculation will be documented and recorded in the Facility Operating Record. A trained landfill operator will be responsible for overseeing the leachate recirculation operation.

g. Other Logs and Record Keeping Forms:

Any additional forms or procedures (as required) not found in this plan will be maintained in the Facility Operating Record.

h. Analysis of the Field Capacity of the Waste where Leachate is to be applied:

Based on previously submitted information, the capacity of the leachate collection system will allow a maximum of 2,188 gallons per acre per day for cell areas with a waste depth greater than or equal to 50'. The average daily recirculation rate should not exceed this rate. These values are based on values obtained from previous HELP Model evaluations on the existing liner system. It is estimated that the existing leachate recirculation system will impact approximately 2.3 acres of liner. Therefore, a conservative maximum daily recirculation rate for the leachate recirculation system, utilizing subsurface infiltration trenches, is set at 5,000 gallons per day.

Expansion of the leachate recirculation system will allow for an increase in the maximum recirculation rate. The leachate recirculation plan section of the Operation Plan will be amended if expansion becomes necessary.

2. East Carolina Regional Landfill will follow these additional operational conditions during leachate recirculation:

a. Records will be kept on a daily/weekly basis and will be maintained in the Facility Operating Record.
b. No leachate will be recirculated when it is raining, or when the waste is too wet. A rain gauge will be installed on-site and monitored daily.
c. No run-off or side seepage will be allowed. Should run-off or side seepage be noticed, leachate recirculation will be ceased. Any areas of seepage will be covered and compacted with 12" of soil and these remedial activities will be recorded and placed in the Facility Operating Record.
d. Odors will be controlled. Should odors be present at levels determined undesirable by the facility Operator, leachate recirculation will cease.

e. Leachate will be recirculated or irrigated during daylight hours only.

f. The application system will be properly maintained and documented. All records dealing with the application system will be maintained in the Facility Operating Record.

g. Plans of the subsurface leachate recirculation system will be kept in the Facility Operating Record. The operation of this system has previously been discussed. Maintenance of the system will include:

1. Assure force main and valves do not leak. In the event any leaks are observed, the force main or valves will be repaired as necessary.
2. Any spills at the recirculation entry point(s) will immediately be cleaned up to prevent seepage of leachate outside the limits of waste. Clean up activities may include use of absorbent materials or soil cover. Any clean up activities will be recorded and placed in the Facility Operating Record.
3. Replace the subsurface recirculation lines if they become clogged or damaged.
4. Record any irregular maintenance requirements in the Facility Operating Record.

F. RANDOM INSPECTION PROGRAM

The landfill is permitted as a municipal solid waste landfill and as such must not receive regulated hazardous or nuclear wastes. It is important that such wastes not enter the landfill because of the potential damage and liability these wastes could cause should they enter the environment.

Random inspection of vehicles will be conducted on a regular basis. The selection must be at a frequency of at least one vehicle per week. The frequency of random inspections may be increased at the Division Manager's discretion. The personnel conducting the inspection will randomly select the load at the working face of the landfill and the inspection will be completed in a designated area near the working face. A random truck and time will be selected (e.g., the second load after 8:00 a.m.) on the day of inspections. In addition, any suspicious load shall be inspected.

Results of random inspections shall be recorded; report forms are included in the Appendix. One form shall be completed for each inspection. All reports and resulting correspondence are to be maintained in the East Carolina Regional Landfill facility operating record for the life of the landfill and during the post-closure period. The presence of any regulated hazardous, liquid or regulated PCB wastes or otherwise prohibited wastes identified during random inspections shall be reported to the Section. Inspections shall include truck identification, driver's name, source of material(s) if possible, or route and what, if any, prohibited material(s) were included. If none were observed, or only normal quantities of household hazardous waste, this too should be logged.

Inspections will be carried out and supervised by landfill staff trained to identify and manage hazardous and liquid waste. Landfill operators responsible for screening waste are trained in waste screening.

The following action plan required by Rule .1626(1)(f)(iv) addresses identification, removal, storage, and final disposition of wastes, and details the procedure for conducting random waste inspections.

- Stop the selected vehicle prior to the working face of the landfill.

- Notify the driver of the inspection.

- Direct the vehicle to the inspection area. The inspection area may be either a permanently designated location or a temporary location adjacent to the working face.

- If possible, perform a visual observation of the waste prior to unloading. If unauthorized waste is observed, or suspected, the vehicle shall be prohibited from unloading, and shall be directed out of the facility.

- If no unauthorized waste is observed or suspected from the visual observation, or if a visual observation is not possible, the vehicle shall discharge the load at the inspection area. The driver shall remain at the inspection area while the inspection is performed, unless a safety concern requires evacuation of the area. Equipment shall spread and turn the waste to facilitate a visual observation of the load contents. If no unauthorized waste is identified, the waste shall be transferred to the working face for disposal.

- If unauthorized waste is identified in the load, and the unauthorized waste is not a regulated hazardous waste, a regulated medical waste, a regulated nuclear waste, or a waste which requires special handling, the waste shall be loaded back into the vehicle and removed from the facility.

- If acceptability of the waste can not be determined by visual observation, the waste can either be rejected and loaded back into the vehicle and removed from the facility, or samples of the waste can be taken to determine acceptability. Testing shall be selected based on the reason for the suspicion of unacceptability.

- Unauthorized wastes suspected of being a regulated hazardous waste, a regulated medical waste, or a regulated nuclear waste shall be managed in accordance with all applicable federal, state and local regulations. Republic Services of North Carolina will contact the proper authorities if any of the above prohibited wastes are received at the facility. This includes the Section, County

Emergency Personnel and the local HAZMAT by calling 911. In addition, responsible parties will be notified of all rejected loads, if possible.

G. WASTE SOLIDIFICATION

Refer to the Permit to Operate and the Waste Solidification Plan, which are both attached in the Appendix.

H. STORM DRAINAGE

The landfill is divided into several areas with peripheral earthen diversion berms and stormwater conveyance channels. The diversion berms/channels allow for stormwater run-off to exit at the low side of each area. Exterior diversion channels via surface drainage will carry the surface stormwater flow to a sediment basin (stormwater management basin). The sediment basins are used for final trapping and settlement of sediment. The basins are generally designed in accordance with the NCDENR Stormwater Best Management Practices Manual. As an area's operations progress, the back surfaces should be sloped away from the active (working) face of the landfill to minimize the amount of stormwater flowing into the active cell and thus minimize the potential for leachate generation.

Care should always be used to assure that stormwater and leachate do not mix. In cases where they mix, the entire volume of mixed water must be treated as leachate. The operator may use temporary devices such as berms, stormwater conveyance channels, etc. to divert surface water away from the working face to avoid leachate generation.

I. MONITORING

Groundwater was tested before any waste filling began at the landfill site to establish "background" quality of the groundwaters. Upgradient and down gradient monitoring wells were provided for initial groundwater quality testing and for routine groundwater quality monitoring during the life of active landfill operations and for monitoring groundwater quality during Post-Closure.

Monitoring wells, located downgradient from landfilling operations, will be used to monitor the quality of the groundwater. Depth, location and screening interval(s) of the groundwater monitoring wells will be determined during construction of the facility. Monitoring wells are located upgradient and downgradient of the landfill for detection of leachate contamination and movement. Routine monitoring results and records are to be placed in the operating record and submitted to the Section. Monitoring data, quality assurance / quality control data, statistical analyses, chain of custody records, and any other required information should be submitted to the Section within 120 days of the respective sampling event in accordance with the general conditions in the permit to operate.

1. Groundwater Monitoring

   A Water Quality Monitoring Plan, including information on the proposed groundwater monitoring system(s), sampling and analysis requirements, and detection monitoring requirements that fulfills the requirements of Rules .1633 through .1637 is included as Appendix E of the *Design Hydrogeologic Report, East Carolina Regional Landfill, Phase 5.* Groundwater monitoring shall continue throughout the Post-Closure period in accordance with the approved Plan.

2. Surface Water Monitoring

   A Surface Water Monitoring Plan has been designed to detect the effects of the facility on surface water in the area. This plan is included as part of the Water Quality Monitoring Plan as referenced above. Surface Water monitoring shall continue throughout the Post-Closure period in accordance with the approved Plan.

3. Leachate Monitoring

   Leachate Monitoring is part of the facility Operation Plan. Leachate management will continue at the facility during the Post-Closure period as long as leachate continues to be generated or until the owner or operator demonstrates that the leachate no longer poses a threat to human health and the environment.

4. Landfill Gas Monitoring

   Landfill Gas Monitoring is included as part of the facility Operation Plan. Landfill Gas Monitoring shall continue throughout the Post-Closure period in accordance with the approved Plan.

J. FINAL GRADES

It is important that the final grades indicated on the Engineering Plans for the landfill are achieved as early as practicable throughout the filling operations so that stormwater run-off can be controlled. Stable compost and soils in conjunction with an FML will comprise the final cover cap. If the final grades on the cap are too steep, then erosion problems may occur. If the final grades on the cap are too flat, then ponding may occur and the amount of stormwater penetrating the landfill could increase; thereby, increasing the potential for generating leachate. The operator should also realize that subsidence (or settlement) of the landfill surface will likely occur, which may affect drainage patterns. Thus Post-Closure maintenance of the landfill must include surveillance of drainage capability on the crown and slopes. As intermediate grades are achieved, the operator will construct side slope drainage berms with sideslope drain pipes to control stormwater runoff. The drainage berms will be routed to side slope drain pipes. Maintaining adequate vegetative cover is critical.

K. SEEDING

The specifications for seeding of disturbed areas must be followed to minimize erosion. Solid waste will have a completed elevation below final cover surface elevations on the top of the facility. This will allow the operator to install a soil infiltration layer (where required), an FML top liner, a drainage layer, an 18" thick root zone/protective media, and a 6" thick vegetative growth media. The 6" thick growth media shall be placed to final grade and the area seeded. Seeding specifications are included in the Technical Specifications.

L. MAINTENANCE

Maintenance of the erosion control measures will be required throughout the life of the landfill and during the Post-Closure care period. After rain events and when slope conditions allow, it will be necessary for the landfill operator to check silt fences and sediment basins for silt buildup, or any type of damage or loss of functionality that may have occurred. The operator shall inspect the cover after rainfall and on a monthly basis during operations. Repairs must be made in a timely manner. Restoration of eroded areas on the surface is important to minimize the amount of water entering the landfill. Slopes providing drainage from the cap or crown surface must be maintained as well as vegetation to prevent cracks or fissures in the surface cap or crown due to erosion.

M. FIRE HAZARD

By keeping the landfill clean and the waste covered daily, the potential for fire can be lessened. If a fire occurs within the waste, it may be controlled by digging out the burning material, spreading and then recovering it with soil. Fire extinguishers should also be readily available. Arrangements should be made with local fire departments to establish procedures for extinguishing landfill fires. The Windsor Fire Department would serve the landfill site should there be a fire.

Incoming waste loads shall be observed by site operators for evidence of fire, such as flames, smoke, or the odor of burning material. Burning loads will be extinguished before dumping if possible. If there is evidence of fire in the landfill itself, the general manager will be notified immediately. If possible, the waste will be removed or segregated from other waste in the disposal area. The landfill general manager will evaluate the situation to determine whether the fire can be extinguished using fire extinguishers or equipment present at the site, or if off-site equipment will be needed. If necessary, the local fire department (The Windsor Fire Department) will be called to render assistance in extinguishing the fire.

If there is a fire at the landfill, the operator must notify the Section and report if the fire has been controlled and what (if any) environmental damage may have occurred. The Section Rule .1626(5)(d) requires that any fires that may occur at the landfill be reported verbally to the Section within 24 hours and in writing within 15 days. A copy of the NCDENR Fire Occurrence Notification Form can be found in the Appendix.

Fire extinguishers shall be located on each piece of equipment on site as required by Rule 1626(5)(c). Equipment operators shall be trained in the use of these extinguishers. Fire extinguishers will be used for small, localized fires. A stockpile of soil shall be maintained near the working face to be used for extinguishing small surface fires that may be too large to control with the fire extinguishers carried on the landfill equipment.

Emergency equipment will be called in the case of fires too large to be extinguished with fire extinguishers or soil as described above. Water contained in the sedimentation basins or inactive borrow areas can be used in an emergency to aid local firefighters in extinguishing large fires.

N. OPEN BURNING

Open burning of solid waste including yard waste and brush is prohibited at the landfill. Infrequent burning of land clearing debris generated on-site including brush and/or stumps or debris from emergency clean-up operations would only be requested on an infrequent basis in conjunction with clearing or construction events. Any such burning shall be approved by the Section prior to commencing burning activities.

O. FIRE PREVENTION

The landfill operator will be responsible for prohibiting acceptance of burning materials in the landfill. Cigarettes, lighters or any type of burning shall be prohibited in the active areas.

P. ODOR CONTROL

Odors are best controlled by daily cover, as well as by adequate compaction. Diligent and effective daily covering of the compacted wastes should prevent odors.

Q. VECTOR CONTROL

Solid waste shall be covered daily with a minimum of six inches of soil or an approved alternative cover material to ensure that all food sources and potential habitats are buried.

R. INSECT CONTROL

Keeping the landfill clean and the solid waste covered daily, along with surveillance for and the elimination of any standing water in the waste filling areas, should prevent insect problems.

S. LITTER CONTROL

Use of movable screens or fences to capture windborne litter, followed by routine manual cleaning of the litter fence is strongly recommended. Fences should be cleaned on a regular basis. Frequent soil coverings during particularly windy days, and immediately covering and/or compacting and mixing light debris, should be performed to lessen the chances of blowing litter. During periods of high winds >25 mph, the

landfill operator will collect blown trash, which primarily consists of plastic bags, in a reasonable time period following the event in a safe, orderly manner. Putresubles will be collected immediately.

T. DUST CONTROL

Dust should be controlled by wetting down or applying calcium chloride, or polymer based solutions or adding stone to problem areas to mitigate dust problems. Calcuim chloride absorbs moisture from the air. Oil cannot be used for dust control.

U. LANDFILL GAS MANAGEMENT

The facility has a landfill gas collection and control system currently in place. This system is operated in accordance with the New Source Performance Standards (NSPS) and will be expanded in accordance with applicable regulations. Any expansion or addition to the existing landfill gas collection system will be submitted to the Solid Waste Section prior to implementation. In the future, the facility may choose to operate a gas to energy facility instead of burning the collected gas.

V. ACCESS ROADS

The access roads are to provide smooth hauling conditions from entrance of the site through the weigh station to the landfill cell. It will be the responsibility of the landfill operator to maintain the paved, temporary dirt, and graveled access roads within the site. Keeping haul routes open for safe and efficient traffic movement is a key factor in achieving smooth landfilling operations. As landfilling operations achieve higher elevations, the operator will need to adjust road locations in such a manner that temporary access roads are run up the slopes gradually in ramp fashion.

Access in the operations area may pose problems during wet weather. Therefore, it is suggested that temporary roads be constructed using stone and sloped to shed water away from the temporary access roads in the landfill. Shredded tires or other inert material may also be used for temporary road construction. Reuse of stone and replenishment of stone should be practiced when constructing new access roads.

W. EQUIPMENT

The equipment listed under Site Operation & Maintenance should be adequate for efficient operation of the landfill. Regular maintenance of the equipment will reduce repair problems, downtime and unnecessary costs.

X. BUILDINGS AND STRUCTURES

A Scale House is provided to house the scales and ticket operations. The Operations Office and Maintenance Building are also located on-site.

