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June 14, 2011

DIN 14146
6/14/2011
APPROVED

Mr. John E. Murray P.E.
Professional Engineer - Solid Waste Section
North Carolina Dept. of Env. & Natural Resources
Mooresville Regional Office
610 East Center Avenue, Suite 301
Mooresville, NC 28115

**Re: East Carolina Regional MSW Landfill
Request for 5-Yr. Permit Renewal
Permit No. 08-03
HHNT Project No. 6703-446-01 / 6703-260-07**

Dear Mr. Murray:

Enclosed is a copy of the **REVISED** Operation Plan which removes all references to sage mulch as an approved Alternate Daily Cover Materials.

Should you have any questions, please call.

Sincerely,

HODGES, HARBIN, NEWBERRY & TRIBBLE, INC.



William F. Hodges, P.E.
Professional Engineer

WFH/am

cc: Edward F. Mussler III, P.E. (w/ enclosure)
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OPERATION PLAN

EAST CAROLINA REGIONAL LANDFILL – PHASE 5 BERTIE COUNTY, NORTH CAROLINA

FOR

REPUBLIC SERVICES OF NORTH CAROLINA, LLC
dba
EAST CAROLINA ENVIRONMENTAL

APRIL 2008
2ND REVISION JUNE 2011



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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 General Manager, 252-348-3322 (phone), 252-348-3395 (fax). This facility is located at 1922 Republican Road, Aulander, North Carolina 27805.

7:00 am OK JM
6/14/2011

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 General 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.

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 1,400 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 21 years. The life for 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 1,043,000 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.

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. 08849T03 dated February 10, 2006. 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.

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.

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.

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.

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.

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 Operator's demonstrations and 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, foundry sand,

paper pulp sludge, and alum sludge in the future. However, these additional ADC's must be approved by the Section in accordance with 15A NCAC 13B .1626(2)(b) prior to any use of such.

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). 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 the manufacturer's recommendations 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) mat 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 24 inches of 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. Leachate collection lines shall be cleaned with jet action within 12 months of permit issuance and then once every five years thereafter. If a blockage is encountered, camera monitoring of the line shall be done.
7. 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 GunnCo Pump & Control, Inc. 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.

On a five year interval, a high pressure water jet cleaning device shall be introduced into the leachate lines to irrigate and renew the filter pack around the perforated leachate line. Debris dislodged by this effort shall be removed from the leachate line / sump with a vacuum truck. The dislodged material and associated cleaning water shall be disposed of properly.

The site currently contracts with GunnCo Pump & Control, Inc. 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 $\leq 1 \times 10^{-7}$ cm/sec, a minimum of 60 mil FML liner, and a 2' protective cover with permeability $\geq 1 \times 10^{-2}$ cm/sec. 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 8" diameter 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 1×10^{-7} cm/sec, a minimum of 60 mil FML, and a 2' thick protective cover with a permeability $\geq 1 \times 10^{-2}$. Leachate recirculation will not be allowed over alternate liner systems unless specifically approved by the Section.

d. Equipment Required

The following equipment will be used for leachate recirculation (at a minimum):

- i. Centrifugal pump (mounted inside secondary containment of the leachate tank) with force main to landfill cell.
 - ii. Drawings showing the recirculation lines, injection point and orientation to cell sideslopes.
 - iii. Agricultural irrigation sprinkler system
- e. 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.

- i. 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.

- ii. 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.

- iii. 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. Log for reporting operating or other unusual problems

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 forms or procedures, etc. that owner/operators will use

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 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:
 - i. 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.

 - ii. 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.

 - iii. Replace the subsurface recirculation lines if they become clogged or damaged.

 - iv. 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 General 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 60 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 at intervals of approximately 20 feet vertical. 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. Putrescibles 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. Calcium 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 sent to the Land Quality Section for Approval.

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. Four 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 1×10^{-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 Phase 4, which includes cells 11 and 12. Construction of cell 11 was completed in early 2006 and a Permit To Operate was issued by the Solid Waste Section on June 15, 2006.