Y. SECURITY

Fencing and natural barriers are provided to discourage vandalism, scavenging or trespassing from occurring when the landfill is not open. Screening by trees located along the property line should discourage 4-wheelers and other unauthorized vehicles from entering the site. Site boundaries should be checked regularly for evidence of unauthorized personnel and vehicle entry. The front gate should be locked when the landfill is closed to operations. Scavenging must be prohibited and enforced by the operator. Lines of communication should be established with the Sheriff's Department to perform routine surveillance of the facility.

Z. SIGNS

Posting of "No Trespassing" signs around the periphery of the landfill will help to discourage scavengers and unauthorized entry. A sign containing information required in Rule .1626(6)(e) (i.e., dumping procedures, hours, permit number, etc.) is posted at the landfill entrance. Traffic signs and markers are posted to promote orderly traffic patterns to and from the disposal area and to maintain efficient operating conditions. Signs are posted stating that no hazardous or liquid waste can be accepted.

AA. PHASING AND SEQUENCE OF FILL

The East Carolina Regional Landfill will be developed in a series of phases, each designed to handle waste disposal for periods of five years. The fifth phase (Phase 5) consists of two cells (13 & 14).

VI. COMPLIANCE WITH THE SEDIMENTATION POLLUTION CONTROL ACT OF 1973

Erosion and sediment will be controlled on the site to prevent the discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act. This includes, but is not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, Section 402. In addition, the site shall not cause the discharge of nonpoint sources of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or State-wide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act, as amended. Surface water shall be diverted from the operational area and shall not be impounded over or in waste.

All vegetative and structural erosion and sediment control practices have been designed and shall be constructed and maintained according to the North Carolina Erosion and Sediment Control Planning and Design Manual. A copy of the *East Carolina Regional Landfill, Phase 5, Erosion and Sediment Control Plan* has been prepared incorporating adequate measures to control surface water run-off and run-on generated from the 24-hour, 25-year storm event and approved by the the Land Quality Section.

VII. COMPLIANCE WITH DESIGN REQUIREMENTS

A. COMPLIANCE WITH EXPLOSIVE GAS REQUIREMENTS

The proposed landfill operations will involve various amounts of municipal solid wastes on a daily basis. Considering the large lateral slope (surface area) which will allow the produced gas to easily escape and disperse, conditions should not develop that would produce explosive concentrations. Routine monitoring for gas concentration should be performed. Methane gas monitoring probes are shown on the plans.

These monitoring probes shall be installed according to the detail shown on the Engineering Plans. The points shall be monitored on a quarterly basis during the operating life. Results shall be recorded and placed in the permanent operating record of the site. Any time the monitoring indicates the Lower Explosive Limit (LEL) is being approached, a plan shall be developed to assure that the LEL is not exceeded at the landfill boundary. Any on-site structures (eg. Scale House, etc) shall also be evaluated for methane concentrations on a quarterly basis. Should the levels of methane approach 25% of the LEL, immediate action shall be taken to see that 25% of the LEL is not exceeded. Temporary points may be bar punch holes.

B. COMPLIANCE WITH SURFACE WATER REQUIREMENTS

Sediment basins have been designed to prevent migration of sediment off-site. Preventing migration of contaminants from a landfill is a continuous concern. Design features and proper operational procedures should prevent surface waters from becoming contaminated. Surface water monitoring points have been established to monitor water quality upstream and downstream to determine the effects from the landfill.

All inspections of surface water and sediment control structures shall be documented, and copies of these reports shall be placed in the operating record.

C. COMPLIANCE WITH GROUNDWATER REQUIREMENTS

Groundwater protection has been considered in the siting and design of the landfill. Groundwater monitoring wells will ascertain compliance with the groundwater quality standards. Groundwater monitoring well locations are indicated on the Environmental Monitoring Plan. Groundwater is monitored on a semi-annual basis during operations and will continue into post-closure.

D. COMPLIANCE WITH PERMIT REQUIREMENTS

A copy of the landfill Engineering Plans and Permit To Operate from the North Carolina Division of Waste Management - Solid Waste Section shall be kept in the landfill office. The operator is responsible for being familiar with the permit requirements and ensuring compliance therewith.

VIII. SOIL MATERIAL TYPES AVAILABLE FOR BORROW

A combination of on-site borrow soils and imported soils may be required for the facility. Imported soils are being identified for use in projects at the appropriate times. It should be noted that the estimates of material types are based on both soil borings and backhoe pit excavations. Actual material types will be determined as the material is excavated.

IX. CLOSURE AND POST-CLOSURE PLANS

A. PURPOSE

The purpose of closure and post-closure plans is to meet the requirements of Rule .1617 and to provide the operator guidance on how the plans will be carried out. Site closure can occur at any time during the life of the facility and the closure plan should recognize that by evaluating a worst case scenario. A worst case scenario assumes that the facility is closed on the date when the effort to close would be the greatest. See Item B below. The post-closure activities are detailed in Item C below.

B. CLOSURE PLAN

Individual cells of the East Carolina Regional Landfill may be closed after the final deposition of waste within that landfill cell occurs. Complete closure will occur once all landfill units reach final grade. Prior to closure of that unit, the operator will either cover portions of the cells with one foot of compacted earth cover (intermediate cover) or will install the final cap (final cover) on that section. This cap detail is labeled the final cover system.

1. Upon closure of any unit, or portion of a unit, the operator shall:

    a. Notify the Section in writing in order that a site inspection may be made to determine compliance with closure procedures.

2. An inspection shall be made by a representative of the Section and a written statement will be supplied to the operator concerning the closure of the site.
3. When a solid waste disposal site has been closed in accordance with the requirements of the Section, future necessary maintenance and water quality monitoring shall be the responsibility of the owner and/or the operator and will be specified in the closure letter.
4. Final Cover -- The capping system for final cover will include the following components:

    a. 18 inch thick cohesive soil layer with a permeability no greater than $1x10^{-5}$ cm/sec (this is not required on side slopes);
    b. 40 mil LLDPE or equivalent flexible membrane liner;
    c. Drainage layer above the 40 mil liner (i.e. geocomposite drainage media);
    d. Geotextile non-woven drainage fabric above the drainage layer;
    e. A minimum of 18 inch thick soil layer that will provide an erosion layer.
    f. A 6" thick topsoil layer.

The 18 inch thick cohesive soil layer (with a permeability no greater than 1×10^{-5} cm/sec) will be placed on slopes less than 10% using a maximum of 8-inch thick loose lifts and compacted to at least 90% of Standard Proctor maximum dry density at a moisture content no more than 2% below or 5% above optimum moisture content for that soil.

The total airspace of Phases 1 through 4 (Cells 3-12) has been estimated as 12,500,000 cubic yards. An estimate of the total airspace in Phase 5 is 3,854,000 cubic yards. After allowing for daily/intermediate cover, cap and soil protective cover, a total of 3,425,000 cubic yards (2,400,000 tons) of waste will have been disposed of in the Phase 5 portion of the facility. Supporting calculations are included in the Narrative Appendix. The calculation is based on the volume between proposed top of protective cover grades and the base of the landfill cap, and assumptions regarding the density of waste and amount of cover soil in the fill.

The permitted East Carolina Regional Landfill encompasses approximately 662 acres, 150 acres of which are approved for lined capacity by the Solid Waste Section. The approved lined capacity acreage has been subdivided into seven (7) five-year Phases containing 24,200,000 cubic yards of waste. The facility is currently operating in Phases 4 and 5, which includes cells 11, 12, and 13. Construction of cell 13 was completed in July 2013 and a Permit To Operate was issued by the Solid Waste Section on August 23, 2013.

The facility will be closed in accordance with the requirements of Rule .1627 of the North Carolina Solid Waste Management Rules (15A NCAC 13 B). The landfill cap shall be placed over a completed cell area within 180 days of receipt of final waste in that cell, weather permitting. Construction of the cap shall conform to the final grades shown on the plans. An approximate 4.5 acre area of the facility has already been capped. The remainder of the facility may be capped in one construction event or in phases.

Prior to beginning closure of a completed cell or an entire unit, the operator shall notify the Section of the intent to close the area.

Following closure of each unit (i.e.: An area that is discreet from other waste units), or portions of units, the operator shall notify the Section that a certification, signed by a professional engineer verifying that closure has been completed in accordance with the closure plan, and applicable solid waste regulations and laws as required by Rule .1627(c)(7) has been placed in the operating record.

Following closure of all the MSWLF units, the operator shall record a notation on the deed to the landfill facility property, or some other instrument that is normally examined during a title search, and notify the Section that the notation has been recorded and a copy has been placed in the operating record.

The notation on the deed shall in perpetuity notify any potential purchaser of the property that:

1. The land has been used as a landfill facility; and
2. Its use is restricted under the closure plan approved by the Section.

Once closure is complete, a survey plat will be prepared by a registered land surveyor showing the locations and dimensions of the landfill disposal areas, the locations of groundwater monitoring wells and methane gas monitoring probes, and the restrictions on future disturbance of the site.

The costs for closure of the facility are updated annually for this facility. These updated costs are submitted to the Section annually for review and approval under separate cover.

C. POST-CLOSURE ACTIVITIES

The landfill operator will be responsible for 30 years of post-closure care of the East Carolina Regional Landfill, after final closure of the landfill facility. These post-closure activities insure the environmental integrity of the facility. The planned use for this landfill facility after closure will be as a "greenspace" consisting of vegetated areas and buffers. The facility post-closure will be carried out in a manner that promotes non-destructive use by wildlife. (eg: landfill surface will be grassed, etc.)

The operator shall perform the following activities during the post-closure period:

1. Maintain the integrity and effectiveness of the cap system, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cap system;
2. Maintain and operate the leachate collection system in accordance with the requirements in Rules .1624 and .1626. (The Section may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment);
3. Monitor the groundwater and surface water in accordance with the requirements of Rules .1631 through .1637, and maintaining the groundwater monitoring system, if applicable; and monitoring the surface water in accordance with the requirements of Rule .0602; and
4. Maintain and operate the gas monitoring system in accordance with the requirements of Rule .1626 of this Section.

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

The post-closure monitoring required above shall be performed at the following frequency:

Monitoring Activity	Monitoring Interval
Cap System Inspection, Stormwater Control & Corrective Action	Monthly until vegetation is established, then quarterly.
Leachate Quality Monitoring	Semi-Annually
Groundwater & Surface Water Monitoring	Semi-Annually
Gas Monitoring	Quarterly

The person responsible for the facility during the post-closure care period is:

Environmental Manager
East Carolina Regional Landfill
1922 Republican Road
Aulander, NC 27805

The planned end use of this site will not damage the various landfill closure systems. In particular, no activity is planned, nor will any activity be allowed, which disturbs the integrity of the cap system, base liner system, or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements of Section .1629 of the rules. Any disturbance must be approved by the Section. Only those disturbances which will not increase the potential threat to human health or the environment, as fully demonstrated by the Operator, will be approved.

The cost of the post-closure activities is updated annually for this facility. These updated costs are submitted to the Section annually for review and approval under separate cover.

X. OTHER ISSUES

A. BORROW AREAS

Republic Services of North Carolina, LLC owns or leases nearby tracts which are available for soil borrow.

B. ENGINEERING PLAN

1. Analytical Methods Used to Evaluate the Design:

    a. Storm Drainage - see **Section VI – E&S Design Calculations**, for narrative of all calculations and analytical methods used to size piping, structures, sediment basins, downdrains, side slope berms and stormwater conveyance channels.

    b. Leachate Production and Collection - see **Section VII – Leachate Design Calculations** for discussion of all calculations and analytical methods used to perform HELP models, size all leachate piping, leachate pumping stations and leachate storage tanks.

2. Definition of Critical Condition Evaluated and Assumptions mode - slope stability analysis and settlement analysis are included in reports by geotechnical engineers.

3. Technical References

    - North Carolina Erosion and Sediment Control Planning and Design Manual.
    - Driscopipe System Design Manual
    - How To Meet Requirements for Hazardous Waste Landfill Design, Construction and Closure by U.S. EPA
    - Soil Conservation Service Drainage Design Charts
    - Bureau of Public Roads Drainage Design Charts
    - Federal Highway Administration Drainage Design Charts
    - Computer Program
        - Hydrographs Hydraflow 2004 – SCS Method
        - Flowmaster - open channel and pipe
        - Hydraulic Evaluation of Landfill Performance

4. Completion of Any Applicable Location Restriction Demonstrations

All applicable location restriction demonstrations were made in either the Site Application or the Design Hydrogeologic Report.

C. STORM DEBRIS STORAGE

Areas of the site may be utilized for temporary storm debris storage as approved by the Section.

XI. CLOSURE OF LEACHATE STORAGE FACILITIES

Upon completion of the post-closure period, the leachate storage facilities shall be removed from the landfill site. This closure must be complete within 180 days of cessation of operations of the leachate collection system.

The leachate storage facility closure shall include removal of:

A. The steel leachate tanks with appurtances

B. The concrete tank foundations

C. The pump connections

D. The secondary containment structures

E. The floor to the secondary containment structures

F. Any soil that has been contacted by the leachate

Any components not destined for reuse shall be properly handled and disposed according to Federal and State requirements. Any above-ground or below-ground piping that remains shall be securely capped and tagged with the date of capping. The site shall be graded and grassed upon completion of all closure activities noted above.

XII. PETROLEUM CONTAMINATED SOIL ALTERNATE DAILY COVER

Petroleum Contaminated Soil (PCS) is a beneficial reuse of soil with relatively low levels of petroleum in the soil. The approved maximum petroleum contaminant level of soil will be 3,000 parts per million (ppm) as analyzed by EPA Method 8015C. Forms for use during acceptance of PCS soils are attached in the Appendix. These forms can be used to record the amount of PCS utilized as Alternative Daily Cover (ADC).

Conditions for ADC usage are listed below. These conditions are to be strictly followed.

1. Soils contaminated to a maximum level of 3,000 ppm of Total Petroleum Hydrocarbons (TPH) or less, as analyzed by EPA Method 8015C are approved for use as ADC. Only soil contaminated with the following may be considered for ADC.

   - Class I - Low boiling point fuels such as gasoline, aviation fuel, and gasohol.
   - Class II - Medium / high boiling point fuels such as jet fuels, kerosene, diesel fuel, varsol, mineral spirits, naptha, fuel oils no. 1 through no. 6, and motor oils (new and used).

   Soils contaminated with the following are not acceptable for use as ADC.

   - Chlorinated solvents, organic acids, or hazardous waste.
   - Tars and asphalt.

2. The ADC will be used in the same manner as soil daily cover. The ADC will be placed six-inches thick over the daily working face of the landfill.

3. The PCS utilization rate shall not exceed ten percent (10%) of the average monthly permitted disposal rate of the landfill.

4. The facility shall calculate the values corresponding to 10% of the average monthly volume of waste they are permitted to receive and the average amount of daily cover that is required under normal operating conditions (i.e., 6" of soil over the working face/daily). The amount of PCS that may be received by the facility is limited by the lesser of those two numbers.

5. PCS shall be stockpiled in the cell away from daily traffic and operations in such a way that run-off shall not leave the limits of the lined cell area. These soils shall be covered with a tarp or similar material for storage, or maintained at a moisture level sufficient to prevent blowing dust. Berms shall be constructed around the stockpile to direct run-off to the leachate collection system if the run-off is not already directed there. ADC shall be stored over the lined areas of the site so run-off from the stockpile will be contained within the leachate collection area for the cells.

6. PCS may be stored for a maximum of 45 days.

7. Use of ADC shall be allowed only for volumes of material placed in a manner that does not exceed the regulatory requirement of six inches of daily cover. PCS is prohibited from disposal, so excess PCS should not be accepted at the facility.

8. The facility shall maintain records in the facility operating record indicating how much waste was received, how much PCS was received, and how much PCS was utilized for ADC, on a monthly basis.

9. PCS for use as Alternative Daily Cover must be generated in the facility's permitted service area.

10. Samples of leachate shall be collected on a semi-annual basis and analyzed for TPH (both diesel and gasoline fractions) and BTEX. This sampling shall be performed in addition to the leachate sampling requirements from NCDENR. One sample will be collected semi-annually from the leachate storage tanks.

XIII. POSI-SHELL COVER SYSTEM ALTERNATE DAILY COVER

East Carolina Regional Landfill has successfully demonstrated the use of the Posi-Shell Cover System (Posi-Shell) as an alternative daily cover material. When Posi-Shell is used, it shall be placed in accordance with the manufacturer's recommendations as stated in the approved permit. Full documentation of the use of Posi-Shell was provided to the Solid Waste Section for review prior to approval.

A. MATERIAL DESCRIPTION

Posi-Shell is a non-flammable, cement mortar coating that is spray applied to the working face using hydro-seeder type or similar spray equipment. The cementitious binder material and reinforcement fiber material are mixed with a liquid component immediately prior to application in the spray equipment. After application, the solution hardens to a non-flammable shell coating. Posi-Shell material information has been included in the Appendix of this Operation Plan.

B. REQUIREMENTS FOR ALTERNATIVE DAILY COVER

An alternative daily cover must control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment. Posi-Shell will accomplish these requirements as follows:

- Posi-Shell will be spray applied to form a hardened, non-flammable shell over waste daily. The hardened shell will control disease vectors, odors, blowing litter, scavenging, and fire in a manner similar to soil and consistent with the Rules.

- A complete soil intermediate cover will be applied at the completion of each lift. This soil cover will help to control disease vectors, odors, blowing litter, scavenging, and fire. The "soil segregated lifts" will provide a thicker barrier to confine and restrain any spread of fire. Final covers required by this plan will also help control spread of fire. In addition, stockpiled soil will be available for fighting fires. Taken together, these measures plus on-going quality site management will assure fire control is adequate.

- Use of Posi-Shell Alternative Daily Cover is not expected to cause excess dust. Normal site operations will be utilized to control dust.

C. PROCEDURES

Posi-Shell shall not be used during rainfall events or inclement weather. Posi-Shell will be applied using hydro-seed or similar spray equipment. Application procedures will strictly follow the recommendations provided by the manufacturer.

When Posi-Shell is applied as daily cover, leachate may be utilized as the liquid component of the Posi-Shell mixture. In the event Posi-Shell is utilized outside of the lined landfill area for erosion control applications, leachate may not be used. Spray equipment will be thoroughly cleaned when leachate has been utilized prior to any applications outside of the lined landfill area.

D. TRIAL PERIOD

Posi-Shell was used initially for a 3 month trial period. Documentation demonstrating the effectiveness of Posi-Shell was submitted to the Section and approved.

E. FINAL DOCUMENTATION

The landfill Manager and/or Engineer observed the application and effectiveness of Posi-Shell during the trial period. Use of Posi-Shell was fully documented with photos and records of use. This information was submitted to the Section at the completion of the trial period. No further documentation for the use of Posi-Shell is required at this time.

XIV. APPENDIX

PERMIT TO OPERATE

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

Pat McCrory	Dexter R. Matthews	John E. Skvarla, III
Governor	Director	Secretary

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

SOLID WASTE MANAGEMENT FACILITY
Permit No. 0803-MSWLF-1993

REPUBLIC SERVICES OF NORTH CAROLINA, LLC,
a wholly owned subsidiary of REPUBLIC SERVICES, INC.
d.b.a. EAST CAROLINA REGIONAL LANDFILL
is hereby issued a

PERMIT TO CONSTRUCT

0803-MSWLF-1993, East Carolina Regional Landfill
Phase 5, Cell 14

PERMIT TO OPERATE

0803-MSWLF-1993, East Carolina Regional Landfill
PHASE 1-4 & PHASE 5 (Cell 13)

PERMIT FOR CLOSURE

Not Applicable

Located the intersection of Republican and Harmon Roads, south of Aulander, Snakebite Township, Bertie County, North Carolina, in accordance with Article 9, Chapter 130A, of the General Statutes of North Carolina and all rules promulgated thereunder and subject to the conditions set forth in this permit. The legal description of the site is identified on the deeds recorded for this property listed in Attachment 1 of this permit.

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

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-707-8200 Internet: http://portal.ncdenr.org/web/wm/sw

An Equal Opportunity \ Affirmative Action Employer

ATTACHMENT 1
GENERAL PERMIT CONDITIONS/INFORMATION

PART I: GENERAL FACILITY

1. This permit is issued by the North Carolina Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section (Section). In accordance with North Carolina Solid Waste Management Rule 15A NCAC 13B .0201(d), a solid waste management facility permit shall have two parts: a Permit to Construct and a Permit to Operate. The Permit to Construct must be implemented in accordance with Attachment 2 of this permit. The Permit to Operate must be implemented in accordance with Attachment 3 of this permit.
2. The persons to whom this permit is issued ("permittee") are the owners and operators of the solid waste management facility.
3. The Permit to Construct for this facility dated August 6, 1993, was recorded in the Bertie County Register of Deeds on August 11, 1993, in Deed Book 704, Pages 407-417. DIN 16664.
4. When this property is sold, leased, conveyed, or transferred in any manner, the deed or other instrument of transfer shall contain in the description section in no smaller type than that used in the body of the deed or instrument, a statement that the property has been used as a solid waste management facility and a reference by book and page to the recordation of the permit.
5. By receiving waste at this facility the permittee shall be considered to have accepted the terms and conditions of this permit.
6. Operation of this solid waste management facility shall be in accordance with the Solid Waste Management Rules, 15A NCAC 13B, Article 9 of the Chapter 130A of the North Carolina General Statutes (NCGS 130A-290, et seq.), the conditions contained in this permit; and the approved plan. Should the approved plan and the rules conflict, the Solid Waste Management Rules shall take precedence unless specifically addressed by permit condition. Failure to comply may result in compliance action or permit revocation.
7. This permit is issued based on the documents submitted in support of the application for permitting the facility including those identified in Attachment 1, "List of Documents for Approved Plan," and which constitute the approved plan for the facility. Where discrepancies exist, the most recent submittals and the Conditions of Permit shall govern.
8. This permit may be transferred only with the approval of the Section, through the issuance of a new or substantially amended permit in accordance with applicable statutes and rules. In accordance with NCGS 130A-295.2(g) the permittee must notify the Section thirty (30) days prior to any significant change in the identity or business structure of either the owner or the operator, including but not limited to a proposed transfer of ownership of the facility or a change in the parent company of the owner or operator of the facility.
9. The permittee is responsible for obtaining all permits and approvals necessary for the development of this project including approval from appropriate agencies for a General or Individual NPDES Stormwater Discharge Permit. Issuance of this permit does not remove

the permittee's responsibilities for compliance with any other local, state or federal rule, regulation or statute.

Permit Date Table

Permit	Status	Issuance	Expiration	DIN
0803-MSWLF-1993, East Carolina Regional Landfill	Active	February 9, 2009	February 9, 2014	19450

Properties Approved For the Solid Waste Facility

Description	**Deed Book**	**Page No.**	**Acreage**	**Grantor**
Addington	704	315	469.10	Addington Environmental, Inc
Powell	705	49	1.28	Powell
Cherry	716	677	100.43	Cherry
Weyerhauser	725	655	50.00	Weyerhauser
Smallwood	706	898	41.78	Smallwood
Articles of Merger	840	853	n/a	East Carolina Environmental
Total Site Acreage			662.59	

Original Boundary Survey recorded in Plat Cabinet A Page 1094 & 1095.

PART II: MUNICIPAL SOLID WASTE LANDFILL UNIT(S)

Permitting History: 0803-MSWLF-1993, East Carolina Regional Landfill

Permit Type	Date Issued	DIN
Original Issue (PTC)	August 6, 1993	
Original Issue (PTO)	October 8, 1993	
Modification (PTO)	December 2, 1994	
Amendment (PTO)	April 18, 1997	
Version 1 (PTO)	November 8, 2000	
Modification -PTO –Sludge Solidification	June 3, 2003	
PTO - Cell 10	September 23, 2003	
PTO- Modification	February 19, 2004	
PTO & PTC - New Rate & Size	June 17, 2005	
PTC - Cells 11 and 12	July 14, 2005	
PTO - Cell 11A – Lower End	March 28, 2006	0209
PTO - Cell 11B	June 15, 2006	0241
PTO - Cell 12	June 17, 2008	4886
PTC - Phase 5- Cells 13 & 14	February 9, 2009	6628

PTO - Cell 12 Renewal	June 16, 2011	13592
PTC – Phase 5 – Cell 13 Modification	February 20, 2013	17849
PTO - Cell 13	August 23, 2013	19450

List of Documents for Approved Plan
The descriptions of previous/historical documents are found in the Permit to Constructs - August 6, 1993 & June 17, 2005, Permit to Operate- October 8, 1993 & April 18, 1997,

1. *Technical Specification for Alternative Protective Cover, Construction of Cell No. 10, East Carolina Regional MSW Landfill, Bertie County, North Carolina.* Prepared for: Republic Services of North Carolina, LLC. Prepared by: Hodges, Harbin, Newberry & Tribble, Inc., Macon, GA. November 2002. Includes revised Sheets 2 and 4 of 7, PTC Drawings.
2. *Construction Quality Assurance Report. Cell No. 10, East Carolina Regional MSW Landfill, Bertie County, North Carolina.* Prepared for: Hodges, Harbin, Newberry & Tribble, Inc., Macon, GA. Prepared by: Bunnell-Lammons Engineering, Inc. Greenville, SC. August 2, 2003 as amended through September 12, 2003. Volumes 1 – 3. BLE Project Number J03-1001-41.
3. *Permit to Construct, Expanded East Carolina Regional MSW Landfill. Bertie County, North Carolina.* Prepared for: Republic Services of North Carolina, LLC. Prepared by: Hodges, Harbin, Newberry and Tribble, Inc. Macon, GA. April 2004.
4. *Articles of Merger of East Carolina Environmental, Inc. and Upper Piedmont Environmental, Inc. into Republic Services of North Carolina, LLC*. Filed April 24, pages, June 2, 2005.
5. *Construction Quality Assurance Report. Cell No. 11 Lower End, East Carolina Regional MSW Landfill, Bertie County, North Carolina.* Prepared for: Hodges, Harbin, Newberry & Tribble, Inc., Macon, GA. Prepared by: Bunnell-Lammons Engineering, Inc. Greenville, SC. November 29, 2005 as amended through March 15, 2006. BLE Project Number J05-1001-52.
6. *Construction Quality Assurance Report. Cell No. 11 Upper End, East Carolina Regional MSW Landfill, Bertie County, North Carolina.* Prepared for: Hodges, Harbin, Newberry & Tribble, Inc., Macon, GA. Prepared by: Bunnell-Lammons Engineering, Inc. Greenville, SC. May 18, 2006. BLE Project Number J06-1001-55. DIN 0244
7. *Construction Quality Assurance Report. Construction of Cell No. 12, East Carolina Regional MSW Landfill, Bertie County, North Carolina.* Prepared for: Hodges, Harbin, Newberry & Tribble, Inc., Macon, GA. Prepared by: Bunnell-Lammons Engineering, Inc. Greenville, SC. April 29, 2008, revised on June 02, 2008. BLE Project Number J07-1001-58. DIN5315.

8. *Conceptual Design (Facility Plan Revision of Phases 5, 6 and 7), Expanded East Carolina Regional MSW Landfill. Bertie County, North Carolina. Prepared for Republic Services of North Carolina, LLC. January 2004, Revised January 2009*. Prepared by Hodges, Harbin, Newberry and Tribble, Inc. Macon, Ga. January 2009. DIN 6629.
9. *Updated Facility Plan Sheet for East Carolina Regional Landfill*, Prepared by Hodges, Harbin, Newberry and Tribble, Inc. for Republic Services of NC LLC. September 30, 2010. DIN 12048.
10. *Permit to Operate 5-Year Renewal Request, East Carolina Regional Landfill, Facility Permit No. 08-03.* Prepared by Hodges, Harbin, Newberry and Tribble, Inc. Macon, Ga. January 21, 2011, DIN 12784. Revised April 15, 2011, DIN 14087.
11. *East Carolina Regional Landfill, Permit No. 08-03, Request for Demonstration Project, Bertie County, HHNT Project No. 6703-260-01.* Prepared for Republic Services. Prepared by Hodges, Harbin, Newberry, & Tribble. December 6, 2012. DIN 17847.
12. *Construction Quality Assurance Report. Volume 1 & 2. Construction of Cell No. 13, East Carolina Regional MSW Landfill, Bertie County, North Carolina.* Prepared for: Hodges, Harbin, Newberry & Tribble, Inc., Macon, GA. Prepared by: Bunnell-Lammons Engineering, Inc. Greenville, SC. July 1, 2013. DIN 19291.

PART III: CONSTRUCTION AND DEMOLITION DEBRIS LANDFILL UNIT(S)
Not Applicable

PART IV: INDUSTRIAL LANDFILL UNIT(S)
Not Applicable

PART V: LAND CLEARING AND INERT DEBRIS LANDFILL UNIT(S)
Not Applicable

PART VI: TRANSFER STATION/TREATMENT & PROCESSING UNIT(S)
Not Applicable

PART VII: MISCELLANEOUS SOLID WASTE MANAGEMENT

1. *Expanded East Carolina Regional MSW Landfill Facility Plan, Waste Solidification Process Modification, Republic Services of North Carolina, LLC, Bertie County, North Carolina.* Prepared for: Republic Services of North Carolina, LLC. Prepared by: Hodges, Harbin, Newberry, and Tribble, Inc. March 27, 2003.

- End of Section-

ATTACHMENT 2

CONDITIONS OF PERMIT TO CONSTRUCT

PART I: GENERAL FACILITY

1. This permit was issued on February 9, 2009 and the permit shall expire February 9, 2014. Pursuant to the NC Solid Waste Management Rules (Rule) 15A NCAC 13B .0201(c) and (d)(1).).
2. The initial, substantial, construction authorized by this Permit to Construct must commence within 18 months from the issuance date of this permit. If substantial construction does not begin within 18 months from the issuance date of this permit, then the permit to construct shall expire. Substantial construction includes, but is not limited to, issuance of construction contracts, mobilization of equipment on site, and construction activities including installation of sedimentation and erosion control structures. The permittee may reapply for the permit to construct prior to the expiration date. The re-application will be subject to the statutes and rules in effect on that date and may be subject to additional fees
3. Construction of all solid waste management units within this facility must be in accordance with the pertinent approved plans and only for those phases of development approved for construction as described in Attachment I, Part II List of Documents for the Approved Plan.
4. The permittee must conduct a preconstruction meeting at the facility prior to initiating construction of any unit/cell and must notify the Section at least 10 days prior to the meeting.
5. Modifications or revisions of the approved documents or changes during construction of any landfill unit/cell require approval by the Section, and may constitute a permit modification and be subject to a permitting fee.
6. The following conditions must be met prior to operation of the Phase 5 – Cells 14:
   a. The Permittee must obtain a Permit to Operate for Phase 5 from the Section in accordance with 15A NCAC 13B .0201(d).
   b. Construction Quality Assurance (CQA) documentation as well as a certification by the project engineer that the landfill was built in accordance with approved plans and the conditions of the permit must be submitted to the Section for review and approval.
   c. The Permittee must contact the appropriate regional environmental specialist and permitting engineer to determine whether the Section chooses to hold a pre-operative meeting with key landfill personnel and representatives of the Section.
   d. The edge of the waste footprint must be identified with permanent physical markers.