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:

General 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 made - 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 appurtenances
- 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). 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 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



Facility Permit No: 08-03
Part 2-Permit to Operate
East Carolina Regional Landfill
June 17, 2008
Doc ID: 4886
Page 1 of 9

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
Dexter R. Matthews, Director
Division of Waste Management
Michael F. Easley, Governor
William G. Ross Jr., Secretary

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

MUNICIPAL SOLID WASTE LANDFILL FACILITY PERMIT
Permit No. 08-03

REPUBLIC SERVICES OF NORTH CAROLINA, LLC, a wholly owned subsidiary of
REPUBLIC SERVICES, INC. of Ft. Lauderdale, FL, d.b.a.
EAST CAROLINA ENVIRONMENTAL, Operator
are hereby issued a

PERMIT to OPERATE
EAST CAROLINA REGIONAL LANDFILL
MUNICIPAL SOLID WASTE LANDFILL FACILITY
PHASE IV (CELL 12)

Located north of the intersection of Republican and Harmon Roads, south of Aulander, 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 facility is located and described by the legal description of the site or the property map contained within the approved application.

Edward F. Mussler III, P.E.
cn=Edward F. Mussler III, P.
E., c=US, o=Division of
Waste Management,
ou=Solid Waste Section,
email=ed.mussler@ncmail.
net
I have reviewed this
document and am approving
this document
2008.06.17 15:22:20 -04'00'

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

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Telephone 919-508-8400 \ Fax 919-733-4810 \ Internet <http://wastenotnc.org>
An Equal Opportunity / Affirmative Action Employer - Printed on Dual Purpose Paper

ATTACHMENT 3

PART I: PERMITTING HISTORY

Issuance	Date
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
Version 2 (PTO) Cell 10	September 23, 2003
Modification (PTO)	February 19, 2004
Version 3 (PTO & PTC) New Rate & Size	June 17, 2005
Version 4 (PTC) Cells 11 and 12	July 14, 2005
Version 5 (PTO) Cell 11A – Lower End	March 28, 2006
Version 6 (PTO) Cell 11B	June 15, 2006
PTO Cell 12	June 17, 2008

ART II:

PART II: MUNICIPAL SOLID WASTE LANDFILL DOCUMENTS

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. *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.

5. *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.
6. *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.

PART III: CONSTRUCTION AND DEMOLITION LANDFILL DOCUMENTS

(NOT APPLICABLE)

PART IV: LAND CLEARING AND INERT DEBRIS LANDFILL DOCUMENTS

(NOT APPLICABLE)

PART V: YARD WASTE FACILITY DOCUMENTS

(NOT APPLICABLE)

PART VI: MISCELLANEOUS TREATMENT AND PROCESSING FACILITY DOCUMENTS

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.

PART VII: GENERAL PERMIT CONDITIONS

1. This permit shall expire June 15, 2011. Pursuant to 15A NCAC 13B .0201(e), no later than February 15, 2011, the owner or operator must submit a request to the North Carolina Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section ("Section") for permit review and must update pertinent facility plans including, but not limited to, the facility operation and waste screening plans.
2. The persons to whom this permit is issued ("permittee") are the owners and operators of the solid waste management facility.
3. (Intentionally blank)
4. When this property is sold, leased, conveyed, or transferred in any manner, the deed or other instrument of transfer must 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 sanitary landfill 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 must 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.
7. This permit is issued based on the documents submitted in support of the application for permitting the facility including those identified in Attachments 1 and 3, "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.

- End of Section -

ATTACHMENT 4
CONDITIONS OF PERMIT TO OPERATE

PART I: GENERAL FACILITY CONDITIONS

1. This permit approves the operation of Phase IV, Cell 12, and the continued operation of Phases I, II, III, IV (Cells 1 through 11), as well as the on-site environmental management and protection facilities as describe in the approved plans. Future Phases V - VII have not been approved for operation.
2. Phases I through IV have a permitted disposal capacity of approximately 12,192,000 cubic yards. Phase IV (Cells 11 and 12) has a disposal capacity of approximately 3,925,000 cubic yards. Cell 12 encompasses approximately 15 acres (approximately 650,400 square feet).
3. 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.
4. 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 as set forth in Document 9, Part II, Attachment 1.
5. 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.
6. The owner or operator of the landfill facility 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.

7. The facility operator must have completed 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 at all times during all operating hours of the facility that it is 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.
8. On or before August 1 annually, the Permittee must submit an annual facility report to the Solid Waste 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 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, and
 - v) By diversion to alternative management facilities.
 - c. A measurement of the volume utilized in the MSW cells must be performed during the second quarter of the calendar year. The date and volume, in cubic yards, must be included in the report.
 - d. The amount of waste, in tons, from scale records, disposed in the MSW cells since 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 the 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.
9. 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 Solid Waste

Section upon request.