Geologic, Ground Water and Monitoring Requirements

7. Prior to issuing the Permit to Operate, samples from new ground water monitoring wells and surface water stations shall be sampled for the Appendix I constituent list.
8. Prior to construction of the phase or cell(s) within the phase, all piezometers, borings, and groundwater monitoring wells within the footprint must be properly abandoned in accordance with 15A NCAC 2C .0113 (b)(1), entitled “Abandonment of Wells.”
9. In areas where soil is to be undercut, abandoned piezometers, monitoring wells and borings must not be grouted to pregrade land surface, but to the proposed base grade surface to prevent having to cut excess grout and possibly damage the wells.
10. A Licensed Geologist must report any pertinent geological feature(s) exposed during phase or cell excavation. Prior to placing any landfill liner, the geologist must submit to the Section hydrogeologist a written report that includes an accurate description of the exposed

geological feature(s) and effect of the geological feature(s) on the design, construction, and operation of the cell, phase, or unit.

11. A Licensed Geologist must supervise installation of groundwater monitoring wells and surface water sampling stations.
12. Any modification to the approved water quality monitoring, sampling, and analysis plan must be submitted to the Section Hydrogeologist for review.
13. Within 30 days of completed construction of each new groundwater monitoring well, a well construction record (GW-1 form), typical well schematic, boring log, field log and notes, and description of well development activities must be submitted to the Section.
14. The permittee must provide a plan sheet-sized, scaled topographical map, showing the location and identification of new, existing, and abandoned wells and piezometers after installation of groundwater monitoring wells.
15. Within thirty (30) days of the completed permanent abandonment of a ground-water monitoring well, the well abandonment record (GW-30 form) and any additional information included in the abandonment record) must be submitted to the Section. The well abandonment records must be submitted to the Solid Waste Section in accordance with 15A NCAC 2C .0114(b) and be certified by a Licensed Geologist.

Erosion and Sedimentation Control Requirements

16. All required sedimentation and erosion control measures must be installed and operable to mitigate excessive on-site erosion and to prevent silt from leaving the landfill facility during the service life of the facility.
17. All earth disturbing activities must be conducted in accordance with the Sedimentation Pollution Control Act of 1973 (15 NCAC 4) and consistent with any other local, state or federal requirements.
18. Facility construction, operations or practices must not cause or result in a discharge of pollution, dredged material, and/or fill material into waters of the state in violation of the requirements under Sections 401 and 404 of the Clean Water Act, as amended.
19. Modifications to the approved sedimentation and erosion control activities require approval by the North Carolina Land Quality Section. The Section must be notified of any sedimentation and erosion control plan modifications.
20. Pursuant to the NC Solid Waste Management Rule (Rule) 15A NCAC 13B .1626(5) burning of land-clearing debris generated on site as a result of construction activities requires approval by the Section prior to initiating the burn. In addition, the Division of Air Quality and local fire department must approve the activity prior to burning.

PART II: MUNICIPAL SOLID WASTE LANDFILL UNIT(S)
Not Applicable

PART III: CONSTRUCTION AND DEMOLITION DEBRIS LANDFILL UNIT(S)
Not Applicable

PART IV: INDUSTRIAL LANDFILL UNIT(S)
Not Applicable

PART V: LAND CLEARING AND INERT DEBRIS LANDFILL UNIT(S)
Not Applicable

PART VI: TRANSFER STATION/TREATMENT & PROCESSING UNIT(S)
Not Applicable

PART VII: MISCELLANEOUS SOLID WASTE MANAGEMENT
Not Applicable

- End of Section –

ATTACHMENT 3

CONDITIONS OF PERMIT TO OPERATE

PART I: GENERAL FACILITY

1. All sedimentation and erosion control activities must be conducted in accordance with the Sedimentation Control Act NCGS 113A-50, et seq., and rules promulgated under 15A NCAC 4. All required sedimentation and erosion control measures must be installed and operable to mitigate excessive on-site erosion and to prevent silt from leaving the landfill facility during the service life of the facility.
2. Facility construction, operations or practices must not cause or result in a discharge of pollution, dredged material, and/or fill material into waters of the state in violation of the requirements under Sections 401 and 404 of the Clean Water Act, as amended.
3. Modifications to the approved sedimentation and erosion control activities require approval by the North Carolina Land Quality Section. The Solid Waste Section must be notified of any sedimentation and erosion control plan modifications.
4. Copies of this permit, the approved plans, and all records required to be maintained in the operating record by the permittee must be maintained at the facility, unless otherwise approved by the Section, and made available to the Section upon request during normal business hours.
5. All forms, reports, maps, plans, and data submitted to the Section must include an electronic (pdf) copy.
6. Open burning of solid waste is prohibited. Fires must be reported to the Regional Waste Management Senior Specialist within twenty-four (24) hours of the occurrence with a written notification to be submitted within fifteen (15) calendar days of the occurrence. Fire lanes must be maintained and passable at all times. Dimensions of the fire lanes must be coordinated with the Fire Marshall having jurisdiction over the site.
7. Pursuant to the NC Solid Waste Management Rule (Rule) 15A NCAC 13B .1626(5) burning of land-clearing debris generated on-site, as a result of construction activities, requires approval by the Section prior to initiating the burn. In addition, the Division of Air Quality and local fire department must approve the activity prior to burning.

8. The facility must be adequately secured by means of gates, chains, berms, fences, or other security measures approved by the Section to prevent unauthorized entry.
9. Interior roadways must be of all-weather construction and maintained in good condition.
10. Signs must be posted at the entrance to the facility that state that no hazardous waste or liquid waste can be received at the facility; and that provide information on dumping procedures, the hours of operation, the permit number, and other pertinent information. Traffic signs or markers must be provided as necessary to promote an orderly traffic pattern to and from the discharge area and to maintain efficient operating conditions.
11. The edge of the waste footprint for all disposal units must be identified and maintained with permanent physical markers.

PART II: MUNICIPAL SOLID WASTE LANDFILL UNIT(S)

0803-MSWLF-1993 East Carolina Regional Landfill

12. This permit shall expire February 9, 2014. Pursuant to 15A NCAC 13B .0201(g), no later than August 9, 2013, the owner or operator must submit a request to the Section for permit review and must update pertinent facility plans including, but not limited to, the facility operation and waste screening plans.
13. This permit approves the continued operation of Phases 1, 2, 3 and 4 and the operation of Phase 5 – Cell 13 of the East Carolina Regional Landfill, including the onsite environmental management and protection facilities as described in the approved plans. Operation of any landfill future phases or cells requires written approval of the Section and must be constructed in accordance with applicable statutes and rules.
14. The total facility has an approved gross volume of approximately 24,200,000 cubic yards consistent with the approved final contours. Gross volume must be calculated as the volume between the top of the protective cover and the top of the final cover. Actual waste disposal capacity may vary depending upon waste compaction and amount and type of operational cover.

MSW Unit	**Acreage**	**Gross Capacity (Cu. Yds.)**	**Status**
Phase 1 – Cells 3, 4, 5 and 6	27.8	2,140,000	Operational
Phase 2 – Cells 7 and 8	22.2	2,114,000	Operational
Phase 3 – Cells 9 and 10	21.3	4,013,000	Operational
Phase 4 – Cells 11 and 12	24.8	5,200,000	Operational
Phase 5 – Cells 13 and 14	24.6	3,854,000	Operational (cell 13)
Phase 6 – Cells 15 and 16	19.6	4,129,000	Future
Phase 7 – Cells 17	8.5	2,750,000	Future
Totals	148.8	24,200,000	

15. This facility is permitted for an average annual disposal rate of approximately 584,000 tons. This corresponds to an approximate disposal rate of 1600 tons per day based on 365 operating days per year, with a maximum variance of 10% facility total within any one annual reporting year.
16. The MSW landfill is permitted to receive solid waste generated by and in counties of North Carolina, consistent with local government waste management plans, local government approval and contract and franchise agreement, and as defined in N.C.G.S. §130A-290(a)(35), except where prohibited by North Carolina General Statutes Article 9 of Chapter 130A, and rules adopted by the Commission for Health Services.
17. The permittee is required to make application for a permit amendment for subsequent phases of landfill development, in accordance with NCGS 130A-295.8(b)(2).
18. The following, at a minimum, must not be accepted for disposal at the facility: hazardous waste, yard trash, liquid wastes, regulated medical waste, sharps not properly packaged, PCB waste as defined in 40 CFR 761, and wastes banned from disposal in North Carolina by G.S. 130A-309.10(f).
19. The permittee must not knowingly dispose of any type or form of municipal solid waste that is generated within the boundaries of a unit of local government that by ordinance:
    a. Prohibits generators or collectors of municipal solid waste from disposing of that type or form of municipal solid waste.
    b. Requires generators or collectors of municipal solid waste to recycle that type or form of municipal solid waste.
20. The use of leachate recirculation as a leachate management tool is approved. Leachate recirculation will be conducted according to the approved plan in Attachment 1, Part II. Leachate may not be recirculated over areas that do not have a liner that conforms to Rule .1624(b)(1)(A).
21. The facility is permitted to co-dispose of wastewater treatment sludge generated within the facility's approved service area, and subject to the terms and procedures of the approved plan.
22. The leachate collection system must be maintained in accordance with 15A NCAC 13B .1626(12)(a). The permittee shall prepare a plan detailing the maintenance of the system and must submit it to the Section for review and approval no later than July 1, 2009. The plan shall include provisions for periodic cleaning and visual inspection. Documentation of the inspections, and cleaning and monitoring must be included in the operating records of the facility and provided to the Section upon request.
23. Financial assurance as required by state rules and statutes must be continuously maintained for the duration of the facility in accordance with applicable rules and statutes. Closure and Post-Closure cost estimates and financial instruments must be updated annually pursuant to 15A NCAC 13B .1628.
24. Closure or partial closure of any MSWLF unit must be in accordance with the Closure Plans described in the approved plans and 15A NCAC 13B .1629. Final Closure Plans must be submitted to the Section at least 90 days prior to implementation.
25. The facility operator must complete an approved operator training course in compliance with G.S. 130A-309.25.

a. A responsible individual certified in landfill operations must be on-site during all operating hours of the facility at all times while open for public use to ensure compliance with operational requirements.
b. All pertinent landfill-operating personnel must receive training and supervision necessary to properly operate the landfill units in accordance with G.S. 130A-309.25 and addressed by memorandum dated November 29, 2000.

26. The use of tarps, posi-shell and petroleum contaminated soil as alternative daily cover is approved. The use of different alternative daily cover requires approval, prior to implementation, by the Solid Waste Section. Requests for alternative daily cover approval must include a plan detailing the comprehensive use and a demonstration of the effectiveness of the alternative daily cover. The plan must be developed according to Section guidelines. Plans which are approved by the Section will be incorporated into, and made a part of, the approved documents listed in Attachment 1, Part II. Soil shall be applied, if needed, to control nuisance, odor or vectors.
27. The facility must maintain records for all solid waste materials accepted as alternative cover material and used as alternate daily cover. The records must include: the date of receipt, weight of material, general description of the material, identity of the generator and transporter, and county of origin. Such records must be made available to the Section upon request.
28. Prior to disposal in a new cell previously separated from the active disposal cell by rainwater and leachate separation devices involving rainwater flaps welded to the liner and/or disconnected leachate lines, a construction certification shall be placed in the facility operating record. The certification must describe the proper removal of temporary rainwater devices and reconnection of leachate collection lines in accordance with the approved documents listed in Attachment 1, Part II. The document must also contain a statement of certification by the facility's trained landfill operator, N. C. registered professional engineer, or other person approved by the Section, that the construction was properly completed according to the approved plans.
29. The proper removal of geotextile covering the gravel column, occurring with the progression of fill, shall be documented by the facility's trained landfill operator, or other person approved by the Section, in accordance with the approved documents listed in Attachment 1, Part II, of this permit, and the documentation shall be placed in the facility's operating record.

Monitoring and Reporting Requirements

30. Groundwater, surface water, and methane monitoring locations must be established and monitored as identified in the approved plans.
31. A licensed geologist must be present to supervise the installation of groundwater monitoring wells. The exact locations, screened intervals, and nesting of the wells must be established after consultation with the SWS Hydrogeologist at the time of well installation.
32. Ground water monitoring wells and surface water sampling locations must be sampled for Appendix I constituents at least semi-annually according to the specifications outlined in the

approved water quality monitoring plan and the current policies and guidelines of the Section in effect at the time of sampling.

33. Methane monitoring wells must be sampled for explosive gases at least quarterly and according to specifications outlined in 15A NCAC 13B .544(d), entitled “Gas Control Plan,” and current policies and guidelines of the Section in effect at the time of sampling.
34. Reports of the analytical data for each monitoring event must be submitted to the Section within 120 days of the respective sampling event. Analytical data must be submitted in a manner prescribed by the Section. Records of all groundwater, surface water, and leachate analytical data must be kept as part of the permanent facility record.
35. The four independent samples which comprise the initial baseline sampling event must be collected from each groundwater monitoring well and the report must be submitted to the Section within six months after issuance of the Permit to Operate.
36. Ground water quality at this facility is subject to the "Classifications and Water Quality Standards Applicable to the Groundwater of North Carolina", 15A NCAC 2L. This includes, but is not limited to, provisions for detection monitoring, assessment, and corrective action.
37. Untreated leachate must be sampled and analyzed at least semi-annually concurrently with the groundwater water and surface water sampling, one sample per event. The leachate must be analyzed for the same constituents as the groundwater monitoring wells and surface water monitoring locations as specified in the approved monitoring plan. Test results must be submitted to the Section along with groundwater test results. In the event leachate is recirculated, additional leachate sampling may be required.
38. A readily accessible unobstructed path must be cleared and maintained so that four-wheel vehicles may access monitoring well locations at all times.
39. A field log book which details all development, sampling, repair, and all other pertinent activities associated with each monitoring well and all sampling activities associated with each surface water and leachate sampling location must be kept as part of the permanent facility record.
40. All well construction records and soil boring logs for new wells must be submitted to the Solid Waste Section Hydrogeologist for review within 30 days of completion.
41. The owner or operator must maintain a record of the amount of solid waste received at the landfill unit, compiled on a monthly basis. Scales must be used to weigh the amount of waste received.
42. On or before August 1 annually, the Permittee must submit an annual facility report to the Section, on forms prescribed by the Section.
    a. The reporting period shall be for the previous year beginning July 1 and ending June 30.
    b. The annual facility report must list the amount of waste received and landfilled in tons and be compiled:
        i) On a monthly basis.
        ii) By county, city or transfer station of origin.
        iii) By specific waste type.
        iv) By disposal location within the facility.
        v) By diversion to alternative management facilities.

c. A measurement of volume utilized in the landfill cells must be performed during the first or second quarter of the calendar year. The date and volumes, in cubic yards, must be included in the report.
d. For MSW, the amount of waste, in tons from scale records, disposed in landfill cells from October 8, 1993 through the date of the annual volume survey must be included in the report.
e. The completed report must be forwarded to the Regional Waste Management Specialist for the facility by the date due on the prescribed annual facility report form.
f. A copy of the completed report must be forwarded to each county manager for each county from which waste was received at the facility. Documentation that a copy of the report has been forwarded to the county managers must be sent to the Regional Waste Management Specialist by the date due on the prescribed annual facility report form.

PART III: CONSTRUCTION AND DEMOLITION DEBRIS LANDFILL UNIT(S)
Not Applicable

PART IV: INDUSTRIAL LANDFILL UNIT(S)
Not Applicable

PART V: LAND CLEARING AND INERT DEBRIS LANDFILL UNIT(S)
Not Applicable

PART VI: TRANSFER STATION/TREATMENT & PROCESSING UNIT(S)
Not Applicable

PART VII: MISCELLANEOUS SOLID WASTE MANAGEMENT

General Conditions

43. Wastes received and product stored shall be maintained in reasonably sized piles with adequate fire breaks and lanes in accordance with the approved operational plans and the pertinent rules.
44. Surface water shall be diverted from all operational and storage areas to prevent standing water in operational areas and under or around storage piles. Water that comes in contact with solid waste shall be contained on-site or properly treated prior to discharge.
45. These areas shall be operated and maintained with sufficient dust control measures to minimize airborne emissions and to prevent dust from becoming a nuisance or safety hazard.
46. These areas shall be operated and maintained in a manner so as to minimize odors, prevent the creation of a nuisance, potential health hazard, or a potential fire hazard.
47. Effective vector control measures shall be applied as necessary to control flies, rodents, insects, or vermin.

48. All miscellaneous solid waste management activities must be managed within the facility in the areas identified in the approved plans. Management of solid waste in areas of the facility other than that referenced above, require written permission of the Solid Waste Section.

Operational Conditions – Materials Mulching and Grinding

49. The facility must manage materials mulching and grinding according to the Operation Plan included in Attachment 1, Part II, *List of Documents for the Approved Plan*. Any revisions to the approved plan shall be approved by the North Carolina Division of Waste Management (DWM), Solid Waste Section, prior to implementation.
50. At least 75 percent of the processed materials shall be removed for recycling or disposed in the facility MSWLF units within one year of receipt.
51. The facility is permitted to operate a treatment and processing facility as defined in 15A NCAC 13B, Rule .0101(49).
52. The facility is permitted to receive land clearing waste as defined in 15A NCAC 13B, Rule .0101(23).
53. The facility is permitted to receive wooden pallets constructed of unpainted and untreated natural wood.
54. The facility is permitted to receive yard trash as defined in 15A NCAC 13B, Rule .0101(55). However, this ground material containing yard trash may not be distributed to the public unless it has been composted in accordance with Rule .1400.

Operational Conditions – Tires

55. This unit shall be operated in accordance with the approved documents and the requirements of 15A NCAC 13B .1107.
56. The facility is permitted to receive tires and scrap tires as defined in North Carolina General Statute Article 9, Chapter 130A-309.53(6) & (7).
57. The facility must manage tires according to Rule .1100, Scrap Tire Management, and the Operation Plan included in Attachment 1, Part II, *List of Documents for the Approved Plan*. Any revisions to the approved plan shall be approved by the North Carolina Division of Waste Management (DWM), Solid Waste Section, prior to implementation.

Operational Conditions – White Goods

58. The facility is permitted to receive white goods as defined in North Carolina General Statute Article 9, Chapter 130A-290(44).
59. The facility must manage white goods according to the Operation Plan included in Attachment 1, Part II, *List of Documents for the Approved Plan*. Any revisions to the approved plan shall be approved by the North Carolina Division of Waste Management (DWM), Solid Waste Section, prior to implementation.
60. The facility must manage white goods according to applicable statutes and rules of the State of North Carolina.
61. White goods collection areas shall provide for the proper removal of chlorofluorocarbon refrigerants.

Liquid and Sludge Solidification Processing Unit

62. Operations must be in accordance with Attachment 1, Part III and the following conditions.

63. Approval for Operation was for a one-year period beginning March 28, 2006. The solidification process shall be reviewed on an annual basis. The facility must meet any update to the rules or policies of the Section in place at the time of the renewal. The operational approval shall automatically be renewed unless the owner is notified in writing by the Section.
64. Records of the following, at a minimum, must be maintained: waste material description, solidification agent(s) utilized, waste determination records, tons of waste and solidification agents disposed, date and time of receipt of liquid or sludge waste, date and time of solidification. Records must be kept in the facility operating record and made available to the Section on request.
65. Liquid and sludge waste must be processed within 24 hours of receipt. Drums may be stored for 24 hours before processing. Liquid waste must not be stored, unprocessed, over the weekend.
66. Bulking agents must be stored on an impervious surface. Dust and leachate formation must be prevented.
67. Petroleum contaminated soils must not be used as bulking agents.
68. All liquids, sludge and bulking agents must be weighed and reported as solid waste for purposes of the Solid Waste Annual Report reporting requirements.
69. Spills must be cleaned up immediately.
70. No odors, vectors or nuisances are allowed in the processing area.
71. Spills that are not to the impervious surface, spills that are not cleaned in a timely manner, vector, odors, incomplete records, accepting wastes or bulking agents that the facility is not permitted to receive, shall be among the minimum reasons that the processing may be ordered by the facility waste management specialist to cease.

Public Drop-off Area

72. The landfill unit shall conform to all operating requirements described in the approved plans, 15A NCAC 13B .1626, and the conditions specified herein.
73. Each received waste must be temporarily stored in the designated containers in accordance with the waste types. A proper distance between waste containers and/or roll-off boxes must be maintained for inspection, firefighting, and container removal.

- End of Section –

ATTACHMENT 4
CONDITIONS OF PERMIT FOR CLOSURE

PART I: GENERAL FACILITY
Not Applicable

PART II: MUNICIPAL SOLID WASTE LANDFILL UNIT(S)
Not Applicable

PART III: CONSTRUCTION AND DEMOLITION DEBRIS LANDFILL UNIT(S)
Not Applicable

PART IV: INDUSTRIAL LANDFILL UNIT(S)
Not Applicable

PART V: LAND CLEARING AND INERT DEBRIS LANDFILL UNIT(S)
Not Applicable

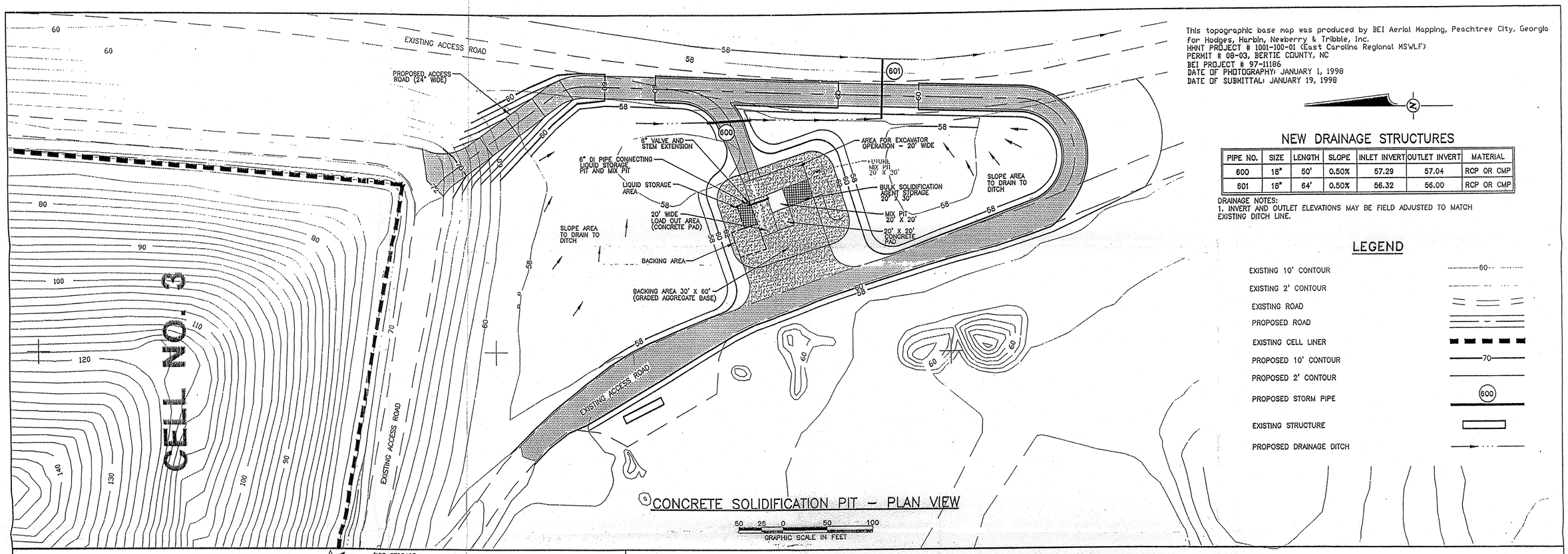
PART VI: TRANSFER STATION/TREATMENT & PROCESSING UNIT(S)
Not Applicable

PART VII: MISCELLANEOUS SOLID WASTE MANAGEMENT
Not Applicable

- End of Conditions –

WASTE SOLIDIFICATION PLAN

This topographic base map was produced by BEI Aerial Mapping, Peachtree City, Georgia for Hodges, Harbin, Newberry & Tribble, Inc.
HHNT PROJECT # 1001-100-01 (East Carolina Regional MSWLF)
PERMIT # 08-03, BERTIE COUNTY, NC
BEI PROJECT # 97-11186
DATE OF PHOTOGRAPHY: JANUARY 1, 1998
DATE OF SUBMITTAL: JANUARY 19, 1998



① CONCRETE SOLIDIFICATION PIT - PLAN VIEW

50 25 0 50 100
GRAPHIC SCALE IN FEET

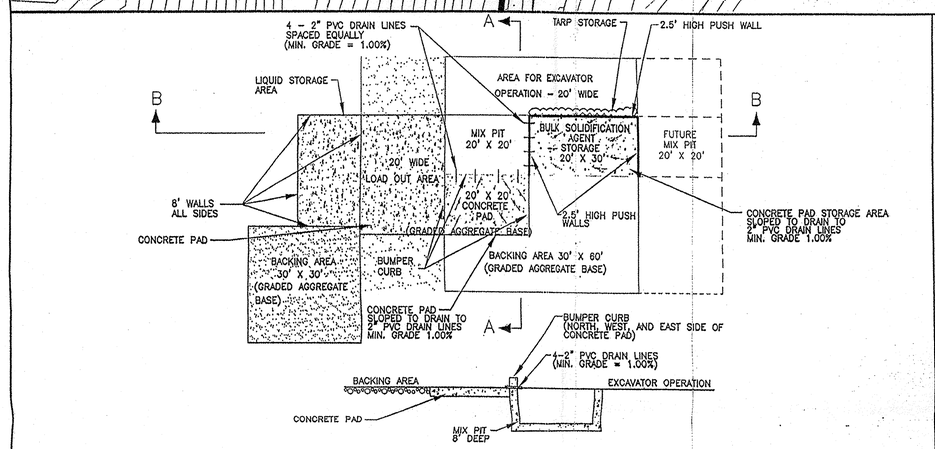
NEW DRAINAGE STRUCTURES

PIPE NO.	SIZE	LENGTH	SLOPE	INLET INVERT	OUTLET INVERT	MATERIAL
600	18"	50'	0.50%	57.29	57.04	RCP OR CMP
601	18"	64'	0.50%	56.32	56.00	RCP OR CMP

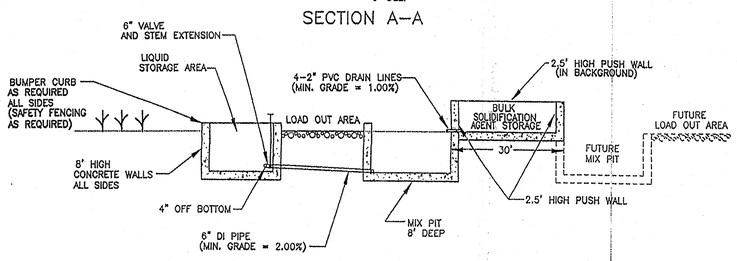
DRAINAGE NOTES:
1. INVERT AND OUTLET ELEVATIONS MAY BE FIELD ADJUSTED TO MATCH EXISTING DITCH LINE.

LEGEND

EXISTING 10' CONTOUR — 60
EXISTING 2' CONTOUR
EXISTING ROAD
PROPOSED ROAD
EXISTING CELL LINER
PROPOSED 10' CONTOUR — 70
PROPOSED 2' CONTOUR
PROPOSED STORM PIPE — 600
EXISTING STRUCTURE
PROPOSED DRAINAGE DITCH



SECTION A-A



SECTION B-B

EAST CAROLINA REGIONAL LANDFILL SOLIDIFICATION SCHEMATIC

NOT TO SCALE

OPERATION AND GENERAL NOTES NARRATIVE

OPERATION NOTES:

1. THE WASTE SOLIDIFICATION PIT SHALL BE LOCATED NEAR THE LEACHATE TANK SO THAT CONSTANT OBSERVATION AND SUPERVISION CAN BE PROVIDED DURING THE MIXING OF THE LIQUID / SEMI-SOLID MATERIAL WITH THE SOLIDIFYING AGENT(S).

2. THE CONCRETE SOLIDIFICATION PIT WILL SERVE AS THE PRIMARY AND SECONDARY CONTAINMENT FOR THE MIXING OPERATION.

3. ALL LOADS OF MATERIAL TO BE SOLIDIFIED WILL FIRST BE APPROVED BY THE LANDFILL AS NON-HAZARDOUS MATERIAL THAT IS ACCEPTABLE FOR DISPOSAL ACCORDING TO THE PERMIT CONDITIONS FOR THIS SITE.

4. EACH LOAD TO BE SOLIDIFIED, ONCE APPROVED, WILL BE PLACED INSIDE THE WASTE SOLIDIFICATION PIT WHICH WILL BE LOCATED NEAR THE LEACHATE TANK. ALL WASTE TO BE SOLIDIFIED WILL BE PROCESSED ACCORDING TO THE PROHIBITED WASTE EXCLUSION PLAN APPLICABLE TO THIS SITE.

5. SOLIDIFICATION AGENTS TO BE USED WILL INCLUDE ONE OR MORE OF THE FOLLOWING: WOOD BARK, WOOD CHIPS, SAW DUST, FLY ASH, BOTTOM ASH, KILN DUST, AUTOFLUFF, SOILS, OR OTHER SIMILAR ABSORBENT MATERIALS. SOLIDIFICATION AGENTS WILL THEN BE ADDED TO THE LIQUID OR SEMI-SOLID WASTE MATERIAL AND STIRRED AND THOROUGHLY MIXED WITH A BACKHOE, EXCAVATOR, OR SIMILAR PIECE OF EQUIPMENT. SINCE DUSTY MATERIALS MAY BE UTILIZED AS SOLIDIFICATION AGENTS, PROPER TARPING AND DUST CONTROL PROCEDURES WILL BE USED TO ASSURE DUST IS MINIMIZED.

6. ONCE SOLIDIFIED, EACH LOAD WILL BE SUBJECTED TO A "PAINT FILTER TEST" BY QUALIFIED PERSONNEL TO ASSURE ITS ACCEPTABILITY FOR DISPOSAL.