10. 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.

PART II: MUNICIPAL LANDFILL UNIT SPECIFIC CONDITIONS

MONITORING AND REPORTING

11. Ground water monitoring at this unit must be as prescribed by the appropriate requirements of 15A NCAC 13B .1630-.1637 and the approved monitoring plan.
12. A readily accessible unobstructed path must be cleared and maintained so that four-wheel drive vehicles may access monitoring well locations at all times.
13. 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.
14. Records of all ground-water, surface water and leachate analytical data must be kept as part of the permanent facility record.
15. 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.
16. Reports of the analytical data for each water quality sampling event must be submitted to the Section within 60 days of the respective sampling event. Analytical data must be submitted in a manner prescribed by the Section.
17. The four independent samples which comprise the initial baseline sampling event must be collected from each ground water monitoring well and the report must be submitted to the Section within six months after issuance of the Permit to Operate.
18. Untreated leachate must be sampled and analyzed at least semi-annually concurrently with the ground and surface water sampling. The leachate must be analyzed for all Appendix I constituents, pH, specific conductance, BOD and COD, phosphate, nitrate, and sulfate. Test results must be submitted to the Section along with ground and surface water test results. In the event leachate is recirculated, additional leachate sampling may

be required.

OPERATIONAL CONDITIONS

19. The use of tarps and petroleum contaminated soil as alternative daily cover is approved. Use must be consistent with prior approved plans. 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 found in Attachments 1 or 3.
20. The use of leachate recirculation as a leachate management tool is approved. Leachate recirculation will be conducted according to the approved plan, Document 1, Attachment 1.
21. The landfill facility is permitted to co-dispose of wastewater treatment sludge generated within the facility's approved service area, subject to the terms and procedures of the approved plan.
22. Closure or partial closure of any MSW landfill 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 Division at least 90 days prior to implementation. Closure and Post-closure plans, including financial instruments must be updated annually pursuant to 15A NCAC 13B .1628.

PART III: CONSTRUCTION AND DEMOLITION DEBRIS UNIT SPECIFIC CONDITIONS (NOT APPLICABLE)

PART IV: LAND CLEARING AND INERT DEBRIS UNIT SPECIFIC CONDITIONS (NOT APPLICABLE)

PART V: YARD WASTE UNIT SPECIFIC CONDITIONS (NOT APPLICABLE)

PART VI: MISCELLANEOUS FACILITIES SPECIFIC CONDITIONS

LIQUID AND SLUDGE SOLIDIFICATION PROCESSING UNIT

23. Operations must be in accordance with Document 1, Part VI, Attachment 3 and the following conditions.

24. Approval for Operation shall be 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.
25. 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.
26. 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.
27. Bulking agents must be stored on an impervious surface. Dust and leachate formation must be prevented.
28. Petroleum contaminated soils must not be used as bulking agents.
29. All liquids, sludge and bulking agents must be weighed and reported as solid waste for purposes of the Solid Waste Annual Report reporting requirements.
30. Spills must be cleaned up immediately.
31. No odors, vectors or nuisances are allowed in the processing area.
32. 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.

- End of Section -



North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director

Division of Waste Management

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

June 18, 2008

Mr. Ray Hoffman
Republic Services of North Carolina, LLC
P O Box 2943
Hickory NC 28603

Re: Permit to Operate (PTO): Phase IV, Cell 12
East Carolina Regional Landfill
Bertie County, North Carolina
Permit No. 08-03
Document ID No.4887

Dear Mr. Hoffman:

The Solid Waste Section has determined that Republic Services of North Carolina, LLC has met the pre-operative conditions of Solid Waste Permit No. 08-03, Part 1: Permit to Construct for Phase IV, Cell 12 and associated facility infrastructure. Solid Waste Permit No. 08-03, Part 2: Permit to Operate for Phase IV, Cell 12 is enclosed.

If you have any questions regarding the permit or conditions, please contact me at (919) 508-8507.