7. A LOG WILL BE KEPT AT THE LANDFILL WHICH WILL HAVE AT A MINIMUM THE FOLLOWING INFORMATION:
   A. WASTE MATERIAL DESCRIPTION
   B. SOLIDIFICATION AGENT(S) UTILIZED
   C. TIME OF SOLIDIFICATION
   D. APPROXIMATE VOLUME OF SOLIDIFIED WASTE
   E. DATE OF SOLIDIFICATION

THIS LOG WILL BE MADE PART OF THE FACILITY OPERATING RECORD AND WILL BE MADE AVAILABLE TO NCDENR UPON REQUEST.

8. ONCE APPROVED FOR DISPOSAL, THE WASTE SHALL BE HAULED AND PLACED IN THE ACTIVE LANDFILL CELL ALONGSIDE OTHER MUNICIPAL SOLID WASTE.

GENERAL NOTES:

1. REMOVABLE RAILING WILL BE INSTALLED AROUND THE PIT. (AS REQUIRED) ALSO LINKS OF CHAIN OR ORANGE PLASTIC LITTER FENCE WILL BE ATTACHED TO RAILINGS. THE REMOVABLE RAILING WILL ALSO BE AROUND THE WASTE SOLIDIFICATION PIT WHEN THE MIXING OPERATION IS NOT ON-GOING.

APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION
DATE 6/3/03 BY
#0805 PTO
A3 PII DOC8

NORTH CAROLINA PROFESSIONAL SEAL 16146 ENGINEER WILLIAM F. HODGES 3/26/03

NORTH CAROLINA PROFESSIONAL SEAL 28063 ENGINEER WILLIAM W. STUBBS 3/25/03

March 2003

WASTE SOLIDIFICATION PLAN

EXPANDED EAST CAROLINA REGIONAL MSW LANDFILL
FACILITY PLAN
WASTE SOLIDIFICATION PROCESS MODIFICATION
REPUBLIC SERVICES OF NORTH CAROLINA, LLC
BERTIE COUNTY, NORTH CAROLINA

HODGES, HARBIN, NEWBERRY & TRIBBLE, INC.
CONSULTING ENGINEERS
(478) 743-7175
484 MULBERRY ST. • STE. 265
MACON, GEORGIA 31201

PROJ. NO.	1001-344-01	DWG. ECFP3-WS1	EDIT 3-19-03
SCALE	AS SHOWN	SHEET 1 OF 1	
DATE	MARCH, 2003		

RANDOM WASTE INSPECTION FORMS

East Carolina Environmental Waste Inspection Form Permit: 08-03

DATE: _____ TIME: _____ AM PM

SCALES PERSON: _____

GENERATOR: _____

ADDRESS: _____

HAULING COMPANY NAME _____

ADDRESS _____

DRIVERS NAME _____ TRUCK # _____

LOCATION OF INSPECTED LOAD: SCALES, FACE OTHER _____

WASTE CHARACTERISTICS: _____

RESULT OF INSPECTION: LOAD ACCEPTED LOAD REJECTED LOAD HELD

NOTIFIED DATE AND TIME OF NOTIFICATION _____

SITE MANAGER	YES	NO			
DENR CONTACTED	YES	NO	FEDERAL	YES	NO
GENERATOR	YES	NO	HAULING COMPANY	YES	NO

	YES	NO
Powder/Dust _____		
Unacceptable Saturation		
Heat		
Battery		
Oil		
Biomedical		
Radioactivity		
Ashes/ Residue		
Sod / Soil		
PCB		
Tires		
Yard Waste		
White Goods		

SPECIAL ATTENTION

Asbestos (is it properly contained)		
Liquid Waste		
Drums		
Sludge		
Medical Waste		
Records		
Dead Animals		

Explanation: _____

Personnel Conducting the Inspection _____

Print Signature

Date: _____
Time: _____

SPECIAL WASTE INSPECTION SHEET

☐ Initial ☐ Random ☐ Suspicious ☐ Recertification

Disposal Facility: East Carolia Environmental Waste Profile # _____
Generator Name: _____
Name of Waste: _____
Transporter Name: _____
Transporter Phone #: _____
Driver Name: _____
Vehicle License Plate Number and State: _____

Physical Screening

INDICATE **YES** OR **NO** FOR EACH OF THE FOLLOWING TESTS AND NOTE ANY DESCREPANCIES. DO THE CHARACTERISITCS OF THE WASTE MATCH THE PROVIDED INFORMATION ON SPECIAL WASTE PROFILE?

Characteristics	Profile	Yes	No	Comments and/ or Observations:
Color	_____	☐	☐	_____
Odor	_____	☐	☐	_____
Physical State	_____	☐	☐	_____
Free Liquids	_____	☐	☐	_____
Is Photograph Attached?		☐	☐	Initial Load Must Include Photograph

IF WASTE FAILS ONE OR MORE OF THE PHYSICAL SCREENING TESTS, THE WASTE IS DEEMED UNACCEPTABLE FOR DISPOSAL AND SHOULD BE REJECTED.

Waste Accepted

_____
Inspector Signature Date

Waste Rejected (If Rejected then a Photograph MUST be attached.)

Reason for Rejection

☐ Extraneous and/ or Unauthorized Material
☐ Suspected PCB Waste
☐ Does Not Match Profile
☐ Suspected Hazardous Waste
☐ Free Liquids

Comments

_____
_____

_____
Inspector Signature Date

_____
General Manager or Designee Date

PETROLEUM CONTAMINATED SOIL
MONTHLY ACCEPTANCE LOG

East Carolina Regional MSW Landfill
Republic Services of North Carolina, LLC

Petroleum Contaminated Soil Monthly Acceptance Log

Month/Year: _____

	Tonnage MSW		Tonnage of Petroleum Contaminated Soil		Profile No.
Date	**Daily Amount**	**Running Total**	**Daily Amount**	**Running Total**	

Monthly Running Average: % TPH Soil _____

Notes:
If TPH soils are accepted from different sources on the same day, then a separate entry needs to be made for each source.

* This form may be updated or revised periodically at the Operator's discretion.

LEACHATE RECIRCULATION LOG FORM

*** This Spreadsheet is maintained electronically. Attached is an example of the spreadsheet.**

gals/cf	7.48	gals/cf	7.48
tank A height	33.69	tank B height	29.1
tank A diameter	36.37	tank B diameter	30.77

Day	Tank A Level (ft.)	Tank A Gal.	Tank B Level (ft.)	Tank B Gal.	Total (A+B) Gal.	Available Capacity Gal.	Recirc. Gal.	WWTP Gal.	Evaporation Gal.	Secondary Containment	Tank Leaks	Valve Leaks	Rain In.	Low Temp (F)	High Temp (F)
1	10.2	79,265	12.8	71,196	150,461	273,206		0					0	34.7	55.3
2	10.2	79,265	14.5	80,652	159,917	263,750		19,156					0	33.2	56.9
3	10.2	79,265	14.8	82,321	161,585	262,081		19,070					0	30.2	60.9
4	10.2	79,265	14.2	78,983	158,248	265,419	6,000	0					0.04	47.5	62.5
5	10.2	79,265	15.4	85,658	164,923	258,744	12,000	0					0	54	67.7
6	10.2	79,265	16	88,995	168,260	255,407	18,000	0					0	64.7	79
7	11	85,481	13.9	77,315	162,796	260,870		0					0.43	41.1	69.1
8		0		0	0	423,667		0					0.34	35.8	41.7
9	13.3	103,355	13.9	77,315	180,670	242,997		0		2.3			0.07	35	46.3
10	17.3	134,439	13.9	77,315	211,754	211,913		19,067					0.52	30.4	47.8
11	17.5	135,993	13	72,309	208,302	215,365		19,303					0.01	26.4	46.9
12	17.5	135,993	15.8	87,883	223,876	199,791		12,843					0	24.3	41.3
13	17.5	135,993	17.3	96,226	232,219	191,447	18,000	6,202					0	23.3	48.5
14	17.5	135,993	14.5	80,652	216,645	207,021		0					0.76	32.5	59.8
15		0		0	0	423,667		0					0.03	37.3	52.4
16	17.5	135,993	19	105,682	241,675	181,991	24,000	19,127					0	31.2	51.2
17	17.5	135,993	19	105,682	241,675	181,991	24,000	19,477					0.02	32.7	59.6
18	17.8	138,324	16.9	94,001	232,326	191,341	30,000	6,658					0	28	46.5
19	19.6	152,312	11.5	63,965	216,278	207,389							0	28.2	59.5
20	21.4	166,300	10.5	58,403	224,703	198,963	18,000						0	36.9	66.6
21	21.4	166,300	9.3	51,729	218,029	205,638	6,000						0	51.8	73.4
22		0		0	0	423,667	18,000						0	64.9	78.9
23	21.4	166,300	10.4	57,847	224,147	199,519		6,241					0.73	47	75.9
24	21.4	166,300	13	72,309	238,609	185,058		6,482		3			0.13	32.9	47
25		0		0	0	423,667							0	25	37.2
26	21.4	166,300	15.9	88,439	254,739	168,927	12,000	6,547					0	25.1	42.2
27	21.4	166,300	17.4	96,782	263,083	160,584	18,000	19,337					0.01	25.9	50.5
28	21.4	166,300	13.5	75,090	241,390	182,277	6,000						0	25.4	58.4
29		0		0	0	423,667							0.91	43.6	67.1
30	21.4	166,300	16.6	92,333	258,633	165,034	12,000			3			0.02	38.6	54.6
31	21.4	166,300	16.8	93,445	259,745	163,921							0.03	32.8	48.7
							222,000	179,511	0	8.3			4.05		

Leachate Generated = 510,795

PLAN OF OPERATION FOR FIGHTING FIRES

In the event of a fire at the landfill, the following plan of operation for fighting fires may be used.

- Notify the general manager or operations manager immediately.

- If possible, move all equipment and personnel clear of the burning material.

- Mobilize on-site equipment including fire extinguishers, compacters or dozers to try and extinguish the fire. All on-site personnel attempting to extinguish the fire using on-site equipment shall be trained in its proper use. The use of soil is often the best method for extinguishing landfill fires.

- If necessary, contact the local Windsor Fire Department for assistance.

- Once the fire has been extinguished, notify the Section verbally within 24 hours and in writing within 15 days. A copy of the Fire Occurrence Notification Form has been included in this Appendix.

SOLID WASTE MANAGEMENT FACILITY FIRE OCCURRENCE NOTIFICATION

NC DENR Division of Waste Management
Solid Waste Section

NCDENR
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

Notify the Section verbally within 24 hours and submit written notification within 15 days of the occurrence.
(If additional space is needed, use back of this form)

NAME OF FACILITY: _____ PERMIT # _____

DATE AND TIME OF FIRE: _____/_____/_____ @ _____: ____ AM / PM (circle one)

HOW WAS THE FIRE REPORTED AND BY WHOM: _____

LIST ACTIONS TAKEN: _____

WHAT WAS THE CAUSE OF THE FIRE: _____

DESCRIBE AREA, TYPE, AND AMOUNT OF WASTE INVOLVED: _____

WHAT COULD HAVE BEEN DONE TO PREVENT THIS FIRE: _____

CURRENT STATUS OF FIRE: _____

DESCRIBE PLAN OF ACTIONS TO PREVENT FUTURE INCIDENTS: _____

NAME _____ TITLE _____ DATE _____

THIS SECTION TO BE COMPLETED BY SOLID WASTE SECTION REGIONAL STAFF

DATE RECEIVED _____

List any factors not listed that might have contributed to the fire or that might prevent occurrence of future fires:

FOLLOW-UP REQUIRED:

☐ NO ☐ PHONE CALL ☐ SUBMITTAL ☐ MEETING ☐ RETURN VISIT BY: _____ (DATE)

ACTIONS TAKEN OR REQUIRED:

Revised 6/29/01

POSI-SHELL MATERIAL INFORMATION

Adirondack Environmental Services, Inc.
Experience is the solution
314 North Pearl Street • Albany, New York 12207
(800) 848-4983 • (518) 434-4546 • Fax (518) 434-0891

March 21, 2006

Dave Hansen
Landfill Service Corporation
2183 Pennsylvania Avenue
Apalachin, NY 13732

TEL: (607) 625-3050
FAX: (607) 625-2689

Work Order No: 060313006

RE: Iredell County N.C.
4 Ash/TCLP Metals

Dear Dave Hansen:

Adirondack Environmental Services, Inc received 4 samples on 3/13/2006 for the analyses presented in the following report.

There were no problems with the analyses and all associated QC met EPA or laboratory specifications, except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

ELAP#: 10709
AIHA#: 100307

Christopher Hess
QA Manager

Dave Hansen - FAX

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	T - Tentitively Identified Compound-Estimated Conc.
	* - Value exceeds Maximum Contaminant Level	E - Value above quantitation range

Adirondack Environmental Services, Inc — CASE NARRATIVE

CLIENT:	Landfill Service Corporation	**Date:**	*21-Mar-06*
Project:	Iredell County N.C.		
Lab Order:	060313006		

The samples for TCLP Mercury analysis were received after the 28 day hold time had expired.

This is an updated report 3/21/06 to correct the sample location.

Adirondack Environmental Services, Inc

Date: *21-Mar-06*

CLIENT: Landfill Service Corporation
Work Order: 060313006
Project: Iredell County N.C.
PO#:

Client Sample ID: Belews Creek F/A
Collection Date: 12/1/2005
Lab Sample ID: 060313006-001
Matrix: ASH

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TCLP MERCURY SW1311/7470A(SW7470A)						Analyst: KH
Mercury-TCLP	< 0.020	0.020	H	mg/L	1	3/17/2006
TCLP METALS - ICP SW1311/6010A(SW1311)						Analyst: SM
Arsenic-TCLP	0.08	0.05		mg/L	1	3/17/2006 3:23:00 PM
Barium-TCLP	0.37	0.10		mg/L	1	3/17/2006 3:23:00 PM
Cadmium-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:23:00 PM
Chromium-TCLP	0.34	0.05		mg/L	1	3/17/2006 3:23:00 PM
Lead-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:23:00 PM
Selenium-TCLP	0.12	0.05		mg/L	1	3/17/2006 3:23:00 PM
Silver-TCLP	< 0.10	0.10		mg/L	1	3/17/2006 3:23:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
T - Tentitively Identified Compound-Estimated Conc
E - Value above quantitation range

Adirondack Environmental Services, Inc

Date: *21-Mar-06*

CLIENT: Landfill Service Corporation
Work Order: 060313006
Project: Iredell County N.C.
PO#:

Client Sample ID: Marshall Flyash
Collection Date: 12/1/2005
Lab Sample ID: 060313006-002
Matrix: ASH

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TCLP MERCURY SW1311/7470A(SW7470A)						Analyst: KH
Mercury-TCLP	< 0.020	0.020	H	mg/L	1	3/17/2006
TCLP METALS - ICP SW1311/6010A(SW1311)						Analyst: SM
Arsenic-TCLP	0.12	0.05		mg/L	1	3/17/2006 3:42:00 PM
Barium-TCLP	0.16	0.10		mg/L	1	3/17/2006 3:42:00 PM
Cadmium-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:42:00 PM
Chromium-TCLP	0.20	0.05		mg/L	1	3/17/2006 3:42:00 PM
Lead-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:42:00 PM
Selenium-TCLP	0.27	0.05		mg/L	1	3/17/2006 3:42:00 PM
Silver-TCLP	< 0.10	0.10		mg/L	1	3/17/2006 3:42:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
T - Tentitively Identified Compound-Estimated Conc.
E - Value above quantitation range

Adirondack Environmental Services, Inc

Date: *21-Mar-06*

CLIENT: Landfill Service Corporation
Work Order: 060313006
Project: Iredell County N.C.
PO#:

Client Sample ID: Belews Creek POSI-SHELL
Collection Date: 12/29/2005
Lab Sample ID: 060313006-003
Matrix: ASH

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TCLP MERCURY SW1311/7470A(SW7470A)						Analyst: KH
Mercury-TCLP	< 0.020	0.020	H	mg/L	1	3/17/2006
TCLP METALS - ICP SW1311/6010A(SW1311)						Analyst: SM
Arsenic-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:46:00 PM
Barium-TCLP	0.78	0.10		mg/L	1	3/17/2006 3:46:00 PM
Cadmium-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:46:00 PM
Chromium-TCLP	1.02	0.05		mg/L	1	3/17/2006 3:46:00 PM
Lead-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:46:00 PM
Selenium-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:46:00 PM
Silver-TCLP	< 0.10	0.10		mg/L	1	3/17/2006 3:46:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
T - Tentitively Identified Compound-Estimated Conc.
E - Value above quantitation range

Adirondack Environmental Services, Inc

Date: *21-Mar-06*

CLIENT: Landfill Service Corporation
Work Order: 060313006
Project: Iredell County N.C.
PO#:

Client Sample ID: Marshall POSI-SHELL
Collection Date: 12/29/2005
Lab Sample ID: 060313006-004
Matrix: ASH

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TCLP MERCURY SW1311/7470A(SW7470A)						Analyst: KH
Mercury-TCLP	< 0.020	0.020	H	mg/L	1	3/17/2006
TCLP METALS - ICP SW1311/6010A(SW1311)						Analyst: SM
Arsenic-TCLP	< 0.05	0.05		mg/L	1	3/20/2006 10:40:00 AM
Barium-TCLP	0.66	0.10		mg/L	1	3/20/2006 10:40:00 AM
Cadmium-TCLP	< 0.05	0.05		mg/L	1	3/20/2006 10:40:00 AM
Chromium-TCLP	0.97	0.05		mg/L	1	3/20/2006 10:40:00 AM
Lead-TCLP	< 0.05	0.05		mg/L	1	3/20/2006 10:40:00 AM
Selenium-TCLP	< 0.05	0.05		mg/L	1	3/20/2006 10:40:00 AM
Silver-TCLP	< 0.10	0.10		mg/L	1	3/20/2006 10:40:00 AM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
T - Tentitively Identified Compound-Estimated Conc.
E - Value above quantitation range

Landfill Service
CORPORATION

MATERIAL SAFETY DATA SHEET

OSHA 29CFR 1910.1200

Date of Preparation: September 2004

Section I - Identity

Distributor's name and address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency telephone number:	(607) 625-3050
Chemical name and synonyms:	Aqueous alkaline slurry
Trade names and synonyms:	Posi-Shell Synthetic Cover

Section II - Chemical Data

Chemical family: N/A

Formula: The major constituent, mineral binder, is a nonspecific pozzolonic material containing variable quantities of the following mineral compounds: $CaCo_3$, CaO, SiO_2, Fe_2O, Al_2O_3, K_2SO_4, Na_2So_4. Other compounds may also be present. The slurry also contains cellulose fibers, P.E.T. fibers, water (or landfill leachate), and iron oxide coloring agent.

Hazardous mixtures of other liquids, solids or gases: N/A

Section III - Physical Data

Boiling Point (F) (Aqueous Portion):	212
Vapor Pressure (mm Hg):	N/A
Vapor Density (Air=1):	N/A
Specific Gravity (H_2O=1):	1.87
Percent Volatile by Volume (%):	N/A
Evaporation Rate:	N/A
Solubility in Water:	N/A

Appearance and Odor: Brown viscid liquid slurry with a smell similar to wet portland cement.

Section IV - Fire and Explosion Hazard Data

Nonexplosive, nonflammable.

Section V - Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure:

Acute: Can dry skin and cause alkali burns. May cause eye and skin irritation to those with sensitive skin.

Chronic: Non observed if properly handled. If cured material is pulverized and dispersed, fugitive dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis.

Emergency and First Aid Procedures: Irrigate eyes with water. Wash exposed skin areas with soap and water.

Section VI - Reactivity Data

Stability:	Product is stable.
Incompatibility (materials to avoid):	None known.
Hazardous Decomposition Products:	None known.
Hazardous Polymerization:	Will not occur.

Section VII - Spill Procedures

Steps to be taken in case material is spilled: Handle as normal solid waste.
Disposal method: Material can be disposed of as common waste in approved landfill.

Section VIII - Special Protection Information

Respiratory Protection: A dust mask is recommended during mixing procedure.

Ventilation: Local exhaust may be used.

Skin Protection: Avoid skin contact with wet slurry. Wear rubber or plastic gloves.
Eye Protection: Use of tight-fitting goggles is recommended.
Other Protective Equipment: Use barrier creams; wear coveralls; shower with soap and water.
Other Precautions: No special precautions need to be taken in handling and storing.

MATERIAL SAFETY DATA SHEET

MATERIAL: **OSHA 29CFR 1910.1200**

PSM 200 SETTING AGENT **DATE OF PREPARATION:** **JUNE 2005**

SECTION I - IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	Sodium Montmorillonite Clay (SMC) (CAS No. 1318-93-0)
Generic Name:	SMC with proprietary additives (CAS No. 1318-93-0)
Trade Name:	Posi-Shell® PSM 200 Setting Agent

SECTION II - HAZARDOUS INGREDIENTS

Ingredient:	Crystalline Silica (SiO_2) as Quartz
CAS No.:	14808-60-7
Hazard:	Low concentrations of crystalline silica in the form of quartz may be present in airborne SMC dust. See Section VI for discussion of health hazard.
Note:	Although the typical quartz content of western SMC is in the range of 2 to 6% most of the quartz particles are larger than the 10μ respirable threshold size. The actual respirable quartz concentration in airborne SMC dust will depend upon SMC source, fineness of product, moisture content of product, local humidity and wind condition at point of use and other use specific factors.

SECTION III – PHYSICAL DATA

Boiling Point (°F):	N/A
Vapor Pressure (mm. Hg):	N/A
Vapor Density (Air=1):	N/A
Solubility in Water:	Insoluble, forms colloidal suspension
Density (at 20° C):	55 lbs/cu ft as product
Specific Gravity (H2O=1):	2.45-2.55
Melting Point:	Approx. 1450° C
Evaporation Rate (Butyl Acetate=1):	N/A
pH:	8-10 (5% aqueous suspension)

SECTION IV – CHEMICAL DATA

N/A

SECTION V – FIRE AND EXPLOSION HAZARD DATA

Flash Point:	N/A
Special Fire Fighting Procedures:	N/A
Unusual Fire and Explosion Hazards:	None. Product will not support combustion.
Extinguishing Media:	None for product. Any media can be used for the packaging. Product becomes slippery when wet.
Flammable Limits:	LEL: N/A UEL: N/A

SECTION [illegible] HEALTH HAZARD DATA

Routes of Exposure and Effects:

Skin:	Possible drying resulting in dermatitis.
Eyes:	Mechanical irritant.
Inhalation:	*Acute* (short term) exposure to dust levels exceeding the PEL may cause irritation of respiratory tract resulting in a dry cough. *Chronic* (long term) exposure to airborne SMC dust containing respirable size (=10μ) quartz particles, where respirable quartz particle levels are higher than TLVs, may lead to development of silicosis or other respiratory prolems. Persistent dry cough and labored breathing upon exertion may be symptomatic.
Ingestion:	No adverse effects.

Permissible Exposure Limits:
(for air contaminants)

	OSHA PEL (8 HR. TWA)	ACGIH TLV
SMC as "Particulates not otherwise regulated" (formerly nuisance dust)		
Total dust	15mg/m³	N/D
Respirable dust	5mg/m³	N/D
Crystalline Quartz (respirable)	0.1mg/m³	0.1mg/m³

Carcinogenicity: SMC is not listed by ACGIH, IARC, NTP, or OSHA. IARC, 1997, concludes that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica from occupational sources (IARC Class 1), that carcinogenicity was not detected in all industrial circumstances studied and that carcinogenicity may depend on characteristics of the crystalline silica or on external factors affecting its biological activity. NTP classifies respirable crystalline silica as "known to be a human carcinogen" (NTP 9th Report on Carcinogens - 2000). ACGIH classifies crystalline silica quartz as a suspected human carcinogen (A2).

Acute Oral LD50:	N/D
Acute Dermal LD50:	N/D
Aquatic Toxicology LC50:	N/D

Emergency and First Aid Procedures:

Skin:	Wash with soap and water until clean.
Eyes:	Flush with water until irritation ceases.
Inhalation:	Move to area free from dust. If symptoms of irritation persist, contact physician. Inhalation may aggravate existing respiratory illness.

SECTION VII – REACTIVITY DATA

Stability:	Stable
Hazardous Polymerization:	None
Incompatibility:	None
Hazardous Decomposition Products:	None

SECTION VIII – SPILL PROCEDURES

Steps to be Taken if Material is Released or Spilled:	Avoid breathing dust; wear respirator approved for silica bearing dust. Vacuum up to avoid generating airborne dust. Avoid using water. Product slippery when wetted.

SECTION IX – EXPOSURES OF CONCERN

N/A

SECTION X – HANDLING AND USE PRECAUTIONS

Waste Disposal Methods:	Product should be disposed of in acordance with applicable local, state, and federal regulations.
Handling and Storage Precautions:	Use NIOSH/MSHA respirators approved for silica bearing dust when free silica containing airborne SMC dust levels exceed PEL/TLVs. Clean up spills promptly to avoid making dust. Storage area floors may become slippery if wetted.

SECTION XI – INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements:	Mechanical, general room ventilation. Use local ventilation to maintain PELs/TLVs.
Respirator:	Use respirators approved by NIOSH/MSHA for silica bearing dust.
Eye Protection:	Generally not necessary. Personal preference.
Gloves:	Generally not necessary. Personal preference.
Other Protective Clothing or Equipment:	None.

SECTION 8 - EXPOSURE PREVENTION

Avoid prolonged inhalation of airborne dust.

SECTION 9 - DISPOSAL AND SHIPPING INFORMATION

Shipping Name:	N/A (Not Regulated)
Hazardous Substance:	N/A
Hazard Class:	N/A
Caution Labeling:	N/A

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.
No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.

Landfill Service
CORPORATION

MATERIAL SAFETY DATA SHEET

MATERIAL: **OSHA 29CFR 1910.1200**

CKD **DATE OF PREPARATION:** **SEPTEMBER 1997**

SECTION I – IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	Cement Kiln Dust (CKD) Stack Dust Precipitator Dust Baghouse Dust
Trade Name:	N/A

SECTION II – HAZARDOUS INGREDIENTS

Ingredient:	CKD is not listed by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), or the Occupational Safety and Health Administration (OSHA) as containing carcinogens. CKD is specifically exempt from regulations as a hazardous waste under 40 CFR 261.4 (b)(8). Some CKD may contain free silica. Some CKD may contain free lime.
Note:	Since CKD is created from raw materials mined from the earth (limestone, marl, sand, shale, clay, etc.) and process heat is provided by burning fossil fuels, trace, but detectable, amounts of naturally occurring, and possible harmful, elements may be found during chemical analysis. Under ASTM standards, Portland cement may contain .75 percent insoluble residue. A fraction of these elements may be free crystalline silica.

SECTION III – PHYSICAL DATA

Boiling Point (°F):	N/A
Vapor Pressure (mm. Hg):	N/A
Vapor Density (Air=1):	N/A
Solubility in Water:	Slight (0.1-1.0%)
Melting Point:	N/A
Specific Gravity (H2O=1):	2.8
Evaporation Rate:	N/A
Appearance and Odor:	Gray or white powder, no odor.

SECTION IV – CHEMICAL DATA

Chemical Family:	Calcium salts
Formula:	None specified. CKD usually contains variable quantities of minerals found in cement raw materials (limestone and shale), cement clinker, and intermediate products produced in the kiln.

SECTION V – FIRE AND EXPLOSION HAZARD DATA

Non-explosive, nonflammable.

SECTION VI – HEALTH HAZARD DATA

Threshold Limit Value:	N/A
Effects of Overexposure:	
Acute:	CKD, when dry, is non-hazardous. When in contact with moisture (such as in eyes or on skin) or if mixed with water, it becomes caustic and *will burn the eyes or skin as severely as third-degree.* Inhalation of dry CKD can irritate the upper respiratory system.
Chronic:	CKD can cause inflammation of the lining tissue of the interior of the nose and inflammation of the comea. Hypersensitive individuals may develop an allergic dermatitis. CKD may contain trace (less than 0.05%) amounts of chromium salts or compounds, including hexavalent chromium, or other metals found to be hazardous or toxic in some chemical forms. These metals are mostly present as trace substitutions within the principal minerals.
Emergency and First Aid Procedures:	Flush eyes immediately and repeatedly with water and seek prompt medical attention. Wash exposed skin areas with soap and water. If irritation or inflammation occurs, seek prompt medical attention.

SECTION VI - REACTIVITY

Stability:	Product is stable. Keep dry until used.
Hazardous Polymerization:	Will not occur.
Incompatibility:	None known.
Hazardous Decomposition Products:	None known.

SECTION VII - SPILL PROCEDURES

Steps to be Taken if Material is Released or Spilled:	Use dry cleanup methods that do not disperse the dust into the air. Avoid breathing the dust. Emergency procedures are not required.

SECTION VIII - EXPOSURES OF CONCERN

N/A

SECTION IX - HANDLING AND USE PRECAUTIONS

N/A

SECTION X - INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements:	Local exhaust can be used to control airborne dust levels.
Respiratory Protection:	Use NIOSH/MSHA-approved respirators in dusty environments.
Eye Protection:	Use tight-fitting goggles in dusty environments, or when working in concrete construction.
Skin Protection:	Use barrier creams, impervious, abrasion- and alkali-resistant gloves, boots, and protective clothing to protect the skin from prolonged contact with wet cement in plastic concrete, mortar, or slurries. Immediately after working with cement or cement-containing materials, workers should shower with soap and water. Precautions must be taken. A CKD burn occurs with very little warning, as little heat is sensed by the skin. *Do Not Allow Wet Portland Cement to Get Inside Boots, Shoes, or Gloves; and Do Not Allow Wet, Saturated Clothing to Remain Against the Skin.*

SECTION XI - SPECIAL PRECAUTIONS

N/A

SECTION XII - DISPOSAL AND SHIPPING INFORMATION

Shipping Name:	CKD is not hazardous under US Dept. of Transportation (DOT) regulations.
Hazardous Substance:	N/A
Hazard Class:	N/A
Caution Labeling:	N/A
Identification Number:	N/A
Disposal Method:	Small amounts of material can be disposed of as common waste or returned to the container for later use if it is not contaminated. Large volumes may require special handling.

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.
No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.