Sincerely,

Ming Tai Chao, P.E.
Environmental Engineer II
Solid Waste Section

Enclosure

Cc: William F. Hodges, P.E. of Hodges, Harbin, Newberry & Tribble, Inc.
Daniel B. Bunnell, P.E. of Bunnell-Lammons Engineering, Inc.
Dennis Shackelford – Eastern District Supervisor
Chuck Boyette – Waste Management Specialist
Central Files

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

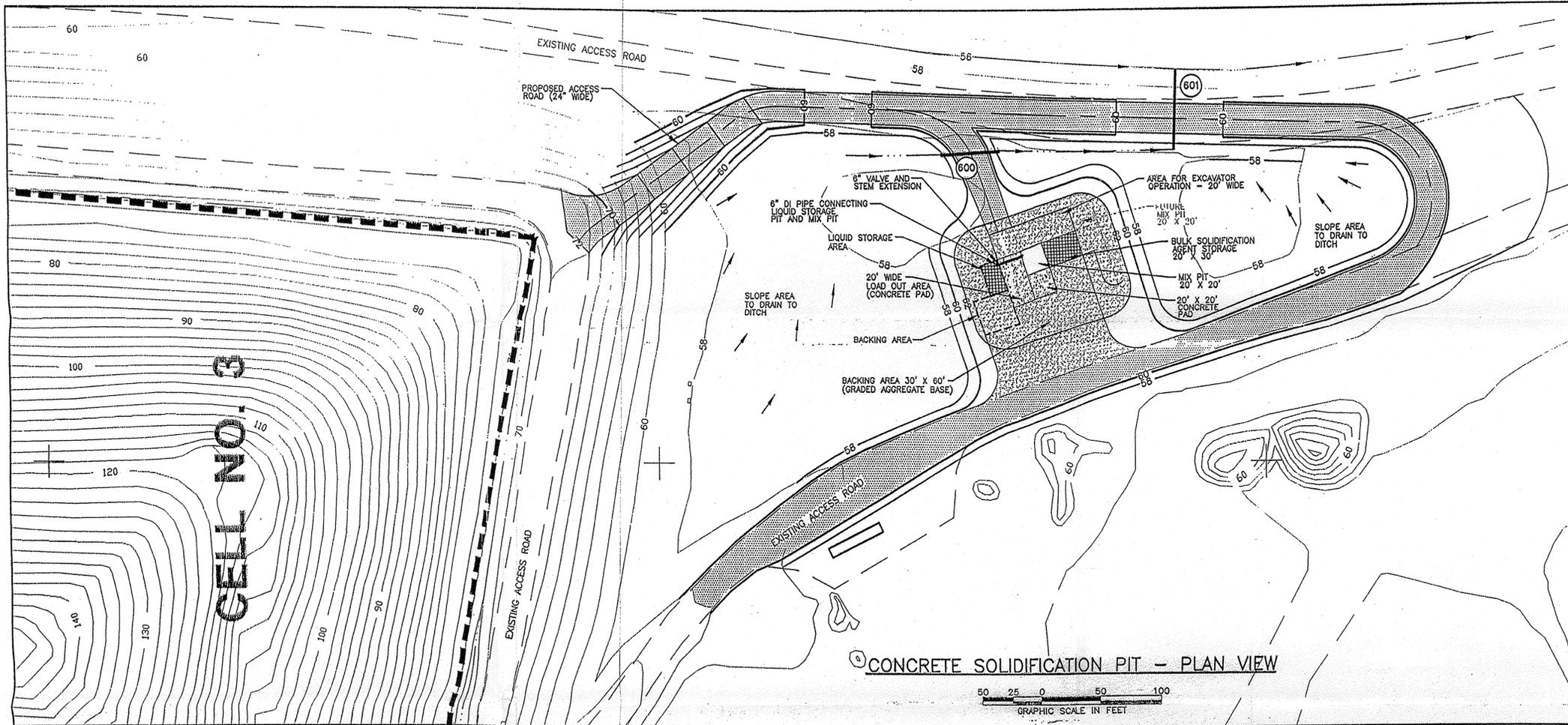
NEW DRAINAGE STRUCTURES

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

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

LEGEND

EXISTING 10' CONTOUR	-----60-----
EXISTING 2' CONTOUR	-----60-----
EXISTING ROAD	=====
PROPOSED ROAD	=====
EXISTING CELL LINER	-----60-----
PROPOSED 10' CONTOUR	-----70-----
PROPOSED 2' CONTOUR	-----60-----
PROPOSED STORM PIPE	(600)
EXISTING STRUCTURE	=====
PROPOSED DRAINAGE DITCH	-----60-----