MATERIAL SAFETY DATA SHEET

MATERIAL: **OSHA 29CFR 1910.1200**

EARTHTONE DYE **DATE OF PREPARATION:** **SEPTEMBER 1997**

SECTION I – IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	Brown ferrous oxide
Generic Name:	Earthtone Coloring Agent
Trade Name:	Earthtone Dye

SECTION II – HAZARDOUS INGREDIENTS

N/A

SECTION III – PHYSICAL DATA

Boiling Point (°F):	N/A
Vapor Pressure (mm. Hg):	N/A
Vapor Density (Air=1):	N/A
Solubility in Water:	Slight (0.1 - 1.0%)
Specific Gravity (H2O=1):	4.4 - 4.8
Evaporation Rate:	N/A
Appearance and Odor:	Brown, odorless dry powder

SECTION IV – CHEMICAL DATA

Chemical Family:	Metal oxide
Formula:	Fe2O3; Balance MnO2 and silicates
Product Class:	CAS# 1317-61-9, 51274-00-1, 1309-37-1
Bulk Density:	0.5 - 0.8 g/ml

SECTION V – FIRE AND EXPLOSION HAZARD DATA

Nonexplosive; Nonflammable

SECTION VI – HEALTH HAZARD DATA

Threshold Limit Value:	N/D
Effects of Overexposure:	None observed.
Emergency and First Aid Procedures:	Irrigate eyes with water, consult eye physician. Wash exposed skin areas with soap and water.

SECTION VII – REACTIVITY DATA

Stability:	Product is stable.
Hazardous Polymerization:	Will not occur.
Incompatibility:	None known.
Hazardous Decomposition Products:	None known.

SECTION VIII – SPILL PROCEDURES

Steps to be Taken if Material is Released or Spilled:	Handle as normal solid waste. Minimum fugitive dust release.

SECTION IX – EXPOSURES OF CONCERN

N/A

SECTION X – STANDARDS AND PRECAUTIONS

Store dry at ambient temperature away from food and drink.

SECTION XI – INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements:	Local exhaust may be used.
Respiratory Protection:	A NIOSH approved respirator is recommended during mixing procedure.
Eye Protection:	Use of safety glasses is recommended.
Skin Protection:	Wear leather, plastic, or cloth gloves.

SECTION XII – SPECIAL PRECAUTIONS

N/A

SECTION XIII – DISPOSAL AND SHIPPING INFORMATION

Shipping Name:	Earthtone Dye is not hazardous under US Dept. of Transportation (DOT) regulations.
Hazardous Substance:	N/A
Hazard Class:	N/A
Caution Labeling:	N/A
Identification Number:	N/A
Disposal Method:	Dispose at approved facility.

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.
No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.

Landfill Service CORPORATION

MATERIAL SAFETY DATA SHEET

MATERIAL: **OSHA 29CFR 1910.1200**

PORTLAND CEMENT **DATE OF PREPARATION:** **MARCH 2006**

SECTION I – IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	Portland Cement
Generic Name:	Also known as hydraulic cement
Trade Name:	Portland Cement Type I, IA, II III, V

SECTION II – HAZARDOUS INGREDIENTS

Component (percentage)	CAS No.	OSHA PEL (8-hour TWA)	ACGIH TLV-TWA (2002)
Tri-calcium silicate (20-70)	12168-85-3	see Nuisance Dust PEL	see Nuisance Dust TLV
Di-calcium silicate (10-60)	10034-77-2	see Nuisance Dust PEL	see Nuisance Dust TLV
Tetra-calcium-alumino-ferrite (5-15)	12068-35-8	see Nuisance Dust PEL	see Nuisance Dust TLV
Calcium sulfate (2-10)	N/D	see Nuisance Dust PEL	see Nuisance Dust TLV
Tri-calcium Aluminate (1-15)	12042-78-3	see Nuisance Dust PEL	see Nuisance Dust TLV
Magnesium oxide (0-4)	1309-48-4	see Nuisance Dust PEL	see Nuisance Dust TLV
Nuisance Dusts	N/D	15 mg/m³ (total dust) 5 mg/m³ (respirable dust)	10 mg/m³ (total dust) 3 mg/m³ (respirable dust)
Crystalline Silica (Quartz)* (0-1)	14808-60-7	10mg/m³ /percent silica ÷ 2 (respirable dust) 30 mg total dust/m³/percent silica ÷ 2 (total dust)	0.10 mg/m³
Hexavalent Chromium (measured as chromic acid and chromates)	18540-29-9	(100 mg/m³)	N/D

Trace Constituents: Portland cement has a variable composition depending upon the cementitious products produced in the cement kiln. Small amounts of naturally occurring, but potentially harmful, chemical compounds might be detected during chemical analysis. These trace compounds might include free crystalline silica, potassium, and sodium compounds; heavy metals, including cadmium, chromium, nickel, and lead; and organic compounds. Other trace constituents may include calcium oxide (also known as free lime or quick lime).

SECTION III – PHYSICAL DATA

Boiling Point (°F) (Aqueous Portion):	N/A
Vapor Pressure (mm. Hg):	N/A
Vapor Density (Air=1):	N/A
Solubility in Water:	Slight (0.1-1.0%)
pH (in water):	12-13
Specific Gravity (H2O=1):	2.9-3.15
Evaporation Rate:	N/A
Appearance and Odor:	Gray or white powder, no distinct odor

SECTION IV – CHEMICAL DATA

N/A

SECTION V – FIRE AND EXPLOSION HAZARD DATA

Portland cement is non-combustible and not explosive.
Special firefighting procedures are not applicable. (Although Portland cement poses no fire-related hazards, a self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.)

SECTION VI – HEALTH HAZARD DATA

Threshold Limit Value: N/A

Effects of Overexposure:

Acute: Wet cement on unprotected skin, whether direct or through saturated clothing, can cause severe, third-degree caustic burns.
NOTE: Portland cement burns skin with little warning; discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. The severity of the burn may not be detected until several hours after the damage begins.
Dry Portland cement can produce mild irritation to severe burns of the eye; it can irritate the upper respiratory system.

Chronic:	Dry Portland cement can cause inflammation of the lining of the nose and the cornea. Repeated exposure to Portland cement may result in drying of the skin and may lead to thickening, cracking, or fissuring, of the skin. Hypersensitive individuals may develop an allergic dermatitis (possibly due to trace amounts of hexavalent chromium at less than 0.005%). This reaction may appear in several forms including a mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may experience this effect after years of exposure to Portland cement products. While Portland cement typically has less than 0.2% crystalline silica, other additives to Portland cement and those components (e.g. aggregates) added to produce Portland cement concrete may significantly increase the amount of crystalline silica that is present. Exposure to respirable crystalline silica without the use of a respirator can cause silicosis and may aggravate other lung conditions.
Signs and Symptoms of Exposure:	Burning sensation around moist tissue areas (i.e., eyes, nose, upper respiratory system); painful burning on exposed skin that can develop with little warning. *Exposure of sufficient duration to wet Portland cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third-degree burns.* The same kind of destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry Portland cement. ***Do not allow wet Portland cement to get inside boots, shoes, or gloves, and do not allow wet, saturated clothing to remain against the skin.***
Emergency and First Aid Procedures:	• Irrigate eyes immediately and repeatedly with large amount of clean water for at least 15 minutes and get prompt medical attention. • Wash exposed skin areas with pH-neutral soap and clean water. • Apply sterile dressings; seek medical treatment in all cases of prolonged exposure to wet Portland cement, Portland cement mixtures, liquids from fresh Portland cement products, or prolonged wet skin exposure to dry Portland cement. • If ingested, consult a physician immediately. • Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately. • In the event of inhalation, remove to fresh air. • Seek medical attention if coughing and other symptoms do not subside. • Inhalation of gross amounts of Portland cement requires immediate medical attention.

SECTION VII - REACTIVITY DATA

Stability:	Product is stable. Keep dry until used.
Hazardous Polymerization:	Will not occur.
Incompatibility:	Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Portland cement is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Toxic gases or vapors may be given off, depending on the acid involved.
Hazardous Decomposition Products:	None known.

SECTION VII - SPILL PROCEDURES

Steps to be Taken if Material is Released or Spilled:	Use dry cleanup methods that do not disperse the dust into the air. Avoid breathing the dust. Emergency procedures are not required.

SECTION VIII - EXPOSURES OF CONCERN

Medical Conditions Generally Aggravated by Exposure:	Pre-existing skin conditions may be worsened. Silicosis may aggravate other chronic pulmonary conditions and may increase the risk of pulmonary tuberculosis infection.
Chemical Listed as Carcinogenic or Potential Carcinogen:	Portland cements are not considered carcinogenic. However, the International Agency for Research on Cancer (IARC) has determined, primarily through animal studies, that silica is a known human carcinogen. The National Toxicology Program (NTP) has characterized respirable quartz silica as reasonably anticipated to be a carcinogen. OSHA does not regulate silica as a carcinogen.

SECTION IX - HANDLING AND USE PRECAUTIONS

Portland cement should only be used by knowledgeable persons. While the information provided in the material safety data sheet is believed to provide a useful summary of the hazards of Portland cement, as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product.

A key to using the product safely requires the user to recognize that Portland cement chemically reacts with water, and that some of the intermediate products of this reaction (that is, those present while a Portland cement product is "setting") pose a more severe hazard than does Portland cement itself. These hazards include potential injuries to eyes and skin.

The data furnished in this sheet do not address hazards that may be posed by other materials mixed with Portland cement to produce Portland cement products. Users should review other relevant material safety data sheets before working with this Portland cement or with Portland cement products, including, for example, Portland cement concrete.

SECTION X - INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements:	Local exhaust can be used to control airborne dust levels.
Respiratory Protection:	Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits. Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, or if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation. *(Advisory: Respirators and filters purchased after July 10, 1998, must be certified under 42 CFR 84.)*

Eye Protection:	When engaged in activities where Portland cement dust or wet Portland cement or concrete could contact the eye, wear goggles or safety glasses with side shields. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with Portland cement or wet Portland cement products.
Skin Protection:	Prevention is essential to avoiding potentially severe skin injury. Avoid contact with unhardened (wet) Portland cement products. If contact occurs, promptly wash affected area with soap and water. *Do Not Allow Wet Portland Cement to Get Inside Boots, Shoes, or Gloves; and Do Not Allow Wet, Saturated Clothing to Remain Against the Skin.* Do not rely on barrier creams. Barrier creams should not be used in place of gloves. Use impervious, abrasion- and alkali-resistant gloves, boots, and protective clothing to protect the skin from prolonged contact with wet Portland cement in plastic concrete, mortar, or slurries.

SECTION XII – SPECIAL PRECAUTIONS

Work/Hygienic Practices:	• Periodically wash areas contacted by dry Portland cement, or by wet Portland cement, or concrete fluids with a pH neutral soap and clean, uncontaminated water. • Wash again at the end of the work. • If irritation occurs, immediately wash the affected area and seek treatment. • If clothing becomes saturated with wet Portland cement or concrete, it should be removed and replaced with clean, dry clothing. • Follow listed precautions as appropriate, during repair or maintenance work on contaminated equipment.

SECTION XIII – DISPOSAL AND SHIPPING INFORMATION

Shipping Name:	Portland cement is not hazardous under US Dept. of Transportation (DOT) regulations.
Hazardous Substance:	N/A
Hazard Class:	N/A
Caution Labeling:	N/A
Identification Number:	N/A
Disposal Method:	Small amounts of material can be returned to the container for later use if it is not contaminated. Dispose of waste material in accordance with Federal, State, and Local requirements. Portland cement is not a hazardous waste as defined by the Resource Conservation and Recovery Act (40 CFR 261).

SECTION XV - OTHER REGULATORY INFORMATION

Status under USDOL--OSHA Hazard Communication Standard (29 CFR 1910.1200):

Portland cement is considered a "hazardous chemical" under this regulation and should be a part of any Hazard Communication Program.

Status under CERCLA / Superfund (40 CFR 117 and 302):

Not listed.

Status under SARA (Title III, Sections 311 and 312):

Portland cement qualifies as a "hazardous substance" with delayed health effects.

Status under SARA (Title III, Section 313):

This product may contain constituents listed under SARA (Title III, Section 313,) but not in amounts requiring supplier notification under 40 CFR Part 372 Subpart C.

Status under TSCA (as of May 1997):

Portland cement and some of the substances in Portland cement are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act:

Portland cement is a "hazardous substance" subject to statutes promulgated under the subject act.

Status under California Proposition 65:

Portland cement contains chemicals (trace metals) including silica and hexavalent chromium, known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist.

Status under the Canadian Environmental Protection Act:

Not listed.

Workplace Hazardous Material Information System (Canada):

Portland cment is considered to be a hazardous material under the Hazardous Product Act as defined by the Controlled Products Regulations (Class E - Corrosive Material), and is therefore, subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.
No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.

MATERIAL SAFETY DATA SHEET

MATERIAL: **OSHA 29CFR 1910.1200**

POSI-PAK® TYPE P-100 **DATE OF PREPARATION:** **SEPTEMBER 2004**

SECTION I – IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	
Generic Name:	Polyester Staple
Trade Name:	Posi-Pak® Type P-100

SECTION II – HAZARDOUS INGREDIENTS

Ingredient:	Polyethylene terephthalate polymer and one or more surface finishes (organic lubricants).
CAS No.:	25038-59-9
Hazard:	No known physical or health hazards associated with this product.
Note:	Polyester Staple is a family of fiber products having similar hazard and physical property characteristics. The polymer immobilizes the constituents of the polymer system (delusterants, catalyst residues, etc.) which, therefore, present no likelihood of exposure under normal condtions of processing and handling. However, exposure to chemical substances may occur as a result of processing these fibers. Processing may release and aerosolize the residual moisture and surface finishes. Heating the fibers may volatilize the finishes or produce a chemical change. Landfill Service Corporation recommends a 3 mg/m^3 8-hour TWA exposure limit on finish mists.

SECTION III – PHYSICAL DATA

Melting Point: Approx. 500° F (260° C)

SECTION IV – CHEMICAL DATA

Polyethylene terephthalate is chemically stable and resistant to attack by oils, solvents, weak acids, and weak alkalis.

SECTION V – FIRE AND EXPLOSION HAZARD DATA

Polyester Staple will burn if exposed to flame. Decomposition products generated from molten polymer may be subject to autoignition. Combustion products will be comprised of carbon, hydrogen, and oxygen. The exact composition will depend on the conditions of combustion.

SECTION VI – HEALTH HAZARD DATA

This product has not been fully evaluated for toxicological properties. Preliminary evaluation of chemical components used in the finish and toxicological testing of the polymer have given no indication that health problems would occur in normal handling and use.

Similar products have given no indication that health problems would occur in normal handling and use.

SECTION VII – REACTIVITY DATA

N/A

SECTION VIII – SPILL PROCEDURES

N/A

SECTION IX – EXPOSURES OF CONCERN

Inhalation of finish mist above the recommended 3 mg/m³ 8-hour TWA would be an exposure of concern.

SECTION X – HANDLING AND USE PRECAUTIONS

Personal hygiene measures, such as washing hands and face immediately after working with the fibers and before eating, smoking, or using lavatory facilities, are recommended.

SECTION XI - INDUSTRIAL HYGIENE CONTROL MEASURES

Adequate ventilation is recommended to maintain finish mist levels below 3 mg/m³ 8-hour TWA and minimize exposure.

Fire fighters should protect themselves from decomposition and combustion products that may include carbon monoxide and other toxic gases.

SECTION XII - SPECIAL PRECAUTIONS

N/A

SECTION XIII - DISPOSAL AND SHIPPING INFORMATION

These products are not classified as hazardous wastes under the Resource Conservation and Recovery Act, and unless prohibited by state or local regulation, can be disposed of in a municipal landfill or incinerated. Any finish oils contained in plant wastewater should be biodegradable in conventional biological wastewater treatment systems.

These fibers are not classified by the Department of Transportation as a hazardous material.

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.
No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.