CONCRETE SOLIDIFICATION PIT - PLAN VIEW

GRAPHIC SCALE IN FEET
 0 25 50 100

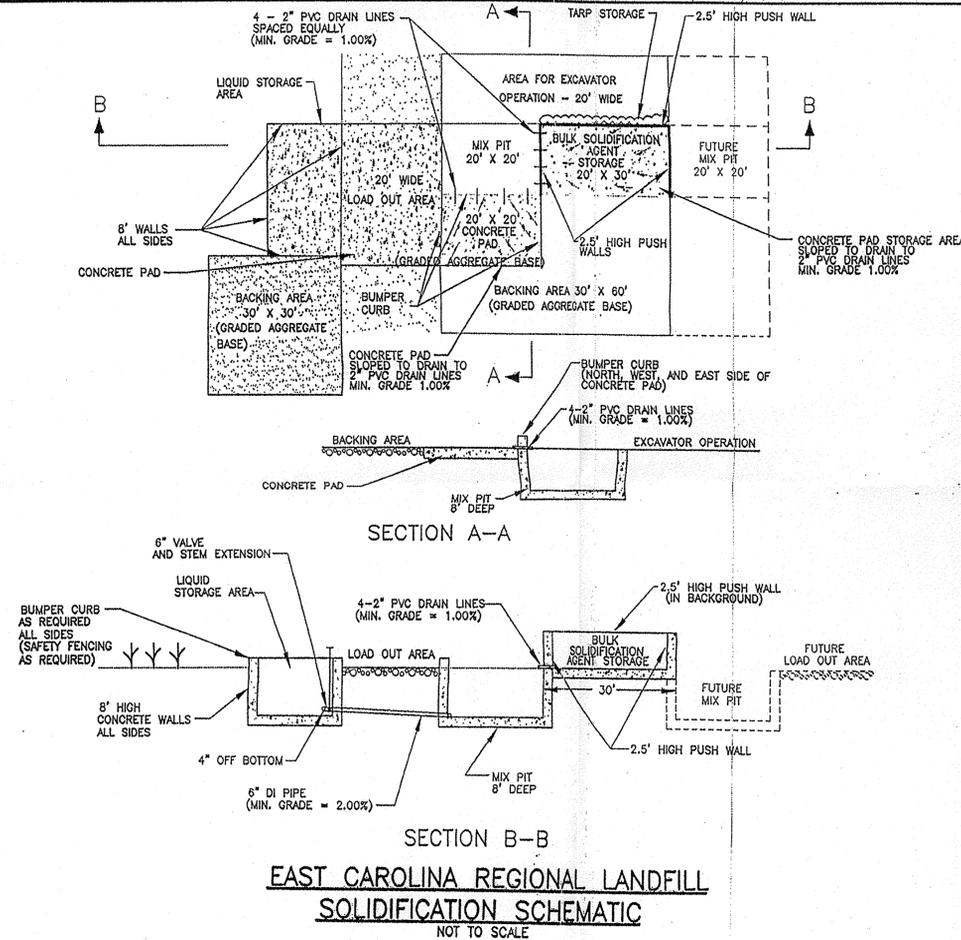
OPERATION AND GENERAL NOTES NARRATIVE

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 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.



EAST CAROLINA REGIONAL LANDFILL
 SOLIDIFICATION SCHEMATIC
 NOT TO SCALE

APPROVED
 DIVISION OF WASTE MANAGEMENT
 SOLID WASTE SECTION
 DATE 6/3/03 BY [Signature]
 #0003 PRO
 A3 PII Doc B

Professional Engineer Seal: WILLIAM F. HODGES, 16146, 28083, 3/25/03

Professional Engineer Seal: WILLIAM W. TRIBBLE, 28083, 3/25/03

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 484 MULBERRY ST. - STE. 265
 (478) 749-7175 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		

2003/03/25 10:54:11 AM 15:42:11 2003 CMT.E

RANDOM WASTE INSPECTION FORMS

WASTE INSPECTION FORM

FACILITY: _____ PERMIT NO.: _____

LOCATION: _____ DATE: _____

INSPECTOR: _____ COMPANY: _____

Waste Name(s) & Address(es)

1. _____
2. _____
3. _____
4. _____
5. _____

Waste Hauler: _____

Address: _____

Driver's Name: _____

Waste Accepted Waste Rejected Waste Held

Notified: Waste Source Hauling Management Site Management

State Federal

Loader Operator: _____

Personnel Conducting the Inspection: _____

Supervisor Conducting the Inspection: _____

SIGNATURE: _____

Witness: _____

SIGNATURE: _____

Driver: _____

SIGNATURE: _____

Other: _____

Company: _____ Title: _____

SIGNATURE: _____

DATE: _____ Time: _____ AM PM

ADDITIONAL COMMENTS: see page 2

INSPECTION CHECK LIST: (Check all that apply)

(If "YES", please explain in the space provided below)

FACILITY: _____

PERMIT NO.: _____

LOCATION: _____

DATE: _____

INSPECTOR: _____

COMPANY: _____

	YES	NO
1. Powders/Dusts	_____	_____
Identified: _____		
Unknown	_____	_____
2. Unacceptable Saturation	_____	_____
3. Odor/Fumes	_____	_____
Strong	_____	_____
Faint	_____	_____
Describe: _____		
4. Heat	_____	_____
Item: _____		
5. Battery	_____	_____
6. Oil	_____	_____
7. Biomedical	_____	_____
8. Radioactivity	_____	_____
9. Ashes/Residue	_____	_____
10. Sod/Soil	_____	_____
11. Asbestos (not properly contained)	_____	_____
12. PCB	_____	_____
13. Out of Area Waste	_____	_____

Explanation:

CONTAINER INVENTORY

FACILITY: _____

PERMIT NO.: _____

LOCATION: _____

DATE: _____

INSPECTOR: _____

COMPANY: _____

Container:

Drum Metal Cardboard Plastic Other

Other: _____

Contents:

Full Partially Full Empty

Crushed Punctured

Labeled Hazardous

Identified: _____

Additional Information:

Container:

Drum Metal Cardboard Plastic Other

Other: _____

Contents:

Full Partially Full Empty

Crushed Punctured

Labeled Hazardous

Identified: _____

Additional Information:

REFUSE/UNIDENTIFIED WASTE INSPECTION FORM

FACILITY: _____ PERMIT NO.: _____

LOCATION: _____ DATE: _____

INSPECTOR: _____ COMPANY: _____

REJECTABLE WASTE DESCRIPTION: _____

WASTE: Rejected Accepted
NOTIFIED: Waste Source Hauling Management
Site Management State Federal

REFUSED WASTE TRANSPORTED BY:

Hauler Address: _____

Destination: _____

ACCEPTED WASTE:

Contained area: _____

Secured by: _____

Lab to complete testing: _____

ADDITIONAL COMMENTS: _____

**PETROLEUM CONTAMINATED SOIL
MONTHLY ACCEPTANCE LOG**

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, compactors 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



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:

POSI-SHELL MATERIAL INFORMATION



Experience is the solution

314 North Pearl Street • Albany, New York 12207
(800) 848-4983 • (518) 434-4545 • Fax (518) 434-0891

March 21, 2006

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

Work Order No: 060313006

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

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,

Christopher Hess
QA Manager

ELAP#: 10709
AJHA#: 100307

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 - Tentatively Identified Compound-Estimated Conc.
	* - Value exceeds Maximum Contaminant Level	E - Value above quantitation range

Adirondack Environmental Services, Inc**CASE NARRATIVE**

CLIENT: Landfill Service Corporation
Project: Iredell County N.C.
Lab Order: 060313006

Date: 21-Mar-06

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.

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 - Tentatively 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 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 SW1311/8010A(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 - Tentatively 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	0.18	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
L - 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 - Tentatively 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: Belows 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 3:48:00 PM
Barium-TCLP	0.78	0.10		mg/L	1	3/17/2006 3:48:00 PM
Cadmium-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:48:00 PM
Chromium-TCLP	1.02	0.05		mg/L	1	3/17/2006 3:48:00 PM
Lead-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:48:00 PM
Selenium-TCLP	< 0.05	0.05		mg/L	1	3/17/2006 3:48:00 PM
Silver-TCLP	< 0.10	0.10		mg/L	1	3/17/2006 3:48:00 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 - Tentatively 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 POST-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 - Tentatively 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_3 , 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 ($\text{H}_2\text{O}=1$): 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 - IDENTIFICATION

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 (SiO₂) 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 10 μ 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.

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)

N/A

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

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 problems. 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/m ³	N/D
Respirable dust	5mg/m ³	N/D
Crystalline Quartz (respirable)	0.1mg/m ³	0.1mg/m ³

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 7: REACTIVITY

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

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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 9: PHYSICAL AND CHEMICAL PROPERTIES

N/A

SECTION 10: STABILITY AND REACTIVITY WITH OTHER SUBSTANCES

Waste Disposal Methods:	Product should be disposed of in accordance 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 11: PROTECTIVE EQUIPMENT/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.



Avoid prolonged inhalation of airborne dust.



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**

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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
CKD **DATE OF PREPARATION:** SEPTEMBER 1997

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

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 7 - PHYSICAL AND CHEMICAL PROPERTIES

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 8 - IDENTIFICATION

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 9 - CHEMICAL REACTIVITY

Non-explosive, nonflammable.

SECTION 10 - STABILITY AND REACTIVITY

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 <i>will burn the eyes or skin as severely as third-degree</i> . 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 cornea. 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.

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

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.
---	--

N/A

N/A

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.*

N/A

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**

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MATERIAL SAFETY DATA SHEET

MATERIAL: OSHA 29CFR 1910.1200
EARTHTONE DYE **DATE OF PREPARATION:** SEPTEMBER 1997

SECTION I - IDENTIFICATION

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 INFORMATION

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 - PHYSICAL AND 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/RELEASE PROCEDURES

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

SECTION IX - DISPOSAL METHODS OR RECOMMENDATIONS

N/A

Store dry at ambient temperature away from food and drink.

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.

N/A

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**

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**Landfill Service
CORPORATION**

MATERIAL SAFETY DATA SHEET

MATERIAL: OSHA 29CFR 1910.1200
PORTLAND CEMENT **DATE OF PREPARATION:** MARCH 2006

SECTION 1 - IDENTIFICATION

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 3 - 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 (10-80)	10034-77-2	see Nuisance Dust PEL	see Nuisance Dust TLV
Tetra-calcium-alumino-ferrite (5-15)	12088-35-8	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/m ³ (total dust) 5 mg/m ³ (respirable dust)	10 mg/m ³ (total dust) 3 mg/m ³ (respirable dust)
Crystalline Silica (Quartz)* (0-1)	14808-80-7	10mg/m ³ /percent silica + 2 (respirable dust) 30 mg total dust/m ³ /percent silica + 2 (total dust)	0.10 mg/m ³
Hexavalent Chromium (measured as chromic acid and chromates)	18540-29-9	(100 mg/m ³)	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).

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

N/A

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.)

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.



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.

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.

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.

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.

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.

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.

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).

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 cement 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).

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MATERIAL SAFETY DATA SHEET

MATERIAL: OSHA 29CFR 1910.1200
POSI-PAK® TYPE P-100 **DATE OF PREPARATION:** SEPTEMBER 2004

SECTION I - IDENTIFICATION

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 conditions 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/m³ 8-hour TWA exposure limit on finish mists.

Melting Point:

Approx. 500° F (260° C)

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

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.

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.

N/A

N/A

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

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.

[REDACTED]

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.

[REDACTED]

N/A

[REDACTED]

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.

[REDACTED]

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

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**EAST CAROLINA REGIONAL MSW LANDFILL OPERATING RECORD
LEACHATE RECIRCULATION LOG**

DAY: _____ DATE: _____ SITE MANAGER: _____

WEATHER CONDITIONS

Wind Speed: _____ Temperature: _____ Other: _____ 24 Hour Rainfall: _____ 24 Hour Snowfall: _____

ACCIDENTS / INCIDENTS:

Accident Report Filed: Yes No

LEACHATE RECIRCULATION

Gallons of leachate added to waste: _____

Location of leachate application: Cell No. _____

Problem Areas:

Seeps: Yes No Other: _____

Corrective action: _____

Comments: _____

Site Operator Notes _____

Location of Active Fill Area: _____

➤ Please complete an operating record for each day, or partial day of operations. Include other operating information such as environmental monitoring points, NCDNR inspections, East Carolina Environmental Staff site visits, etc. USE REVERSE SIDE IF NEEDED.